

**Establishing National Nuclear Safety
Knowledge Platforms**

DRAFT

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1 About the Platform

National Nuclear Safety Knowledge Platforms (“National Platforms”) are established under the Global Nuclear Safety and Security Network (GNSSN) and serve two purposes:

- 1. Information Area:** First, for **sharing reference information**¹ about the respective national nuclear safety infrastructure with a wider global audience. This part of the National Platforms has an agreed structure and content. It should be made publicly available where possible. The National Platforms can serve national, regional, and global stakeholders as an authoritative source of information, maintained directly by the respective Member State. This Information Area contains information on radiation and nuclear facilities and activities, a Country Nuclear Regulatory Profile (CNRP), general country and nuclear safety infrastructure information, access to country related national and international reports, projects, databases, and legal references, etc.. The entire content is provided on a voluntary basis by Member States.
- 2. Collaboration Area:** Second, as platform for a **wide range of national collaboration and knowledge management activities** with respect to safety of facilities and activities that give rise to radiation risks. This part of the National Platforms has a flexible architecture and contains knowledge built on by communities of practice, coordinating or working groups as well as training or e-learning groups. The platform has shared workspaces for projects, meetings or teams, document management areas with controlled access rights for topical communities and many more. The detailed arrangements are made by the respective Member State to best meet national needs and priorities.

This National Platform responds to a growing need for cross-organizational collaboration and knowledge sharing, which cannot be met by existing internets or intranets.

In line with the GNSSN vision, the National Platform can be an important tool for all Member States, developing or developed, with or without a nuclear energy programme. Different Member States will derive different benefits from their respective National Platform, with

¹ The proposed content structure of the Information Area was developed in such a way that Member States who already have established a National Nuclear Regulatory Portal (NNRP) could easily consider the content of the NNRP to be identical to or a starting point for the Information Area.

the overall objective to contribute – starting on a national level – to global nuclear safety and security.

The National Platform at present primarily addresses nuclear safety knowledge management and collaboration needs. Other platforms might exist for other purposes in other scientific-technical contexts, e.g. for e-learning, for nuclear security or for national sustainable development. These platforms should not be seen in isolation; to the contrary, the underlying web-based infrastructure allows to easily connect platforms, or to open the National Platform for other communities in the future.

This document describes the structure of a National Platform, governance, roles and responsibilities and benefits to Member States. It also includes practical guidance for establishing and using the platform, including IAEA assistance. The intended audience of this document includes all GNSSN stakeholders, primarily the national authorities in charge of, participating in or using the National Nuclear Safety Knowledge Platform.

2 Background

As per the International Atomic Energy Agency (IAEA)'s Statute, one of the main functions of the Agency is *“To foster the exchange of scientific and technical information on peaceful uses of atomic energy”* (ARTICLE III, para. 3). ARTICLE VIII also states that the Agency *“shall take positive steps to encourage the exchange among its members of information relating to the nature and peaceful uses of atomic energy and shall serve as an intermediary among its members for this purpose”*.

Both GSR Part 1 on "Governmental, Legal and and Regulatory Framework for Safety" and the GS-R-3 on "The Management Systems for Facilities and Activities" highlight the importance of nuclear safety knowledge management, collaboration, and capacity building which can both be effectively promoted and advanced through the introduction and consistent use of the National Platforms by a wide range of Member States.

The GNSSN was established to promote and enhance the nuclear safety and security framework, by coordinating the stakeholder activities of global safety and security networks, regional safety networks and national nuclear safety portals. It is a worldwide gateway to sharing nuclear safety and security knowledge and services to facilitate capacity building among its Member States.

The National Platforms are established under GNSSN to support this GNSSN mandate and function. The National Platforms are also an entry page to Member States national web-

based sources that contain relevant information on the nuclear safety and security regulatory and operational infrastructure and may also serve as a resource to manage the national knowledge in nuclear safety and security and help Member States to harmonize national approaches to knowledge management.

In this regard, National Platforms are web-based areas with the ability to use a secure username/password to access customizable content based on specific national interests and needs. This National Platform responds to a growing need for cross-organizational collaboration and knowledge sharing, which cannot be met by existing internets or intranets.

The information available on National Platforms help to explain the roles, responsibilities, and activities of the different nuclear key players within Member States, and how nuclear safety and security regulatory framework is organized in Member States to contribute to improving nuclear safety and security. Member States are encouraged to maintain their respective National Platform and make them available, where possible, to the general public.

3 Objective of this Document

The objective of this document is to describe the National Nuclear Safety Knowledge Platforms (“National Platforms”), established under the Global Nuclear Safety and Security Network (GNSSN) and to provide practical guidance for its use by Member States.

This includes the global and national context of a National Platform, its place within the Global Nuclear Safety and Security Framework (GNSSF) and the Global Nuclear Safety and Security Network (GNSSN) and its potential contribution to nuclear safety knowledge management, capacity building, and international collaboration.

The document describes the structure of a National Platform, including an Information Area and a Collaboration Area, governance, roles and responsibilities, and benefits Member States and the international nuclear community can derive from using the platform.

Management guidance is provided for setting up and maintaining the platform, the role of the IAEA, and examples are included to illustrate the wide range of potential uses, including both to share knowledge and to use it as national and international collaborative tool.

4 Importance of Nuclear Safety Knowledge Management

Knowledge Management in general has been identified as one of the key factors that can contribute to a safe, secure and sustainable nuclear power programme in Member States. Its importance has already been highlighted in several General Conference resolutions, including GC(58)/RES/13.C (2014) on “Nuclear Knowledge Management”², and several IAEA conferences³.

Knowledge management is also of special and high importance for nuclear safety, as reflected inter alia in the IAEA Safety Standards, in the Nuclear Safety Action Plan and in several related International Expert Meeting (IEM) Reports. Knowledge management for nuclear safety has been highlighted in IAEA General Conference resolution GC(58)/RES/10.11 (2014) on “Education, Training and Knowledge Management in Nuclear, Radiation, Transport and Waste Safety”⁴, by the *International Conference on Human Resource Development for Nuclear Power Programmes* (2014)⁵ and by the IAEA/NS Steering Committee on Regulatory Capacity Building and Knowledge Management⁶.

Knowledge management in the context of nuclear safety, however, also poses specific challenges, in that

- securing an adequate knowledge base is legally mandatory for both operators and regulators;
- manifold types of knowledge need to be dealt with (e.g. legal, technical, operational knowledge);
- relevant knowledge might have manifold owners (e.g. regulators, TSOs, vendors and operators);
- a lack of nuclear safety knowledge can have significant implications (i.e. much beyond an undesirable lack of efficient use of knowledge as a commercial resource);

² http://www.iaea.org/About/Policy/GC/GC58/GC58Resolutions/English/gc58res-13_en.pdf

³ Including: IAEA International Conference on Managing Nuclear Knowledge: Strategies and Human Resources Development (2004) and IAEA International Conference on Knowledge Management in Nuclear Facilities (2007).

⁴ http://www.iaea.org/About/Policy/GC/GC58/GC58Resolutions/English/gc58res-10_en.pdf

⁵ <http://www-pub.iaea.org/iaemeetings/cn215Presentations.aspx>

⁶ Renamed from Steering Committee on Competence of Human Resources for Regulatory Bodies at its 6th meeting in November 2014, thereby also emphasizing the growing importance of knowledge management for nuclear safety.

- long timescales need to be considered (e.g. the decision basis for regulatory decisions needs to be kept available); and
- the dual role of regulators, who need to have corporate nuclear safety knowledge themselves, but also be able to make knowledgeable judgements about knowledge the operators have.

The high importance of knowledge and knowledge management for nuclear safety, combined with these specific challenges of managing knowledge in the context of nuclear safety, make dedicated and strong *nuclear safety knowledge management* activities and programmes highly desirable.

4.1 Conceptual Basis

Knowledge management in general has become an established professional discipline in the past decades, on which nuclear safety knowledge management can build⁷. A number of knowledge management approaches and concepts are introduced below, on the basis of which nuclear safety knowledge management will then be introduced.

4.1.1 Knowledge

The “Knowledge Pyramid” illustrates a standard approach to describe the relationship between data, information and knowledge as subsequently higher level entities (to which, on the top, competence, capacity or wisdom are occasionally added):

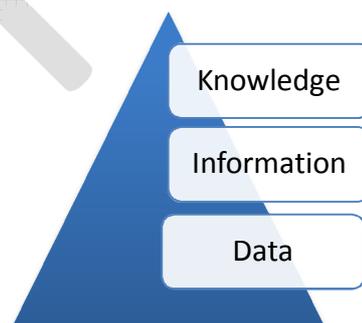


Figure 2: The knowledge pyramid.

⁷ See as introduction for example: http://en.wikipedia.org/wiki/Knowledge_management

When operating with knowledge management in practice, the understanding of knowledge management as “capacity for action” has shown to be a useful amendment. It is based on the understanding that having information is not equal to being able to use it for action, in other words, only knowledge yields “capacity for action”. *“Information only becomes knowledge in the hands of someone who knows what to do with it.”*⁸

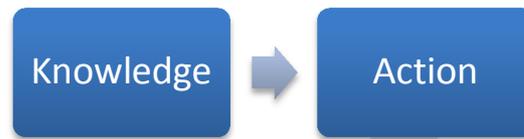


Figure 3: Knowledge as “capacity for action”.

⁸ Peter Drucker (knowledge management professional). This argument could be discussed further, but illustrates the main idea of linking “knowledge” and “action” as terms.

4.1.2 Knowledge management

Manifold uses for knowledge management exist, such as knowledge generation, knowledge sharing, knowledge pooling, knowledge preservation or knowledge transfer. A wide range of tools and techniques is available from the professional knowledge management sector that support or facilitate each of these uses. It is important to understand this wide variety of possible applications of knowledge management, and that knowledge management is not equal to sharing knowledge freely and always; to the contrary, it could also be used to protect knowledge or to restrict access in a structured manner. The following figure illustrates the variety of knowledge management uses:

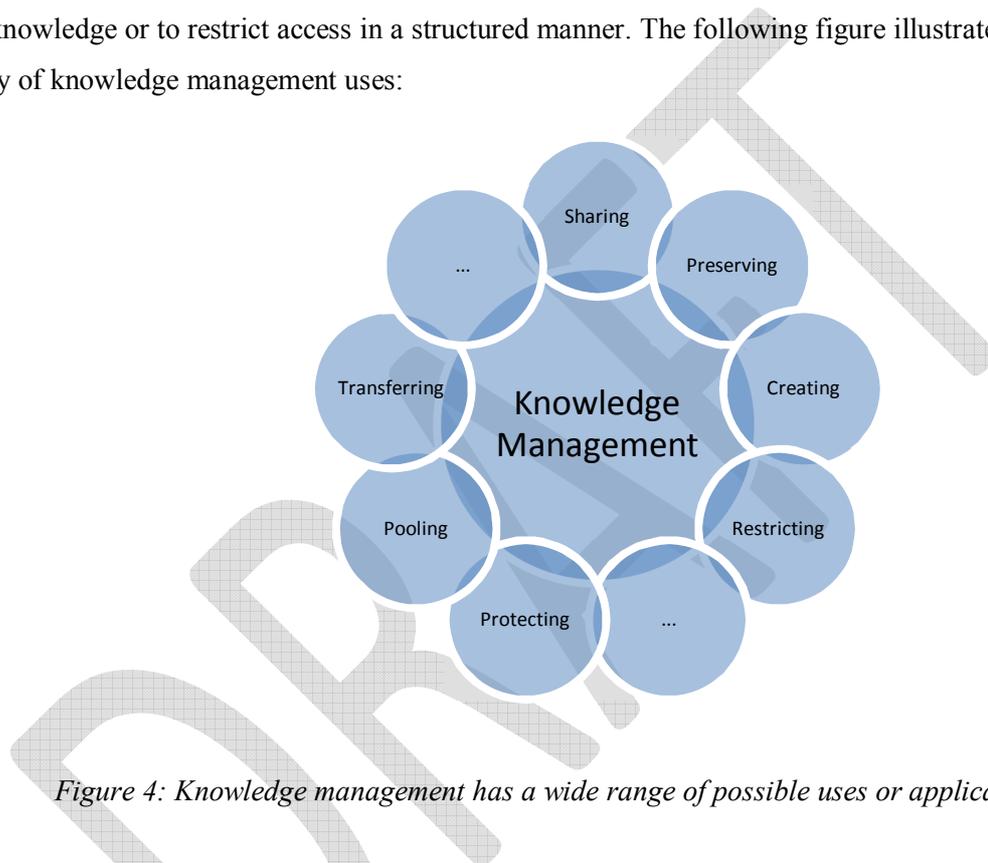


Figure 4: Knowledge management has a wide range of possible uses or applications.

The most commonly used model or description of knowledge management is the “people – process – technology” (PPT) scheme. It suggests that knowledge management should always encompass or address these three essential components, which can be found in any organization or system. The following figure illustrates this holistic approach:

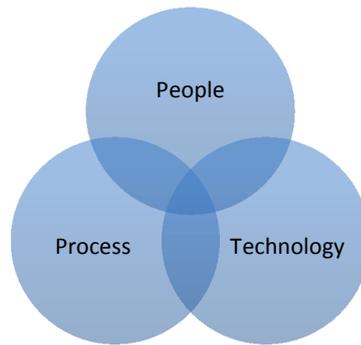


Figure 5: Knowledge management should always address all three components of an organization: people, processes and technology.

Knowledge management, as existing professional discipline today, also appears as having its origins in three different environments:

- “People” – origins in human resource management in larger companies;
- “Processes” – origins in business consulting (mostly performance consulting); and
- “Technology” – origins in the information technology (IT) sector (often driven by progress in available ICT).

4.1.3 Nuclear safety and security knowledge management

On the basis of the fundamental knowledge management concepts introduced above, this document defines Nuclear Safety and Security Knowledge as *“that subset of knowledge owned by an organization, or other entity, that is relevant to or required for nuclear safety and security”*.

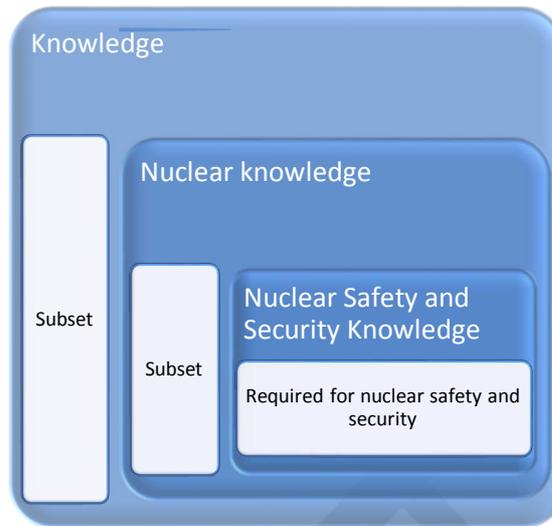


Figure 6: Nuclear safety and security knowledge as subset of nuclear knowledge required for nuclear safety and security.

Examples and explanations for nuclear safety knowledge:

- A regulator has a huge body of knowledge required for daily conduct of business. A subset of this knowledge will be nuclear knowledge, and a subset of this will be nuclear safety knowledge.
- An example of knowledge, but not nuclear knowledge, would be knowledge about the payroll. It is needed for regulatory operation, but is not required for nuclear activities.
- An example of nuclear knowledge, but not nuclear safety knowledge, would be knowledge specific to reactor designs that were developed, but never build or operated. It should be note that this knowledge can nevertheless be of high commercial value.

This publication will focus on nuclear safety and the management of nuclear safety knowledge. On this basis, Nuclear Safety Knowledge Management (NSKM) can be defined as the management of nuclear safety knowledge, or, in full words:

Nuclear Safety Knowledge Management (NSKM)
is the management of knowledge relevant to or required for nuclear safety.

NSKM entails using knowledge management approaches, tools and techniques for the purpose of nuclear safety.

4.2 Levels of nuclear safety knowledge management

The definition of nuclear safety knowledge management is meant to be comprehensive in a number of regards. It should not be seen as limited to nuclear safety of reactor operations, or radiation protection, but encompasses all topics with respect to safety of facilities and activities that give rise to radiation risks, including activities in all relevant scientific and technical disciplines, nuclear installation safety, nuclear transport and waste safety, nuclear radiation protection, nuclear power and nuclear applications, and all knowledge types, e.g. legal, scientific, technical, institutional, operational knowledge.

Nuclear safety knowledge management can and should be applied at several levels: the global, the national, the organizational and the individual level. At each level, specific phenomena, challenges and circumstances exist, which each need to be addressed through a separate programme and usually also by different actors. The following figure illustrates these four levels of nuclear safety knowledge management:



Figure 7: NSKM should be applied on several levels. On each level, unique challenges exist.

Governments have an important role in nuclear safety knowledge management for a number of reasons. Firstly, since nuclear safety is a topic of key national interest. Secondly, because many actors (interested parties) exist at the national level, who should be involved in nuclear safety knowledge management (regulators, operators, vendors, R&D communities, academia, the public, and others), a process that can be effectively supported by governments. Thirdly, because some nuclear safety knowledge management phenomena, such as national human resource development, transnational workforce migration or participation in international activities can best be considered through governmental support.

It is usually at the organizational level, rather than national level, at which detailed knowledge of a particular process or activity resides. Focussing on the relationship between the national and the organizational levels, it should be noted that some individual organisations do already have nuclear safety knowledge management programmes in place. However, these individual programmes might not be connected on a higher level, which might lead to lack of efficiency or effectiveness, friction losses and a risk of segmentation, so that national efforts for nuclear safety knowledge management remain an important future challenge. Governments can play a key role in addressing this challenge at the national level.

5 Benefit of National Platforms

5.1 General Benefits and Features

National Platforms can provide access to nuclear safety information and knowledge to a very wide range of national and international stakeholders in a uniform and structured manner. They have the potential to become one of the most important reference sources for nuclear safety related information and knowledge.

National Platforms offer the following general benefits to all Member States and the nuclear scientific-technical communities:

- **Ownership:** While the National Platform is hosted by IAEA, full control of the national site is given to the Member State.
- **Collaboration:** the National Platform gives users the ability to create online communities to discuss issues and exchange knowledge.
- **Transparency:** the National Platform provides a collaborative environment where views can be easily exchanged between participants.
- **Access control:** Capability to provide access to different areas of the National Platform to specific users or communities. Parties can restrict access to some areas, to allow maintenance of internal deliberations and internal records, while other areas can be opened to other stakeholders to promote collaboration.
- **Resilience:** With a central networking platform that is hosted by the IAEA and used by all interested organizations and stakeholders at a national level, knowledge can be sustained despite changes in personnel or organizational structure.
- **Inclusive:** With the ability to collaborate with stakeholders, the decisionmaking process becomes more open, collaborative, and inclusive.
- **Search:** Quick, robust and accurate search and retrieval capability.
- **Personalization:** Users can personalize their interface within the National Platform, including profiles, notifications, newsfeeds, and the “My Site” feature.
- **Integration:** The ability to present a unified view of corporate information that integrates information from different organizational resources.

- **Cybersecurity:** As the National Platform is hosted under the GNSSN, all information on the National Platforms is subject to the same high level cybersecurity standards of the IAEA.

5.2 Benefits for Member States

Member States can derive different benefits from establishing a National Platform. These benefits depend on the way the National Platform is being used. Most importantly, the National Platform can serve as an effective, standardized mechanism to share national-level information on nuclear safety infrastructure and activities and as a tool for collaboration among national stakeholders as well as international stakeholders.

Member States with established nuclear power programmes might have national collaboration mechanisms already in place. Still, these Member States would benefit from use of the National Platform as a means to share national nuclear knowledge with others as part of their interest to support the global nuclear safety regime. This can easily be done by simply linking the existing national structures to the National Platform.

Member States considering or embarking on nuclear power programmes might not have a collaborative mechanism in place, but would like to build one as part of their national nuclear development plan. These Member States could not only use the National Platform for knowledge sharing, but also take advantage of the platform as a national tool for collaboration, knowledge management, and capacity building.

Member States with no nuclear power programme, but with activities in nuclear applications such as health, food, radiation protection and others, can benefit from the National Platform as an effective mechanism to facilitate nuclear safety knowledge management for those applications.

Finally, bilateral cooperation agreements between Member States can be supported by the National Platform by providing a means for interaction and collaboration among national and international stakeholders in the framework of these agreements. Member States can benefit from the National Platform as an additional means of interaction and cooperation in nuclear safety, including interactions between regulators and TSOs.

6 The National Platforms in Context

6.1 The Global Nuclear Safety and Security Framework

The Global Nuclear Safety and Security Framework (GNSSF) is a basic conceptual structure and a set of guiding principles for achieving and maintaining a high level of safety and security. It is defined as “the institutional, legal and technical framework for ensuring the safety of nuclear installations throughout the world”. The objective of this framework is to lead to a world where all nuclear installations are operating safely” (INSAG Series No. 21). The framework brings together international legal instruments with the national nuclear safety and security infrastructure. GNSSF has been instrumental in promoting, not only nuclear safety standards and security guidance, but also the IAEA peer reviews and advisory missions.

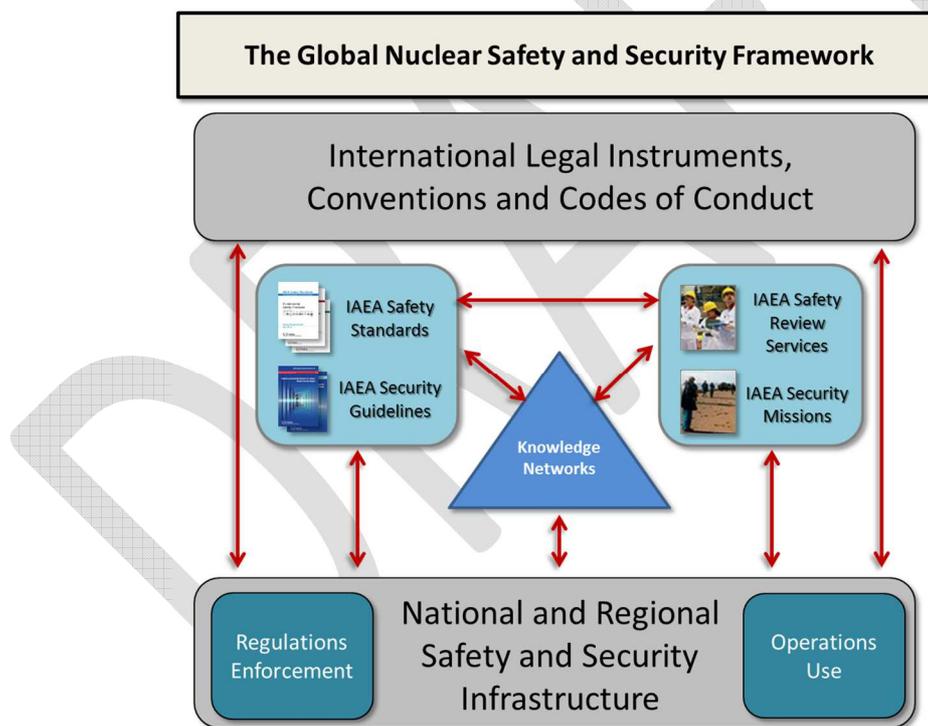


Figure 8: The Global Nuclear Safety and Security Framework.

The ultimate objective of the GNSSF is to strengthen the nuclear safety and security infrastructure, which includes a wide range of elements, as illustrated by the figure below:

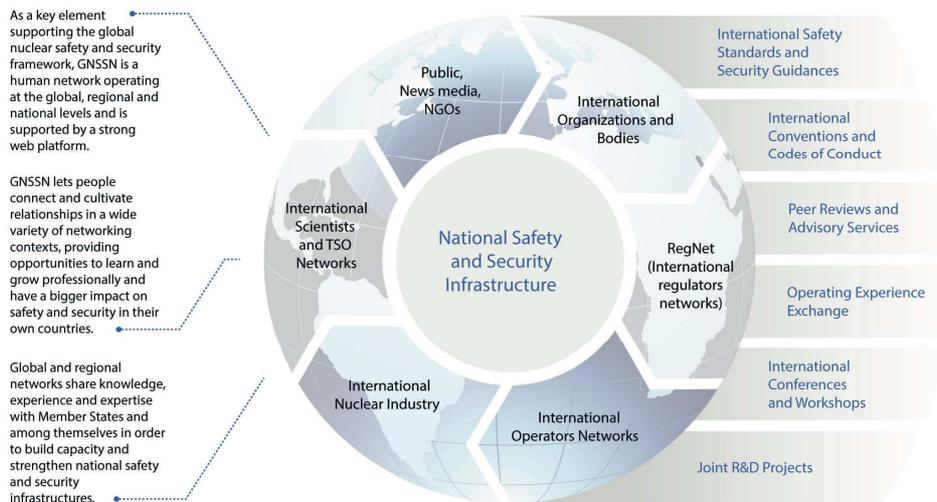


Figure 9: The nuclear safety and security infrastructure.

The cornerstone for implementing GNSSF is the Global Nuclear Safety and Security Network (GNSSN). The GNSSN was established to promote and enhance nuclear safety and security, by coordinating the stakeholder activities of global and regional safety and security networks as well as national nuclear safety knowledge platforms. The GNSSN is a worldwide gateway to sharing nuclear safety and security knowledge and services to facilitate capacity building among its Member States. It provides organizational and IT support for the sharing of information related to initiatives in nuclear safety and security worldwide and encourages countries to take leadership and ownership in driving these forward.

GNSSN provides a robust and comprehensive basis for enhancing global nuclear safety and security, by sharing knowledge, expertise and results at regional as well as national levels and by encouraging international discussion and cooperation. GNSSN has also been instrumental in harmonizing approaches and adopting best practices to achieve sustainable nuclear safety and security infrastructure.

6.2 The National Platforms as Part of GNSSN

The GNSSN mission is threefold.

(1) Nuclear Safety and Security Knowledge Management – Ensuring that relevant knowledge, experience and lessons learned related to nuclear safety and security are managed and shared for the benefit of Member States.

The GNSSN ensures that up-to-date safety and security information, experience and lessons learned are made available, easily accessible and adequately used for the benefit of Member States. It also encourages Member States to disclose and share valuable information, such as experience feedback, with each other and with the Agency with the aim of enhancing global safety and security. It is essential to secure continued access to updated scientific and technical literature in the field of nuclear safety and security as well as to avoid knowledge loss, which can be a threat to safety at a global level.

(2) Facilitate multilateral cooperation and coordination – Enabling and supporting collaboration and interaction between organizations and subject matter experts.

The GNSSN facilitates interconnection among Member States, organisations and other stakeholders which have an interest in or are working in the field of nuclear safety and security. It helps build strategic partnerships and links between governmental entities, such as regulatory bodies, ministries, and other nuclear safety and security related organizations or stakeholders.

(3) Building Capacity – Establish a capacity building framework to support the national nuclear safety and security infrastructure in the Member States

The GNSSN helps increase the wide application of safety practices within the Member States and contributes to strengthening the global nuclear safety regime and nuclear security. The global safety regime relies in part on various international legal instruments, conventions and codes of conduct. Within the GNSSN the use of the IAEA safety standards and security guidelines, as well as of the IAEA safety review services and security missions, are promoted to improve national safety and security infrastructure.

The GNSSN gathers networks and forums with various degree of affiliation with the Agency. Some are IAEA driven networks, such as the thematic networks; others are developed in cooperation with the Agency, such as regional networks like ANSN, FNRBA or ANNuR. The GNSSN also provides access to nuclear safety and security networks entirely external to the Agency that address similar concerns and are comparable in their structure and operation mechanisms (such as WENRA and ETSON).

GNSSN also promotes the development and use of National Platforms. The National Platforms are established and operated directly by the respective Member State and are described in this publication.

6.3 National Platforms Contributing to Global Nuclear Safety

The National Platform should not be considered as an isolated entity. To the contrary, in order to develop its full potential and benefit all stakeholders, Member States should consider their National Platform as a national tool that is part of a global network of similar tools

If set up in this way, each Member State's National Platform will naturally connect to other National Platforms, with due consideration given to national priorities, limitations and confidentiality of information. Ultimately, connections between National Platforms will enable knowledge sharing and collaboration nationally, regionally and globally.

Conversely, each Member State's National Platform can be used for specific national purposes. The National Platform allows connection with national stakeholders and their individual knowledge management solutions and corporate platforms. The National Platform should be set up in such a way that it connects, as appropriate and needed, to the individual corporate systems to achieve smooth interactions and knowledge transfer nationally.

The amount each Member State's National Platform is utilized for national, regional, and global collaboration is ultimately up to the individual Member State.

- National context: The National Platforms serve as a tool to harmonize the national approach to nuclear safety and security knowledge management. By developing the platform, and adapting it to the national needs and priorities, the platform can assist capacity building efforts at governmental, organizational and individual levels. Additionally, the collaboration and knowledge management features of the platform can be used to improve practices and management systems and to share knowledge with regional and global networks.
- Regional Context: GNSSN relies on strong forums and regional networks for discussing regional strategies and policies to achieve a high level of nuclear safety and security in the region. In order to support the development of regional networks, there is a need to further develop the National Platforms to support the efficient collaboration in nuclear safety and security.
- Global context: While some cooperation already exists, mechanisms for global knowledge sharing need to be further enhanced. Member States with established nuclear power programme should be encouraged to further contribute in the thematic committees and technical areas. Further resources are needed to stimulate discussions and provide recommendations while sharing best practices among all network entities. Establishing a comprehensive and robust framework for coordination and harmonization of global strategies and policies pertaining to nuclear safety and security needs to start from building national frameworks of

knowledge management and collaboration. There is a need to build strategic partnerships and links between governmental entities, such as regulatory authorities, ministries, and other nuclear safety and security stakeholders. The purpose of the national platforms in this context is to put in place the foundation for developing an overall capacity building framework, where resources and practices are shared and made available nationally, regionally and globally.

6.4 Nuclear Safety Capacity Building

Capacity building can be understood as a systematic and integrated approach to develop and continuously improve the governmental, organizational and individual competencies and capabilities necessary for achieving a safe, secure and sustainable nuclear power programme. As such, it comprises four elements or areas: education and training, human resource development, knowledge management and knowledge networks.

Each of these elements helps in building capacities at the national, organizational and individual levels. The following figure illustrates this “umbrella approach”:

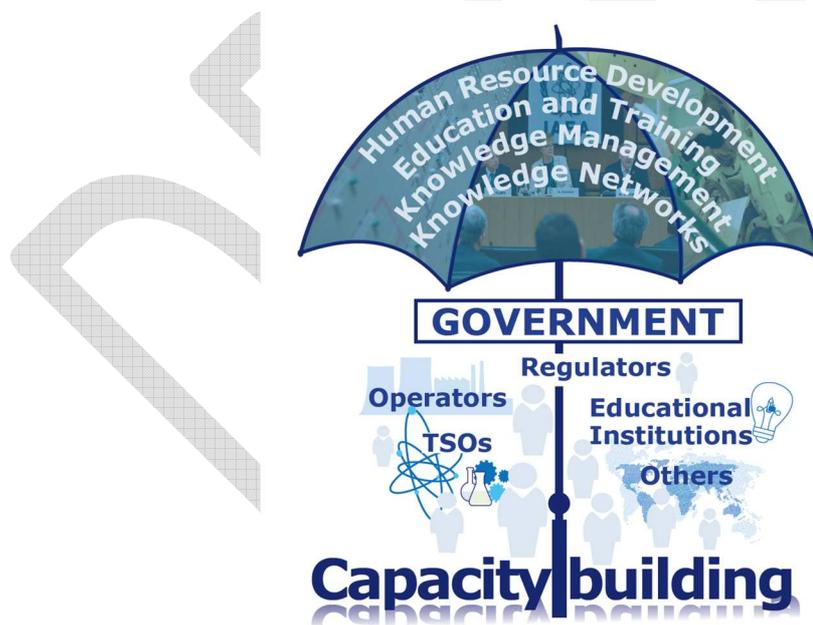


Figure 11: Capacity building – the “umbrella approach”.

When used consistently by a Member State in this context, the National Platform can contribute to sustainable capacity building.

Countries considering or developing a new nuclear power programme have significant and special capacity building needs and will benefit from using the National Platform. Other countries, with or without nuclear power programmes, might want to build capacity in radiation protection, nuclear security or in other areas. In each case, depending on national priorities and circumstances, the National Platform can serve as key and central tool in support of capacity building:

- The National Platform can be used as a central mechanism for capacity building and for technical assistance. Using this platform, a Member State can ensure that all assistance is well coordinated and delivered effectively and efficiently, with no friction losses between and among the many different stakeholders to be involved.
- The IAEA is supporting Member States through capacity building services, which intend to provide guidance on the necessary actions to be implemented. The National Platform can be used effectively in support of capacity building services and serve as a technical support tool throughout the national capacity building programme.
- With this regard, each national platform encompasses an Integrated Nuclear Safety Capacity Building Plan (INSCBP). INSCBP is a tool to monitor the activities being carried on national level in an integrated manner. Use of this tool will avoid duplications and overlapping in various projects and improve efficiency in implementation of capacity building projects in Member States. The INSCBP may also help target the areas that are considered important to safety and where significant efforts are not being made. The tool is based on the twenty functional areas described in the SSG-16 and provides a holistic view of the safety related projects being implemented in a Member State. The INSCBP will help identify the areas where more activities are required for improvement of safety.

6.5 National Nuclear Safety Knowledge Management

National nuclear safety knowledge management has been identified as one of the key factors that can contribute to the safe and secure and efficient operation of nuclear activities and facilities in Member States. The objective of using knowledge management in the context of nuclear safety and security is to improve effectiveness and efficiency in support of both regulatory and stakeholder activities.

The consistent and systematic use of the National Platform, and in particular the collaboration area, as a main tool for interactions between national stakeholders in the area of nuclear

safety can be an important contribution to effective national nuclear safety knowledge management, and thus contribute to overall nuclear safety.

6.6 Human Resource Development, Education and Training

Human resource development and education and training are important components for any nuclear programme, both for nuclear power and for non-power applications.

On the organizational level, human resource development is an integral part of corporate management systems, together with the Strategic Approach to Training (SAT). Individual organizations, including the regulatory body and TSOs, can use the National Platform for internal human resource development and education and training needs, but might also have individual corporate solutions in place.

On the national level, human resource development is a matter of building the workforce to sustain the national nuclear programme, and education and training are key means to do so through university education and training institutions alike. In this sense, the use of the National Platform could yield the greatest benefits, when used in support of various human resource and education and training activities on a national level.

In addition, some activities for national human resource development should inherently be carried out on a national level, e.g. demand and supply analysis for the national nuclear programme, or for reaching out to and connecting academia and R&D institutions as suppliers of human resources and to industry, regulators and other employers as recruiting bodies. For these purposes, the National Platform, or a similar mechanism, should be an integral part of national human resource development.

7 Setting up and Using National Platforms

7.1 Structure

Each National Platform allows for two areas of interaction, the Information Area and the Collaboration Area:

- 1. Information Area:** First, for **sharing reference information**⁹ about the respective national nuclear safety infrastructure with a wider global audience. This part of the National Platforms has an agreed structure and content. It should be made publicly available where possible. The National Platforms can serve national, regional, and global stakeholders as an authoritative source of information, maintained directly by the respective Member State. This Information Area contains information on radiation and nuclear facilities and activities, a Country Nuclear Regulatory Profile (CNRP), general country and nuclear safety infrastructure information, access to country related national and international reports, projects, databases, and legal references, etc.. The entire content is provided on a voluntary basis by Member States.
- 2. Collaboration Area:** Second, as platform for a **wide range of national collaboration and knowledge management activities** with respect to safety of facilities and activities that give rise to radiation risks. This part of the National Platforms has a flexible architecture and contains knowledge built on by communities of practice, coordinating or working groups as well as training or e-learning groups. The platform has shared workspaces for projects, meetings or teams, document management areas with controlled access rights for topical communities and many more. The detailed arrangements are made by the respective Member State to best meet national needs and priorities.

The National Platform should be available in a language, depending on national preferences, and in English (mandatory for the Information Area, for other parts as needed for collaboration and information purposes).

⁹ The proposed content structure of the Information Area was developed in such a way that Member States who already have established a National Nuclear Regulatory Portal (NNRP) could easily consider the content of the NNRP to be identical to or a starting point for the Information Area.

The content should be compiled by using to a maximum extent existing documents and – most importantly – links to existing external resources (homepages of national information sources and institutions) to avoid duplication. This can also help to ensure that all information on the National Platform is up to date.

7.2 The Information Area

The Information Area contains country specific information with a focus on respective national nuclear safety and security infrastructure. This area has a defined structure and content and was developed in such a way that Member States who already have established a National Nuclear Regulatory Portal (NNRP) could easily consider the content of the NNRP to be identical to or a starting point for the Information Area.

Below is given the principal content of information to be included in the Information Area of the National Nuclear Safety Knowledge Platform. It has to be noted, that the depth of information in each National Platform will vary due to differences in the type of nuclear program in place in each Member State.

The architecture of the NNSK Information Area consists of:

(1) The **overview** :

- Information about radiation and nuclear facilities and activities
- Overview on governmental and legislative structure in the MS with respect to nuclear safety
- Overview on structure, responsibilities and functions of the nuclear regulatory body and the system of licensing

(2) The **general country information**:

- National Reports, like
 - CNS Report
 - JC Reports
 - Annual National Report of nuclear safety stakeholder
- Institution, Organizations and other stakeholder with nuclear safety relevance:
 - Government authorities
 - Advisory organizations
 - Expert organizations
 - Groups and interests (NGOs)

- Industry
- Operator of nuclear and radiation facilities
- Research and development organizations
- Geographic information, Maps
- Link to IAEA databases, like
 - CNPP
 - PRIS
 - INFCI
 - NEWMDB
 - RRDB
- Links to information about the Member State in other sources, e.g.
 - World Nuclear Association country profile
 - OECD country profile

(3) Knowledge Base

- Country Nuclear Regulatory Profile (fulfilment of GSR-Part 1 requirements)
 - Responsibilities and functions of the government
 - Global nuclear safety and security regime
 - Responsibilities and functions of the regulatory body
 - Regulatory Knowledge Base (Legislative Pyramid)
- Overview of the Member States activities with the IAEA, incl. information on Review Missions, e.g
 - IRRS
 - INIR
 - OSART
 - WANO
 - Other applicable review missions
- Event Reporting & Feedback
 - Experience Feedback (OEF)
 - Generic Safety Issues (GSI)
- Information about ongoing international cooperation activities

The content of the information area is subject to further development. Member States are encouraged to provide information on other important safety and security topics like:

- transport safety;

- radiation safety;
- waste and spent fuel management;
- nuclear security;
- national education and training;
- projects implemented by international organizations;
- TSOs.

7.3 The Collaboration Area

7.3.1 Effectively managing nuclear safety knowledge

Depending on the need of the Member State, the stakeholders and collaboration activities can be customized to meet national needs and priorities. The collaborative area allows Member States to use their National Platform as an area for exchange of the best practices, lessons learnt, training and education and communication between all stakeholders involved in nuclear science and technologies in general, and nuclear safety and security in particular. Stakeholders can include, but are not limited to regulators, operators, TSOs, NGOs, universities, other government organizations and individuals.

Ideally, the Collaboration Area should be a community of knowledge sharing and management between all stakeholders identified by the Member State: operators, regulators, scientists and educators, federal authorities and any other interested party or organisation. Member States can widen collaboration between all stakeholders, engage in knowledge transfer and outreach, facilitate access to nuclear information and national and international projects, and develop and harmonize approaches and policies for nuclear safety and security. In this regard, collaborative areas can include thematic areas for cooperation, discussion forums for the sharing technical information, education and training material and share best practices.

SharePoint, as the underlying technical infrastructure of the National Platform and the Collaboration Area, offers a wide range of in-built or supported features, which can all, in principle, be used to support Member States' use of the National Platform. These include: meeting management, web content management, document and workflows management, social networking, reporting and business intelligence.

The Collaboration Area can be used to set up access controlled separate sites for a wide range of purposes, communities or topics. These are presented and briefly described below. The

National Coordinator has full owner rights to set up these sites/functions and can delegate the authority for each as appropriate.

7.3.2 National hubs of the GNSSN Learning Management System

The Collaboration Area is set up to also host national hubs of the GNSSN Learning Management System (LMS). LMSs are an integrated approach and tool for syllabus creation, distance learning, e-learning, training course repository management, training enrolment and training history tracking. LMS are used to manage both content and participation in education and training courses, including access rights for teachers and students, course content (video, text, presentations), assessment and credits and collaboration of students and teachers. They have become a common practice in recent years for all education and training purposes and as part of a Strategic Approach to Training (SAT) and can be used both on organizational and national levels.

Under GNSSN, the IAEA established a LMS for use by all Member States for their respective purposes. If a Member State chooses to establish a LMS, it can easily be set up as part of the Collaboration Area of the National Platform.

7.3.3 Communities of practice

Communities of practice are often set up to bring practitioners together who work on similar issues. The Collaboration Area can contain an access controlled site, accessible to a limited number of users, on which the group can share documents, operate joint calendars, share news, connect to each other directly, use blogs or other social media or work jointly on documents. Communities of practice are one of the most widely used and effective means in knowledge management.

7.3.4 Discussion fora

Discussion fora are usually set up for a larger audience on a given topic. They are operated by a smaller group of administrators, who guide or manage the discussions. Fora can include boards for posting messages, reference documentation, a wide range of sub-groups with special interests. The Collaboration Area has all necessary features to establish such discussion fora for individual purposes.

7.3.5 Document management system

A document management system is used to structure, develop and maintain a repository of documents on a given subject or in a given topical area. Such systems are of particular rele-

vance for larger volumes of documents, which might in addition exist in different versions, drafts, formats and layouts. The Collaboration Area can accommodate and has a built in function to manage such systems, including version control, automatic synchronization and search engines for all stored files.

7.3.6 *Websites for teams (Team Sites)*

The Collaboration Area allows users to set up websites for teams (team sites), or websites for individual communities, groups or other entities, with the additional feature to control access to the site, in other words, access could be granted to the general public or to a specific group, for example, to all who have access to the National Platform, or only to participants of a specific national network. A website can contain information about the person or group, including text, pictures, video and other content. Another good use would be websites for participating networks or organizations, or topical websites for specific issues, e.g. on new construction or on nuclear legislation.

7.3.7 *Personal Websites (My Sites)*

National Platform users have the ability to develop a personal site within the SharePoint platform. The “My Site” feature gives National Platform users a central location to manage and store documents, content, links, and contacts. My Site also allows the user to present content and documents to other people, create workspaces for communities of practice, provide information about themselves to other people, and learn about the status of their colleagues. My Site can serve as a point of contact for stakeholders to share and find information about other users skills and interests. Member States can use the My Site feature to provide targeted information to stakeholders based on the content in their My Site.

7.3.8 *Workflow management*

Workflow management is required to effectively work in a team with many members on the basis of agreed business or management processes, which can be set up in the Collaboration Area for a defined set of users, who work jointly on a project. The workflow management function is built in to the SharePoint system and allows users to track, assign, monitor and report on actions being taken in that group along the agreed management processes.

7.3.9 Communication and outreach

While the Information Area of the National Platform presents information about the nuclear safety infrastructure of a given country, other communication and outreach needs can be effectively addressed through the Collaboration Area for specific audiences. Using the Collaboration Area in this way can be an important means of targeted and controlled communication with all interested parties and stakeholders.

7.3.10 Social Networking

Social networking is becoming increasingly important among many professional disciplines as more and more people use social networking to share information and expand their knowledge base. Social networks can provide very powerful collaboration platforms to disseminate information, news and feedback, that are indispensable for knowledge management without much expense.

Social networking tools within SharePoint such as My Sites, and social content technologies such as blogs, wikis, and really simple syndication (RSS), make it easier for Member States to capture and share knowledge and expertise that is needed for capacity building activities. This knowledge sharing encourages collaboration, improves innovation, and targets content to the relevant stakeholders. A good understanding of social networking features implemented in the National Platforms is important to create an effective Collaboration Area and communities of practice.

7.3.11 IAEA Services

The Collaboration Area can support the preparation, conduct and follow-up of IAEA and other capacity building projects, in particular of assistance, review, and appraisal missions and other services. It can do so both in terms of national interactions and with the IAEA if no other area has been established for a mission. When used to share mission related knowledge between mission stakeholders, knowledge sharing and preservation, access for users and long-term stability of knowledge can effectively be addressed through one single venue.

7.3.12 Examples of Collaboration Activities

Below is a list of activities that Member States may consider implementing in the Collaboration Area. Collaboration activities for each Member State will vary and do not need to conform to the list below. The range of collaboration activities utilized in the National Platform will depend on national priorities and needs.

- Create spaces to collaborate with national stakeholders or international experts to develop the regulatory infrastructure for: operating nuclear facilities and installations; materials transportation, decommissioning activities; or uranium mining or milling
- Create spaces to collaborate with national stakeholders or international experts to develop the regulatory infrastructure for health, food, environment, nutrition, medical practices and other industrial applications of nuclear material
- Create spaces to collaborate with national stakeholders on emergency preparedness and response activities
- Create spaces to harmonize national procedures or processes related to nuclear safety with national stakeholders
- Create spaces to track past, current, and future national and international cooperation activities
- Create spaces to solicit interest in assistance or cooperation projects nationally or internationally
- Create libraries to store national and international regulations and legal instruments
- Create spaces to manage national reports or other related KM material
- Create spaces or document libraries for technical information
- Create a media space to announce public meetings or other actions of note
- Create spaces to present targeted information to professional media, primary education or foreign trade communities
- Create spaces to exchange information with regulatory bodies, industry, TSOs, and/or operators
- Create spaces for national stakeholder training activities or initiatives

7.4 Potential stakeholders

It is important to identify all relevant stakeholders when setting up and maintaining the National Platform. The sets of stakeholders to be considered or specifically targeted in outreach activities may differ for the publicly accessible part of the National Platform in which general information about a country's nuclear safety infrastructure is provided and the collaboration area, which can be set up individually to provide defined sets of stakeholders with a protected collaborative workspace.

Stakeholders, in the meaning of users or readers of the National Platform, can be all institutions or individuals interested in nuclear safety related information and knowledge, both within and outside of the Member State.

Stakeholders, in the sense of institutions that collaborate through the the National Platform, could typically comprise all national institutions or individuals that are interested in the national nuclear safety, including, but not limited to the governmental authorities and the national regulatory body, related technical support organizations (TSOs), operators of nuclear facilities and R&D organizations.

The following list identifies potential stakeholders for both the Information and Collaboration areas. For each individual National Platform, this list can serve as starting point to identify stakeholders for specific Member State; a separate analysis of stakeholders to be considered in each National Platform is recommended.

- National authorities, ministries and governmental bodies
- Nuclear regulatory bodies
- Technical support organizations (TSOs)
- Legal institutions
- Commercial institutions
- Nuclear power utilities and operators of nuclear facilities
- Vendors of nuclear technology and services
- International organizations and initiatives
- National, regional or global networks
- Universities, institutions of higher learning and training centres
- Research & Development (R&D) centres
- Nuclear and non-nuclear technical or professional organizations or associations
- Media and interested general public
- Non-governmental organizations (NGOs)

7.5 Roles and Responsibilities

7.5.1 Member States

Each Member State participating in the GNSSN is requested to appoint a National Coordinator. If the Member State has previously nominated a National Contact Point, this individual can continue to serve in the capacity of National Coordinator. However, this is ultimately up to the Member State and a different individual can be nominated for the National Coordinator po-

sition is desired. The nomination of the Coordinator will be communicated to the GNSSN management via official channels. The Coordinator should have the appropriate authority, technical competence, resources and infrastructure to fulfil the responsibilities outlined in the GNSSN governance plan.

7.5.2 *The National Coordinator*

The National Coordinator is the focal point of the Member State within the GNSSN framework, and as such also the responsible official for the establishment and maintenance of the National Platform. In this context, the Coordinator will be responsible for the management and input of relevant information to the National Platform, promote the National Platform among national stakeholders, help relevant national organizations to understand the mission and activities of the of the national site and liaise between the GNSSN management and national stakeholders. The Coordinator may be assisted by additional staff, such as an information technology specialist.

The National Coordinator will be in charge of developing their respective country's National Platform and ensuring that the collaborative tool can be used by interested individuals or organizations as appropriate. It is suggested that National Coordinators should prepare a work plan describing the activities to be carried out under the National Platform and the needed resources to support it.

Desired qualifications of the National Coordinator are:

- As a general rule, a representative of the regulatory body or TSO; if no such entity exists, a representative of a related competent authority is acceptable;
- Working experience with international organizations;
- In-depth knowledge of national nuclear safety and security issues;
- Excellent communication and coordination skills;
- Working level proficiency in English; and
- Capability to work with information systems.

The main responsibilities of the National Coordinator are:

- to develop and maintain the National Platform;
- to promote the use of the National Platform in dialogue with all stakeholders;
- to provide information about the National Platform to the general public, media and interested organizations;

- to serve as interface to the GNSSN and IAEA and as national counterpart for interactions for assistance towards establishing the National Platform
- to authorize content of the Information Area of the National Platform;
- to administer access rights of all users of the National Platform;
- to oversee the development of the Collaboration Area of the National Platform;
- to ensure that the needs and concerns of stakeholders are addressed;
- to ensure compliance with the GNSSN governance plan;
- to set policies and procedures for the management of the National Platform.

Additionally, the National Coordinator can perform technical support and administrative functions such as:

- to serve as the first contact person for users of the National Platform;
- to assist participating institutions in all matters pertaining to their use of the National Platform;
- to oversee content to the National Platform;
- to manage, in technical terms, access rights, templates, user accounts and other IT related items;
- to ensure consistency of all information items on the Information Area with other national information sources through cross-links and regular review.

7.5.3 Users

Users are encouraged to work directly with the National Coordinator to improve the content and collaborative space of the National Platform. Additionally, national stakeholders should work with the National Coordinator to foster cooperation on the national level. National stakeholders are encouraged to appoint a contact person to liaise directly with the National Coordinator to address any issues related to their country's respective National Platform.

7.6 Steps for Establishing a new National Platform

This section contains practical guidance on how the National Platform should be implemented, including management, resources, stakeholders, implementation steps, and technical aspects. It is meant as a tool for appointed National Coordinators, but can also be used by all users of the National Platform.

A Member State's implementation of the National Platform requires a dedicated process to develop the platform itself and maintain the necessary competence and skills of all platform

users. Depending on the intended use of their National Platform, each Member State will have a different implementation process. However, the following steps provide a suggested high-level outline for implementation for all Member States:

The suggested steps below are a basic outline for introducing in the National Platform after the National Coordinator has been appointed by the Member State. Depending on the intended use of their National Platform, each Member State will have a different introduction process. However, the following steps provide a suggested high-level outline for implementation for all Member States:

1. **Nomination of the National Coordinator.**
2. Optional: **Request IAEA assistance.** This assistance could also be arranged in conjunction with step 5 below.
3. **Identification of all potential national stakeholders**, including both viewers and contributors, of the National Platform, both for the Information Area and the Collaboration Area.
4. **Establishment of a National Coordination Group** as institutionalized mechanism for stakeholder involvement.
5. **Establishment of a Support Team** for the day-to-day operation of the National Platform, lead by the National Coordinator. The Support Team could include representatives of interested national organizations, but also experts, communication and IT professionals and support staff.
6. **Preparation of an Action Plan** for introducing and operating the National Platform. The plan should contain
 - a. all stakeholders, including both viewers and contributors
 - b. resources,
 - c. roles and responsibilities,
 - d. content of the National Platform (structure and information sources),
 - e. timelines and milestones and
 - f. action items.

A five year timeframe, with a detailed plan for the first year, is recommended.
7. Arrangement of a **National Kick-off Meeting** with all identified stakeholders.

8. **Outreach and communication activities** to all stakeholders for launching the National Platform.
9. **Periodic Review Meetings** for Action Plan implementation, possibly supported through IAEA assistance.
10. **Populate the National Platform.** The proposed content structure of the Information Area was developed in such a way that Member States who already have established a National Nuclear Regulatory Portal (NNRP) could easily consider the content of the NNRP to be identical to or a starting point for the Information Area.

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7.7 Support and Assistance

7.7.1 The Role of the IAEA

The IAEA supports Member States in establishing and maintaining the National Platform in a number of ways:

1. the IAEA offers assistance to all Member States interested in establishing a National Platform;
2. the IAEA hosts and maintains the necessary underlying IT infrastructure of the National Platform, including servers and SharePoint software, if needed;
3. the IAEA maintains a technical help centre for all National Platforms, in support of the work of the National Coordinators;
4. the IAEA arranges for exchange of information among National Platform users and appointed National Coordinators to share best practices and lessons learned;
5. the IAEA issues guidance publications for use by Member States.

7.7.2 Technical infrastructure

The IAEA will be responsible for the technical infrastructure of the National Platform as well as for SharePoint server administration. This includes:

- platform configuration management;
- coordination and information exchange with National Coordinators;
- IT security of the platform;
- periodic backups;
- development and dissemination of operational guidelines; and
- management of webspace.

7.7.3 Training

The IAEA has established a Help Centre for the contributors to the National Platform including relevant materials on national site development. In addition, a training programme is being developed to train the National Coordinators and stakeholders on how to use the collaborative features of the SharePoint-based platform to enhance the flow of information, and to exchange experience and lessons learned between the national stakeholders.

The course will cover how to structure the team sites, how to organize the flow of information, and the process for updating the content of the respective country's National Platform.

In addition, National Platform websites will be reviewed and proposals for improvements will be made and actual content updated. During the training courses a comprehensive overview on the National Platforms and its applications will also be provided.

7.7.4 Additional Technical Guidance

Technical guidance for the day to day operation of the National Platform in terms of using information and communication technology will be provided to the National Coordinator by the IAEA upon nomination.

7.7.5 Assistance through the IAEA Technical Cooperation Programme

Through its technical cooperation (TC) programme, the IAEA helps Member States to build, strengthen and maintain capacities in the safe, peaceful and secure use of nuclear technology in support of sustainable socioeconomic development.

The programme supports human resource capacity building activities, networking, knowledge sharing and partnership facilitation, as well as the procurement of equipment. Human resource capacity building is provided through expert missions and meetings, fellowships and scientific visits, and special training courses focusing on the safe and effective use of peaceful applications of nuclear energy and nuclear technology. In addition, the IAEA organizes regional and interregional workshops, and supports national workshops.

Member States eligible to receive assistance through the IAEA TC programme may receive targeted support for the establishment and maintenance of their National Platform, upon request and in line with established TC programme planning mechanisms.