A NEW HORIZON FOR THE NSSC NETWORK:
Good Practices in Taking
a Systematic and Sustainable Approach
to Cooperation in Nuclear Security

Aleksejus Livsic
Nuclear Security Centre of Excellence at the Border Control Management Board of the State Border Guard
Service of the Republic of Lithuania
Medininkai, Vilnius, Lithuania
Email: aleksejus.livsic@vsat.vrm.lt

Inamul Haq
Pakistan Institute of Engineering and Applied Sciences
Islamabad, Pakistan
Email: inam@pieas.edu.pk

Abstract:

A national nuclear security support centre (NSSC) can help states to sustain nuclear security effectively over time. The International Network for Nuclear Security Training and Support Centres (NSSC Network) was established by Member States of the International Atomic Energy Agency (IAEA) in 2012 to facilitate sharing of information and resources and to promote coordination and collaboration among states with an NSSC or those having an interest in developing a centre. The paper describes the objectives, structure, and history of the NSSC Network and highlights its development and achievements to date. In particular, the NSSC Network members and the IAEA identified several key areas for improvement and undertook a series of actions in recent years to address gaps in its activities and better meet the needs of its members. By taking a systematic and sustainable approach to its development, the NSSC Network has grown to 61 Member States and can now provide support for its members that is more structured, effective, and efficient. The NSSC Network is positioned to embark on a new horizon of advanced development and could therefore serve as a useful reference for other frameworks or initiatives for cooperation in nuclear security to consider.

1.   INTRODUCTION

An effective national nuclear security regime involves the provision of capabilities to prevent, detect and respond to criminal or intentional unauthorized acts involving or directed at nuclear material, other radioactive material, associated facilities, or associated activities. For these capabilities to remain effective over the long-term, they should be developed systematically with sustained coordination among and commitment by relevant stakeholders and competent authorities in the State [1]. Each organization should allocate sufficient human, financial and technical resources to carry out its nuclear security responsibilities and routinely conduct maintenance, training, and evaluation to ensure the effectiveness of nuclear security systems.

In recent years, requests for IAEA support through its Nuclear Security Plan in developing, implementing, and sustaining an effective national nuclear security regime have increased significantly [2]. Based on these requests and drawing from the experience of certain states, the IAEA developed a concept for the establishment and operation of a national Nuclear Security Support Centre (NSSC) as a means to strengthen the sustainability of nuclear security in a state. The role of an NSSC is to support competent authorities, authorized persons, and other organizations with nuclear security responsibilities in sustaining the national nuclear security regime, at both the national and operational levels, through programmes in human resource development (HRD), technical support, and scientific support. In this role, an NSSC also fosters nuclear security culture and enhances national coordination and collaboration among the various competent authorities involved in nuclear security [3].

This paper describes the objectives, structure, and history of the NSSC Network and highlights its development and achievements to date. In particular, the NSSC Network members and the IAEA identified several key areas for improvement and undertook a series of actions in recent years to address gaps in its activities and better meet the needs of its members. By taking a systematic and sustainable approach to its development, the NSSC Network has grown to 61 Member States and can now provide support for its members that is more structured, effective, and efficient. The NSSC Network is positioned to embark on a new horizon of advanced development and could therefore serve as a useful reference for other frameworks or initiatives for cooperation in nuclear security to consider.

2.   ORIGINS AND STRUCTURE OF THE NSSC NETWORK

The first IAEA publication to articulate the concept for establishing a national nuclear security support centre was TECDOC 1734, "Establishing a National Nuclear Security Support Centre," which was issued in 2014. The IAEA had developed a working draft of the TECDOC, however, and had been supporting states with establishment of NSSCs for a number of years prior to its formal publication. Following the first Nuclear Security Summit held in 2010 in Washington, DC, an increasing number of states became interested in the NSSC concept. In response to this interest, the IAEA hosted a topical meeting under the Nuclear Security Plan 2010 – 2013 on the "Establishment of Self-Sustaining Nuclear Security Support Centres" in Vienna, July 2011. At this meeting, the IAEA promoted the concept of a national nuclear security support centre and informed states about the benefits of having an NSSC. Moreover, there was a general consensus among the participants of this meeting that the establishment of a collaborative network for nuclear security training and support centres would be a useful contribution to the IAEA's activities in nuclear security [4].

The following year, the IAEA held another topical meeting from 31 January – 2 February 2012 in Vienna with the objective to formulate the functions, structure, membership, and management of the network. During this meeting, the Member States in attendance agreed officially by consensus with the IAEA to establish the NSSC Network, with the overall objectives to:
-   Promote a high level of nuclear security training and support services as a cornerstone in the development of sustainable national, regional and global nuclear security training and support centres;
-   Facilitate cooperation and assistance activities (including technical and scientific), and to optimize the use of available resources to meet specific needs;
-   Provide scientific support during and after a nuclear security event , upon request, and;
-   Coordinate with other similar initiatives.

In this meeting, the participants formed the following three working groups:
-   Working Group A: Coordination & Collaboration
-   Working Group B: Best Practices
-   Working Group C: Information Management and Other Emerging Issues

The Working Groups are comprised of representatives from the Network members and a designated Working Group Chair and Vice Chair to lead each group. The Network also designates a Chair and Vice Chair to lead and coordinate the Network overall. All of the Chairs and Vice Chairs of the Working Groups and of the Network overall are together referred to as the Network Bureau, which is charged with setting a strategy and coordinating throughout the year on tracking and implementing actions to support the strategy, as agreed by the Network members.

In its initial period, the Network held two meetings per year, an annual meeting open to all IAEA Member States at the start of year and a working group meeting only for Network members in the third quarter of the year. The Network members also decided at this stage that they should share good practices, training material, and other relevant information in between meetings through the IAEA Nuclear Security Information Portal (NUSEC) [5].

After the launching of the NSSC Network, the number of its members grew rapidly from just 20 in 2012 to 49 by the end of 2015. Naturally, the interactions and cooperation between NSSCs around the world also increased as a result of the establishment of the Network; members of this new framework showed great interest in sharing information and benefiting from each other's experience and were eager to engage in discussions at the Network meetings. During this period, the Network effectively raised awareness of the NSSC concept and successfully strengthened dialogue among centres, particularly at the regional level.

3.   IDENTIFYING AREAS FOR IMPROVEMENT

One of the early lessons learned from the early years of the NSSC Network (2012 – 15) was that each NSSC within the Network had a unique experience in its establishment and evolution. The Network members and the IAEA Secretariat found that the NSSC concept had been implemented in many diverse ways by States, since of course each State has different needs that require centres to be developed with various organizational structures, infrastructure, parent organization, scope of operations, and capabilities. While some NSSCs were developed as a single centralized institution, for example, others were comprised of several institutions connected by an enhanced national coordination mechanism. Some centres were established with significant investments in new infrastructure and personnel, and others used existing infrastructure and focused on sharing or enhancing existing resources. Some centres tended to provide training mostly on physical protection of nuclear materials and facilities, while others focused mostly on training front line officers (e.g. police, customs agents) on radiation detection techniques.

The Network and the IAEA acknowledged that any of these institutional models were valid, provided that the centres were still designed to meet States needs in supporting sustainable implementation of national nuclear security regimes through programmes in HRD, technical support, and scientific support. The Network faced considerable challenges, however, directly as a result of this diversity in its membership and in the flexibility that the NSSC concept necessitated, based on the experience of States.

First, between 2012 and 2015, Working Groups A and B had developed an ad hoc paper survey and the IAEA had worked with Working Group C members to create basic institution profile pages on NUSEC to help map out NSSCs around the world and to identify the capabilities of each centre. Because of the diversity among all of the centres, though, the Network had difficulty properly structuring its initial surveys and the institution pages, so these tools produced insufficient, inaccurate, and misleading data. This led to a lack of NSSC Network Members' response to the surveys and little use of the data over time. Since the information gathered was too generic and not properly structured, these tools could not effectively support coordination and collaboration among NSSCs.

The second challenge the Network faced was in identifying common best practices among such a diverse range of centres. Working Group B therefore decided to focus in 2014 – 15 on asking a representative diverse sampling of NSSCs within the Network to develop case studies on their experience in establishing and operating different types of centres, so the Network could begin drawing good practices and lessons learned from these examples. At the same time, as a result of this case study development process, the Network and the IAEA Secretariat realized that for various reasons the IAEA publication TECDOC 1734 could not effectively guide Member States in their efforts to establish and operate an NSSC. The document was recognized to be too generic in certain aspects, while in other areas the document was overly prescriptive, not taking into account need for flexibility based on specific State needs. The TECDOC presented only one institutional model for an NSSC, while States' experience shared through the Network demonstrated that there were many different institutional models that could effectively meet States' needs. There was also a notable imbalance in the TECDOC between the detailed attention paid to the HRD function of an NSSC and the relatively little information in the document focused on technical support and scientific support functions. And lastly, the TECDOC only addressed the establishment phase of an NSSC and didn't sufficiently address the operational phase or the preliminary feasibility phase before the State may decide to establish a centre.

A final major challenge that the Network Bureau and the IAEA recognized after the first few years of the Network's operation was that clearer long-term strategic priorities needed to be identified, planning needed to be improved, and the structure and organization of Network meetings and activities needed to be further optimized.

From 2012 – 2015, the annual action plans of the three Working Groups were occasionally duplicative or contradictory and not always well coordinated or harmonized. Terms of Reference (TOR) for the Network were drafted starting in 2012, but were not finally agreed and adopted by consensus of the members until 2015. The TOR that resulted from such a long deliberation process was somewhat disjointed and featured some changes to the Network structure that were not driven by careful analysis of needs. Working Group C, for example, was changed from its initial scope of "Information Management and Other Emerging Issues" in 2012, to "Promotion of Nuclear Security Training" in the final approved TOR in 2015. This change was driven ostensibly by the lower number of Members in Working Group C and was designed to make the group a more interesting and attractive to new Members. But this change was not driven by a clearly identified need that served an overall Network objective, which ultimately led to some confusion in scope between the Working Groups. Lastly, the Network recognized that most Members were quite active and engaged during the two Network meetings each year, but little activity or progress was made in cooperation amongst the Members in the periods between these two meetings.

It may seem obvious that activities within the NSSC Network should ultimately serve the overarching goal of improving each Member's capabilities over time, which in turn would improve the quality of services that each NSSC could provide to its national stakeholders and to sustaining the national nuclear security regime. In many instances during the initial phase of the Network, however, the activities planned by the Working Groups did not consistently support this goal due primarily to the lack of a systematic and coordinated approach to planning. Sometimes, certain Network activities seemed to serve rather as an end unto themselves and topics and themes for the Annual Meeting were chosen randomly, with no follow-up activities and clear results. All of the above challenges informed the need for more strategic direction and agreed priorities within the Network, and in 2016 a key milestone presented an opportunity for the Network to make course corrections and lay out a clear vision and plan for improvement.

4. IMPLEMENTING A VISION FOR MORE SYSTEMATIC DEVELOPMENT OF THE NETWORK

4.1. Key activities in 2016

4.1.1. *Annual Meeting in Pakistan*

In March 2016, Pakistan hosted the Annual Meeting at its NSSC facilities in Islamabad, which was the first time in NSSC Network history that the Annual Meeting was held outside of IAEA headquarters in Vienna. This provided the Network members with a unique opportunity to see first-hand the significant progress that Pakistan had made in developing its NSSC and to benefit more directly from Pakistan's expertise and experience, thus providing significant added value to the Annual Meeting format. The meeting, however, also featured some key substantive outcomes and achievements that would change the direction of the Network toward more structured and systematic development [6].

In response to the aforementioned areas of improvement identified, the NSSC Network Bureau and the IAEA presented a new vision for the Network at the event in Islamabad. First, the Bureau and the IAEA stated broadly that the Network should be enhanced to become a stronger tool for helping States address their needs in the area of nuclear security sustainability. Second, the IAEA expressed a desire to increase and expand the role of NSSCs in nuclear security training currently performed by IAEA, which would require further development of NSSC capabilities to ensure the appropriate quality of training. Next, the Bureau and the IAEA articulated a need to increase awareness of and better use Network activities to strengthen NSSC capabilities in technical and scientific support, based on States' needs. Up to that point, the vast majority of NSSC Network activities to date had been focused only on training and HRD. Lastly, the Bureau and the IAEA observed that the Network should try to enhance regional cooperation among NSSCs, based on specific regional needs and priorities. Since there was just one example of regular regional collaboration within the Network at the time – the Asia Regional Network of NSSCs (ARN) – there was an obvious need to expand this kind of collaboration.

In order to achieve such an ambitious vision, however, the Network identified the need to pursue the following objectives as a precursor:

1. Develop improved planning, coordination, and outreach tools;
2. Gather better information on NSSCs needs and capabilities, and;
3. Develop more comprehensive guidance for states in the establishment and operation of an NSSC.

4.1.2. *Developing improved planning, coordination, and outreach tools*

To advance the first objective, the Network agreed at the 2016 Annual Meeting to transition away from holding only two short meetings per year. Instead, the Network agreed to hold a longer and more substantive Annual Meeting in Q1 of each year and then supplement this with a meeting just for the Bureau members to discuss the Network's long-term strategy and review progress on implementing the Working Group action plans in Q3. The Network felt that this change would allow for more technical content to be explored at the Annual Meeting, and that it would greatly improve coordination among the Working Groups and facilitate greater strategy development within the Network. Based on the action plans agreed to by the Working Groups at the Annual Meeting, under this new meeting schedule, the IAEA also committed to hold smaller, more focused consultancy meetings or other activities to advance agreed Working Group tasks throughout the year. As a means to increase outreach for the NSSC Network, the Bureau and the IAEA agreed to use every appropriate occasion to promote its activities during important nuclear security related conferences or similar events. Specifically, for example, it was announced that an NSSC-dedicated session would be carried out during the IAEA "International Conference on Nuclear Security: Commitments and Actions," to be held in Vienna in December 2016.

4.1.3. *Gathering better information on NSSCs needs and capabilities*

In support of the second objective, the Network agreed to work with the IAEA to redesign and update the NSSC User Group Page on the NUSEC portal. More significantly, the Network agreed to the work plan of a special Task Force on Development of NSSC Network Information Management Tools. Specifically, the Task Force set forth a timeline of deliverables to develop three new tools:

- an NSSC Database to be hosted on NUSEC, showing NSSC operational status and areas of specialization;
- an NSSC Common Calendar to display and share information on all NSSC-hosted training courses and other events, and;
- a Newsletter to promote the NSSC Network and share non-sensitive information about the activities of its members to a broader external audience.

4.1.4. *Developing more comprehensive guidance for states in the establishment and operation of an NSSC*

Lastly, in support of the third major objective stated at the Annual Meeting, the IAEA committed to work with the Network members to develop more comprehensive guidance on NSSC development in technical areas of nuclear security that may also serve as best practices for establishing and operating an NSSCs. To that effect, the IAEA hosted a Consultancy Meeting on NSSC Infrastructure and Capabilities for Technical and Scientific Support in July 2016 to identify the best practices and lessons learned of the NSSCs providing technical and scientific support services, since this was a recognized gap in the activities of the Network to date. And most significantly, following that Consultancy Meeting, the Network and the IAEA agreed to initiate a revision of TECDOC 1734 to improve it as a reference and resource for States, based on the Working Group B case studies and on other best practices and lessons learned from Network members in establishing and operating a centre.

Thus, 2016 represents the main turning point that marked the start of real improvements to enhance the NSSC Network and consequently to begin strengthening the role and capabilities of individual NSSCs in a more systematic manner.

4.2. **Key activities in 2017**

In 2017, the Annual Meeting returned to Vienna and was expanded to five days, featuring more sessions dedicated technical subject matter and to progress made toward the major objectives outlined in 2016. The rest of the year was highlighted by additional activities to progress with these objectives.

4.2.1. *Initiating the revision of TECDOC 1734*

In 2017, the IAEA and a team of experts from the NSSC Network formally began the process of revising this publication on the establishment and operation of an NSSC and held two Consultancy Meetings in Vienna to lay out the structure and content of the proposed revision. The updated document was intended to provide more detail than the previous version, based on the good practices and lessons learned of States within the NSSC Network, particularly with respect to the provision of technical and scientific support for the sustainability of national nuclear security regimes. The expert team identified the need for developing a broader range of appendices, worksheets, and examples based on the experience of states to be included in the document and put together a plan for drafting these additions. The new document is addressed to senior managers and decision makers responsible for nuclear security functions at the various competent authorities in a State, as well as managers and directors of established or planned NSSCs.

4.2.2. *Deployment of the new NSSC Network Information Management Tools*

The Task Force had made sufficient progress with the IAEA Secretariat in 2016 to roll out the NSSC Database and Common Calendar to be hosted on NUSEC in 2017. The Task Force and the IAEA took the approach of first identifying all possible users of the new tools and then documenting user requirements for these tools. Taking this approach helped the Network to focus on developing only what was needed, and not get stuck in development of extraneous functionality that did not serve a priority requirement. Based on these user requirements, the Task Force developed a structured questionnaire for the Database and a template for entries into the Calendar that all members would complete based on their NSSCs programmes and activities. The IAEA then customized a dashboard for the Database and for the Calendar with search filters to display information that would meet all of the user requirements.

4.2.3. *Development of a long-term NSSC Network strategy*

In the fall of 2017, the Network held its first Bureau Meeting when the leaders of the Network could work with the IAEA to develop a long-term strategy to guide the NSSC Network in continuous improvement and systematic development. First, the Bureau agreed to begin using the new information management tools to identify NSSC needs, demands and capabilities across the nuclear security areas and themes, as well as the NSSC core functional areas (HRD, technical support, scientific support). The needs and capabilities identified through the information management tools will feed into the Annual Meeting objectives, Working Group action plans, and specific and tailored Network activities. These activities will use the guidance and good practices developed and published in the revised TECDOC 1734 as the primary reference. Regional cooperation, INSEN cooperation and cooperation with other relevant initiatives will only be used as supporting tools for the Network in better accomplishing the overall strategy, rather than an end unto themselves. Lastly, the Bureau realized that another important pre-condition for the implementation of the new Network strategy was to reflect the strategy and the Network's vision and objectives for improvement into the official Network TOR.

4.3. Key activities in 2018

4.3.1. *Annual Meeting in Japan*

Carrying on from the strong example set by Pakistan in 2016, Japan hosted the Network Annual Meeting in 2018 at the Integrated Support Centre for Nuclear Non-Proliferation and Nuclear Security (ISCN). Again, this meeting demonstrated the added value of organizing the Annual Meeting outside of IAEA headquarters. Particularly

of note was an interactive technical session on the information security that was developed jointly by ISCN and the IAEA. Importantly, this interactive session was planned because the theme of information security was identified as a possible area of need or gaps within the Network based on analysis of the data in the new NSSC Network Information Management tools. This session provided the Network with an opportunity to benefit from a NSSC Network Member's skills and experience with training in this area and facilitated lively discussions and sharing of experience in an interactive format that the Network had never applied at any previous meeting [7].

The notable success of the Annual Meeting in Japan confirmed that the Bureau and the IAEA Secretariat were on track in implementing the high-level objectives agreed by the Network. As a result of the intensive intersessional work throughout 2017, the Bureau was prepared at the 2018 Annual Meeting in Japan to present and receive support from all of the Network Members on the long-term NSSC Network strategy and to present its first major analysis of the data that had been uploaded into the Calendar and Database.

4.3.2. *Positive impact of the new Information Management Tools*

While the members made gradual progress in 2017 in filling out the new questionnaire and beginning to upload information on training courses and other events in the Calendar, by early 2018 the IAEA Secretariat and the Network could see the positive impact that these tools would bring to the Network. For the first time since its inception, the NSSC Network could say definitively how many centres were in operation and how many were in the planning phase. The Network also very quickly verified that – in line with TECDOC 1734 – the overwhelming majority of NSSCs were being developed as national institutions first and foremost; there are very few centres operating that are focused primarily on regional and international training or other activities. Looking in the Calendar, by early 2018 there were 314 training courses, workshops, and other events uploaded by NSSC Network Members. This quantity of data gave the Network the ability to start identifying certain trends and gaps. While some themes, like security of nuclear material were addressed very often, others seemed underserved, for instance transport security.

Since the tools were well-designed to meet the user requirements of the Network, the members rapidly became more active in populating and using the tools on the NUSEC platform than they had in using ad hoc surveys prior from 2012 – 15. The tools have already greatly improved our understanding of the Network and the status of NSSCs around the world. At the same time, it become obvious that continuous improvement of these tools and deeper analysis will help the Network better identify needs of members and plan activities for the Network.

4.3.3. *New Terms of Reference Adopted to Support the long-term Strategy*

Based on the need identified at the 2017 Bureau Meeting, the Bureau undertook a draft revision of the TOR, with support from the IAEA Secretariat. The TOR was cleaned up to remove outdated or confusing language and to state the overall objectives of the Network and the Working Groups more clearly. The draft revision of the TOR was introduced to the Network members for their review and input at the Annual Meeting in Japan, and the final revision was adopted by consensus of the members through silence procedure in April 2018.

In the new TOR, the NSSC Network vision is "Sustainable nuclear security worldwide" and the mission of the Network is "To contribute to global efforts to enhance and sustain nuclear security through an effective and collaborative network of nuclear security training and support centres. These are supported by the following clarified Network objectives:

- Encourage cooperation and support joint activities among NSSCs;
- Identify and document best practices for NSSCs; and
- Strengthen information sharing among NSSCs [3].

In contrast with the previous TOR, these objectives more directly correspond to the scope of the three Working Groups. The activities that the Working Groups plan are now tied to a clear scope of work, which is distinct to each Working Group and reduces any unnecessary duplication or overlap.

The role of Working Group A (Coordination and Collaboration) is to promote cooperation and support joint activities among NSSCs. The activities of Working Group A include: developing cooperation among NSSCs; regional and sub-regional networks; facilitating and organizing joint activities in human resources development, technical support and scientific support, and; coordinating with other Nuclear Security initiatives and networks, as necessary.

The role of Working Group B (Best Practices) is to identify and document best practices related to human resource development, technical and scientific support. This includes best practices related to: the feasibility determination process for establishing a national NSSC; establishment and operation of various institutional models of NSSCs; effective coordination among NSSC stakeholders, and; continuous improvement and sustainable operational practices.

The role of Working Group C (Information Sharing, Promotion, and Outreach) is to strengthen information sharing among NSSCs and help raise awareness about the training courses and other activities hosted by the Network Members. As a corollary, some of its primary responsibilities are to support development and maintenance of the network database and events calendar on NUSEC, as well as the NSSC Network Newsletter.

4.3.4. *Launching of the NSSC Network Newsletter and Expansion of Regional Groups*

As agreed by the Network Members, with support by the Task Force for the Development of Information Management Tools and Working Group C, the IAEA finally published the first issue of the NSSC Network Newsletter in February 2018 to share information on NSSCs and stories on notable activities and accomplishments of the Network Members. The second issue was published in September 2018.

2018 also marked the official expansion of regional cooperation within the Network. In addition to the ARN, a new regional group was founded, consisting from NSSCs in Lithuania, Ukraine, and Hungary, which is referred to as the HLU Consortium.

4.4. Key activities in 2019

4.4.1. *Annual meeting in China*

Building further on from the strong examples set by Pakistan in 2016 and Japan in 2018, the Annual Meeting in 2019 was hosted by China's State Nuclear Security Technology Center (SNSTC). This meeting confirmed visible progress that the Network has made since its inception in becoming a stronger resource for states. As evidence, the agenda of the Annual meeting fully reflected the long-term strategy and priorities of the NSSC Network. The action plans for all three Working Groups developed at the meeting were based on or in support of the draft revised TECDOC 1734, in combination with data on the needs and capabilities of the Members identified through the Information Management Tools. The activities of the Working Groups are more clearly harmonized and inter-connected, while avoiding significant unnecessary overlap or duplication of effort.

As with the 2018 Annual Meeting, an interactive session was developed and implemented, this time on preventive and protective measures against insider threats – which had been identified as a gap within the Network through analysis of the Information Management Tools. The meeting also featured an in-depth session on the final draft of the revised TECDOC 1734 for Network Members' feedback and informal approval. The IAEA also presented new opportunities for NSSC capability development in key areas, including instructor development courses, Coordinated Research Projects. [8]

The success of the event showed that NSSC Network was embarking on a new horizon of development, in which its activities would be more structured, systematic, technically sound, and effective and efficient in meeting the needs of its members. Network members agreed with the priorities emphasized by the NSSC Network Bureau:

- to continue enhancing the Network's information management tools as an important source for needs and capabilities assessment; to make use of the revised TECDOC 1734 as a the primary technical reference for all Network activities focused on establishing and operating NSSCs;

- to collect and analyze good practices in support of the TECDOC 1734;
- to proceed with implementation of a new technical exchange visit program among NSSC Network Members, and;
- to plan further activities aimed at development of NSSC capabilities in nuclear security technical areas and themes, including through opportunities offered by the IAEA.

4.4.2. Completing the revision of TECDOC 1734

Another important benchmark in 2019 was finalization of the new version of TECDOC 1734. NSSC Network members and the IAEA worked together to improve TECDOC 1734 as a reference and resource for States interested in establishing and operating an NSSC. The new publication provides a clearer step-wise process, based on a systematic analysis of national nuclear security sustainability needs. The NSSC concept is made more flexible and better reflects the real practices and experience of States around the world. Many additional templates and worksheets have been added to assist States in going through the process making application of the document easier.

4.4.3. Further improvements to the Information Management Tools

The Information Management Tools developed by the Task Force significantly improved the Network's ability to plan activities much more strategically and facilitate better targeting of Agency support to NSSCs. However, feedback from the Bureau and Working Group C Members, along with the IAEA Secretariat, indicated that further improvements could be made to optimize these tools. Primarily, the Network realized that the revision of TECDOC 1734 needed to be reflected into the structure of the Database questionnaire so there was a clearer and more direct linkage between the information management tools and revised guidance. Therefore, the second phase of the Information Management Tools development project was launched in 2019 with the view to improve information sharing among NSSC Network Members, review and identify necessary enhancements for NSSC Network Database, NSSC common calendar and semi-annual newsletter.

Two consultancy meetings on the second phase of the Task Force were conducted in 2019 (January and October), with specific tasks - to bring the structure of the Network Database questionnaires into alignment with the improved structure and content of the revised TECDOC 1734, to pilot technical visit in 2019 using the current Database information and enhance search functions with the view to increase usage of the Information management tools.

4.4.4. International Workshop on NSSC Programmes in Security of Radioactive Materials and Associated Facilities

This workshop, held 22 – 26 July 2019 at IAEA HQ in Vienna, was the first such event that the Network and the IAEA had implemented based on specific needs identified through the NSSC Network information management tools and in support of the long-term Network strategy. There were 33 participants from 26 States, all of which were NSSC Network Members. The aim of the workshop was to discuss and exchange good practices and lessons learned from states operating or planning to establish NSSCs with programmes in security of radioactive material and associated facilities. Innovative workshop methodologies were used to achieve the workshop objectives, namely live audience polling and hypothetical scenario-based group discussions. The outcomes of the workshop again proved the necessity to further improvement of the NSSC Network database and calendar harmonizing with revised TECDOC 1734 confirmed the MS need for comprehensive guidance on establishment and operations of the NSSC, and confirmed the effectiveness of the approach to choose particular topic (theme) organizing Network's event as a means to build capabilities [9].

4.4.5. Pilot technical exchange visit

As agreed at the 2019 Annual Meeting, the Network launched a new technical exchange visit programme in 2019. Based on identified needs and expressed interest, a pilot technical exchange visit was conducted between Egypt and Ukraine in July. Experts from the Egyptian Nuclear Security Support Centre visited Ukraine's State Border Guard Service to learn from the country's experience in establishing an NSSC technical support program for the maintenance of radiation detection equipment. The Network plans to build a robust programme of such technical exchange visits starting in 2020, based needs identified through the information management tools and using the revision of TECDOC 1734 as a key reference.

5. CONCLUSIONS: NEW HORIZON FOR NSSC NETWORK

In summary, the NSSC Network was established in 2012 as the primary international framework for cooperation among NSSCs around the world and it was successful at raising awareness and rapidly growing its membership in the first four years. But the growth in these early years was uneven and lacked structure, so the Network Members and the IAEA identified several key areas for improvement. In particular, the Network acknowledged that in order to develop into a more effective framework, it needed to:

- Build a more reliable source of information on the needs and capabilities of NSSC Network members that would finally support meaningful cooperation and coordination among NSSCs;
- Develop more comprehensive and flexible guidance on the establishment, operations and continuous improvement of an NSSC, reflecting a phased and systematic approach;
- Develop a clearer long-term strategy reflecting NSSC Network objectives and priorities, governing its activities and internal steering mechanism.

The Network undertook a series of actions between 2016 – 19 to address these gaps and better meet the needs of its members. By taking a more systematic approach to its development, the NSSC Network has grown to 61 Member States and can now provide support for its Members that is more structured, sustainable, effective, and efficient. The NSSC Network is positioned to embark on a new horizon of advanced development, in which all activities and events will be based on clearly identified needs, contribute to the continuous development of the NSSC Network and its individual members, and be structured to support the long-term strategy and objectives of the Network overall.

The NSSC Network has therefore learned some important lessons that could serve as a useful reference for other cooperation frameworks or communities of practice in nuclear security to consider. First, in order to be successful, the members of such frameworks should clearly articulate a vision, objectives, and a long-term strategy that ideally can be reflected in a TOR or similar document. Second, the development of any information management or IT tools can enhance the effectiveness of such cooperation frameworks, but only if the tools are developed according to well-defined user requirements. Third, documenting good practices among members should be based on an agreed set of recommended technical bases and should be prioritized according to common needs. Finally, any network or framework for cooperation should be systematic in its approach; that is, it should always aim for continuous improvement and ensure that proper mechanisms are in place to solicit feedback and evaluate the effectiveness of its activities over time.

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