Possible Modes of Establishing Nuclear Security Technical and Scientific Support in Member States Intending to Launch or Expand Nuclear Power Programs

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Background

- **CPPNM-1980 with a narrow scope - applies to nuclear material used for peaceful purposes while in international nuclear transport.**
- **Does not apply to nuclear materials used for military purposes or to those used for peaceful purposes but not in international transport**
- **Does not apply to nuclear facilities**

Background

- **INFCIRC/225 Rev-4 to cover the gaps of CPPNM, the scope of this document was enhanced in 1998.**
- **The recommendations contained in INFCIRC/225 are intended to apply to the physical protection of nuclear material in use, storage and transport, whether domestic or international and whether peaceful or military.**
- **Also contain provisions to the sabotage of nuclear facilities and nuclear materials**

A Robust Nuclear Security Infrastructure

A robust nuclear security infrastructure comprises of effective ability to prevent and detect and respond to:

- **theft,**
- **sabotage,**
- **unauthorized access,**
- **illegal transfer or**
- **other malicious acts**

involving nuclear material, other radioactive substances or their associated facilities

Enhanced Nuclear Security Regime

- **UN Security Council Resolutions:**
  - Resolution 1373 (28 September 2001) calls on Member States to work together urgently to prevent and suppress terrorist acts including through increased cooperation and full implementation of the relevant international instruments relating to terrorism.
  - Resolution 1540 (28 April 2004): Affirms that proliferation of nuclear, chemical and biological weapons as well as their means of delivery constitutes a threat to international peace and security and it is necessary to initiate appropriate and effective actions against any threat to international peace and security

Enhanced Nuclear Security Regime (cont…)

- **International Conventions**
- **Revised CPPNM**
  - The Convention on Physical Protection of Nuclear Materials (and Facilities)-CPPNM and its amendment, are aimed to establish and maintain world-wide effective physical protection of nuclear material used for peaceful purposes (while in use, storage and transport) and of nuclear facilities used for peaceful purposes.
  - Article 2A of the CPPNM aims to establish, implement and maintain an appropriate physical protection regime applicable to nuclear material and nuclear facilities under the jurisdiction of States.
  - While implementing the amended CPPNM States shall apply 12 Fundamental Principles of Physical Protection

Fundamental Principles of Physical Protection

A: **Responsibility of the State**

B: Responsibilities During International Transport

C: Legislative and Regulatory Framework

D: Competent Authority

E: Responsibility of the License Holders

F: Security Culture

G:Threat

H:Graded Approach

I: Defense in Depth

J:Quality Assurance

K:Contingency Plans

L:Confidentiality

Enhanced Nuclear Security Regime (Cont….)

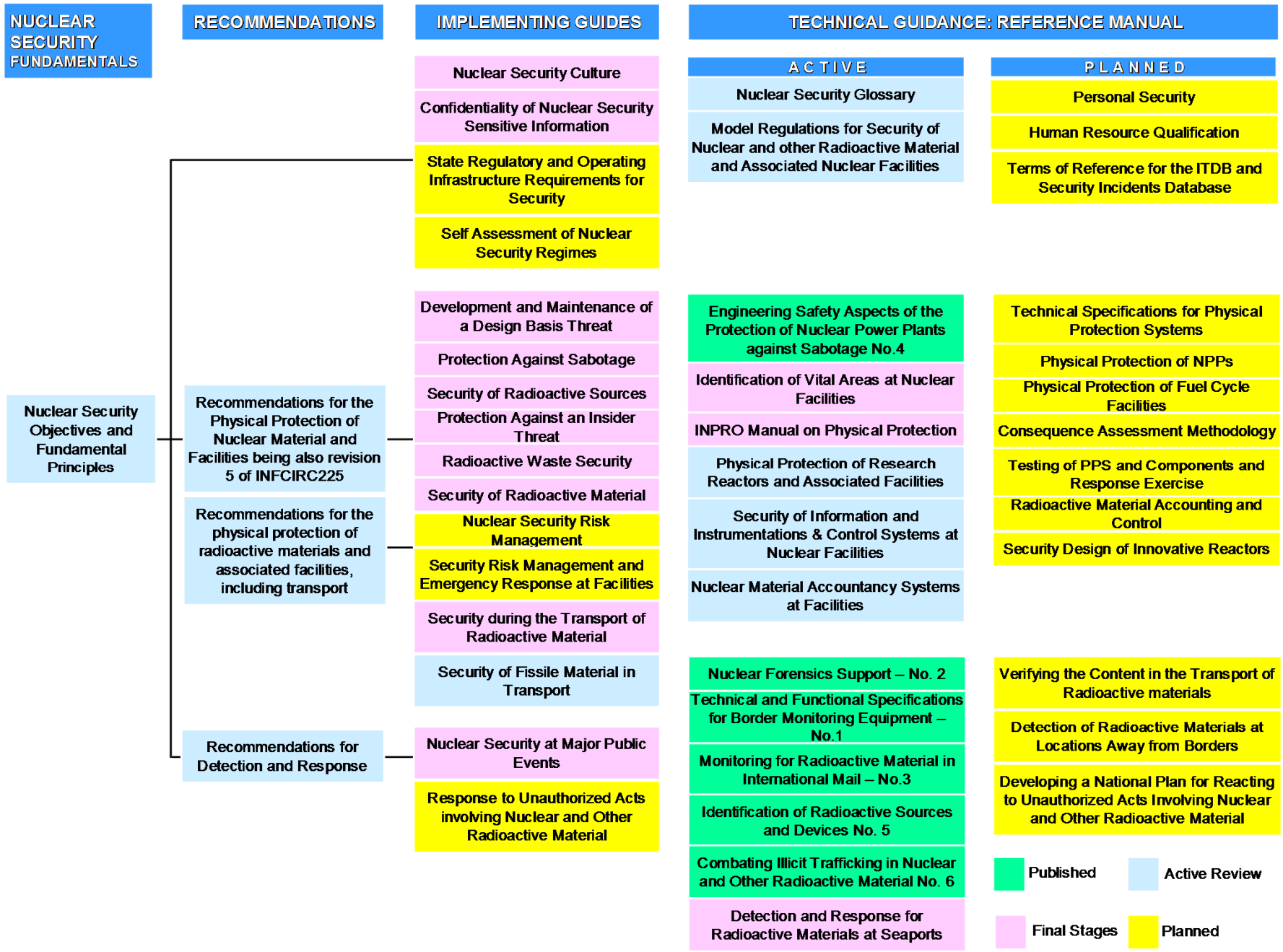
- The International Convention on Suppression of acts of Nuclear Terrorism (2005) deals with nuclear material & other radioactive substances, also the devices (IND, RDD) and acts intended to pose a state of terror in the general public.

- Article-8: For the purpose of preventing offences under this convention, State Parties shall make every effort to adopt appropriate measures to ensure the protection of radioactive material taking into account relevant recommendations and functions of the IAEA

Enhanced Nuclear Security Regime (Cont…..)

- IAEA Documents:
  - Revised INFCIRC/225
  - a set of recommendations for the physical protection of nuclear material in use, storage and transport whether domestic or international for peaceful purposes. Contains the requirements for recovery of stolen material and mitigation of sabotage consequences.
- CoC on Safety and Security of Radioactive Sources and supplementary guidance on the Import and Export of Radioactive Sources

Nuclear Security Series Framework November 2007



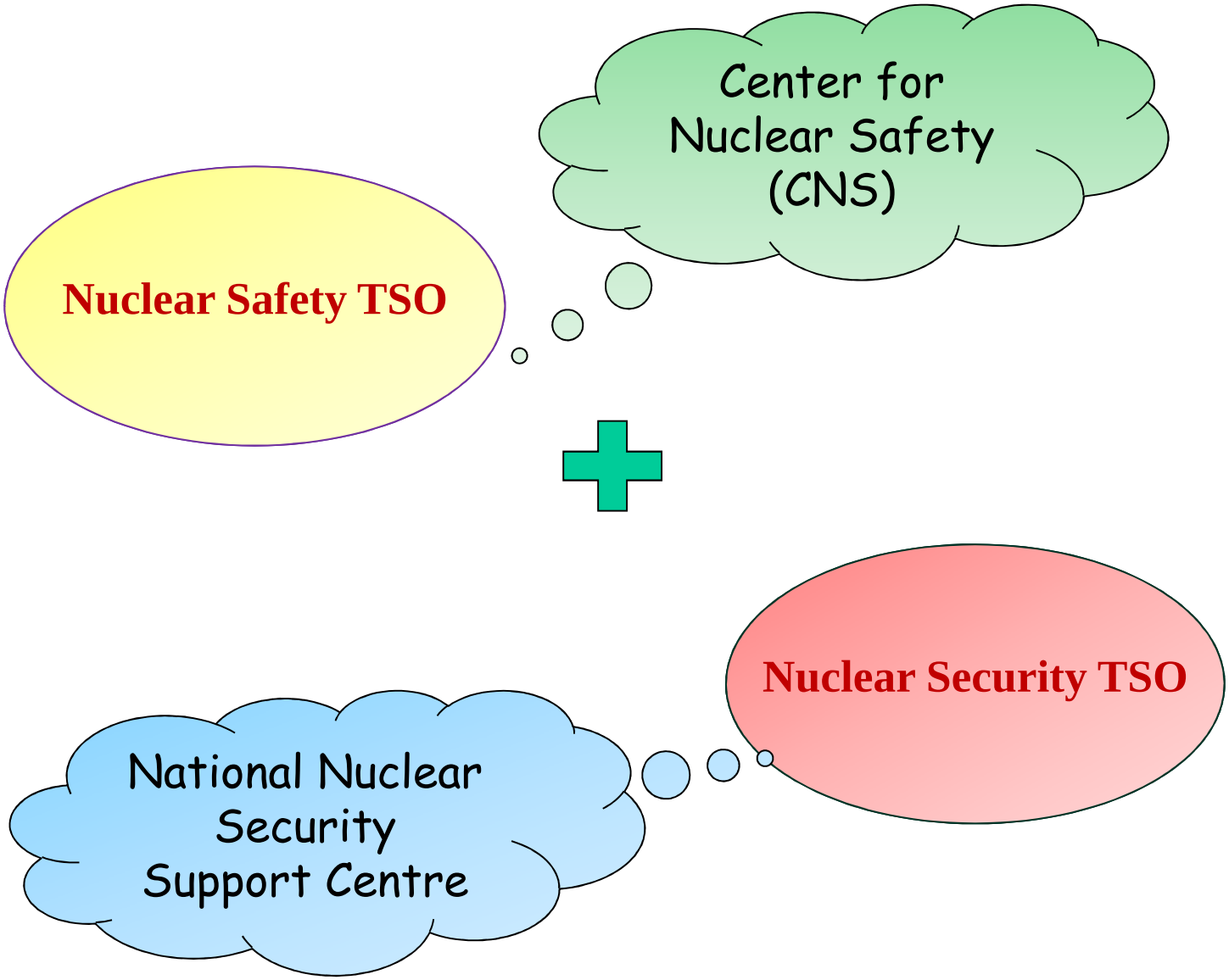
Concept of a TSO

- **Technical and scientific support organizations (TSOs) support national regulatory bodies and the nuclear industry by providing the expertise necessary to make optimum safety and security decisions. TSOs may be:**
  - **National**
    - **A building block of a regulatory body**
    - **A separate organization**
  - **Regional**
    - **Countries having modest nuclear or radiation activities may share resources to join and establish Regional TSOs**
  - **Virtual**
    - **Dedicated team of experts without any one Central Location**

- **IAEA can help Member State to develop its own Roadmap for a sustainable infrastructure in nuclear security**

- **Example of IAEA helping Pakistan**

TSOs in Pakistan



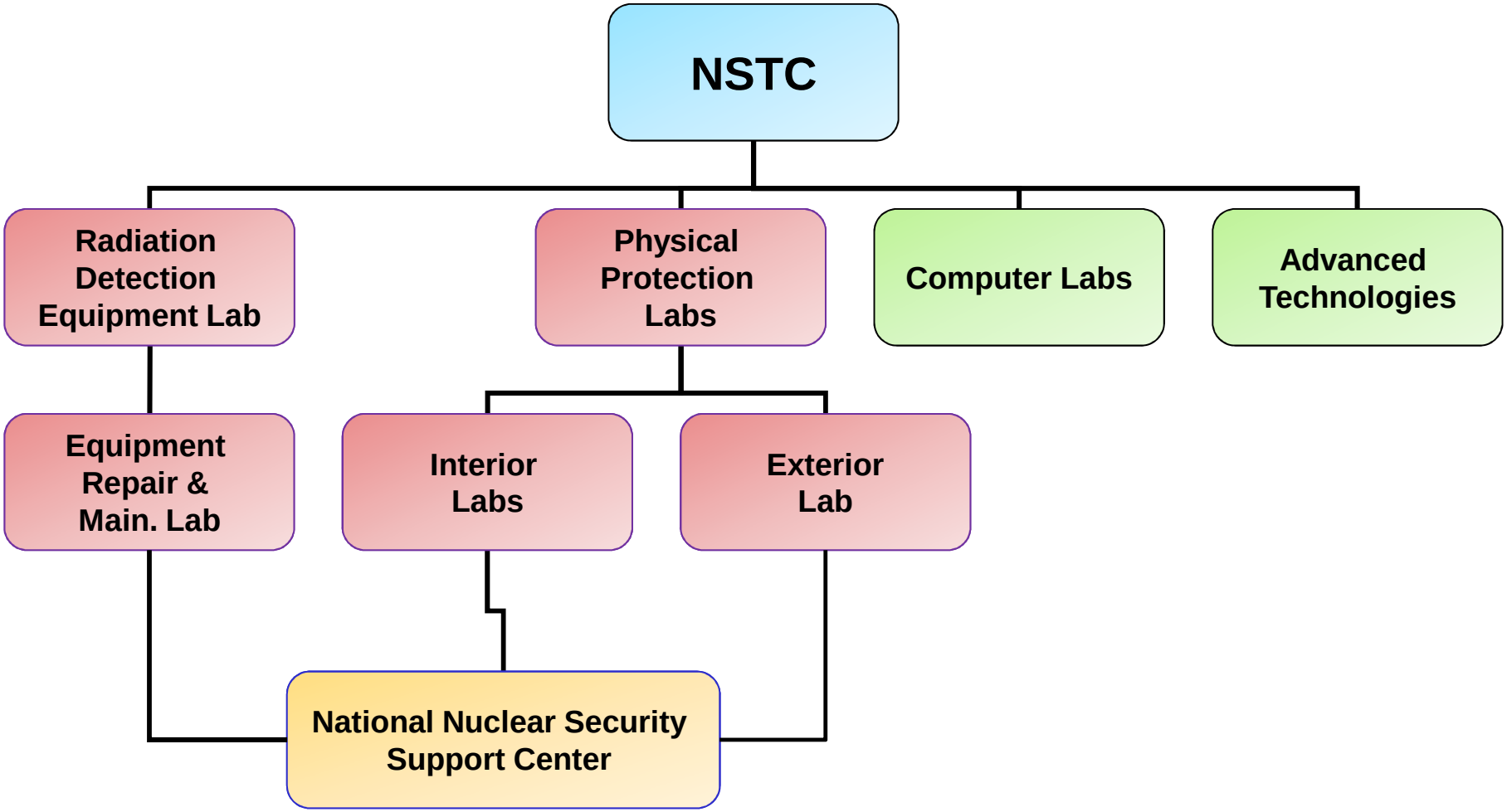
Nuclear Safety TSO

The Centre for Nuclear Safety (CNS) established in June 2005 as a Technical Support Organization (TSO):

- **To provide technical support in safety review and licensing decision making to different directorates of PNRA in relationship with safety issues of NPPs**
- **To perform independent audit calculations and conduct safety research and development work in different areas of safety analysis**

Detail is in the Poster Presentation

Nuclear Security TSO in Pakistan-An Example



Example of IAEA help to Pakistan

Nuclear Security Action Plan (NSAP)

Focus Areas of NSAP:

- **Management of High Activity Radioactive Sources, evaluation of vulnerable facilities and supporting the efforts to upgrade security measures**
- **Establishment of Nuclear Security Training Centre**
- **Nuclear Security Emergency Co-ordination Centre (NuSECC)**
- **Locating and Securing Orphan Radioactive Sources**
- **Provision of radiation detection equipment at certain entry/exit points**
- **Ensure physical protection of nuclear material and nuclear facilities**

Functions of Nuclear Security TSO-Pakistan

- Give expert opinion on detection analysis, radiation doses, protection techniques, etc
- Preventive maintenance of the equipment and troubleshooting techniques for the best use of radiation detection equipment
- Assist the stakeholders to procure, test and deploy the best radiation detection equipment.

Functions of Nuclear Security TSO-Pakistan cont…..

- **Provide expert support on detection of nuclear and other radioactive materials, identification of radioisotopes, response to nuclear security incidents, etc.**

- **Provide trainings to stakeholders on specific nuclear security areas**

- **Serve as a focal point for sustainable and continued access to knowledge, skills and abilities of individuals to contribute productively to the comprehensive nuclear security regime.**

Nuclear Security TSOs for 'NEWBUILDS' & 'EXPANSIONISTS'

- **Regulatory Body should be responsible for the oversight of not only safety but also the security**

- **Regulatory Body should develop coordination with relevant organizations in the country**

Nuclear Security TSOs for 'NEWBUILDS' & 'EXPANSIONISTS'

- The Regulatory Body should develop a National Resource Center for training of own staff, utility and related organizations and develop a link with IAEA for free flow of information and know-how

- The Four-Quadrant Formula and IAEA Nuclear Safety & Security Standards can provide the basis for the proposed Resource Center

- Security considerations must be considered from the stage of site evaluation onwards

Nuclear Security TSOs for 'NEWBUILDS' & 'EXPANSIONISTS'

- The organizations involved in the implementation of nuclear security regimes should give due consideration and priority to the security culture, its development and maintenance

- The nuclear security regimes are heavily dependent on the quality management system aiming to promote confidence that specified requirements for all activities important to nuclear security are satisfied

Conclusion

- There is growing need to establish nuclear security TSOs.
- These TSOs may be within the regulatory body or separate organization
- provision of technical support services in nuclear security is important to solve the specific problems of the individuals and organizations.


Thank You