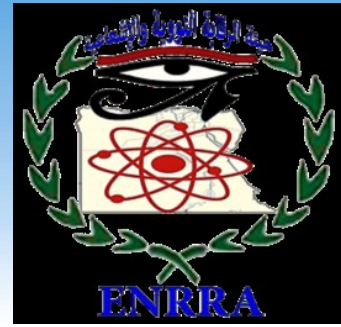




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# **A Proposal for the Role of Nuclear Security Support Center to Sustain a National Nuclear Security Regime**

**Training and Capacity Building Academic Session**

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# Outlines

- **Introduction**
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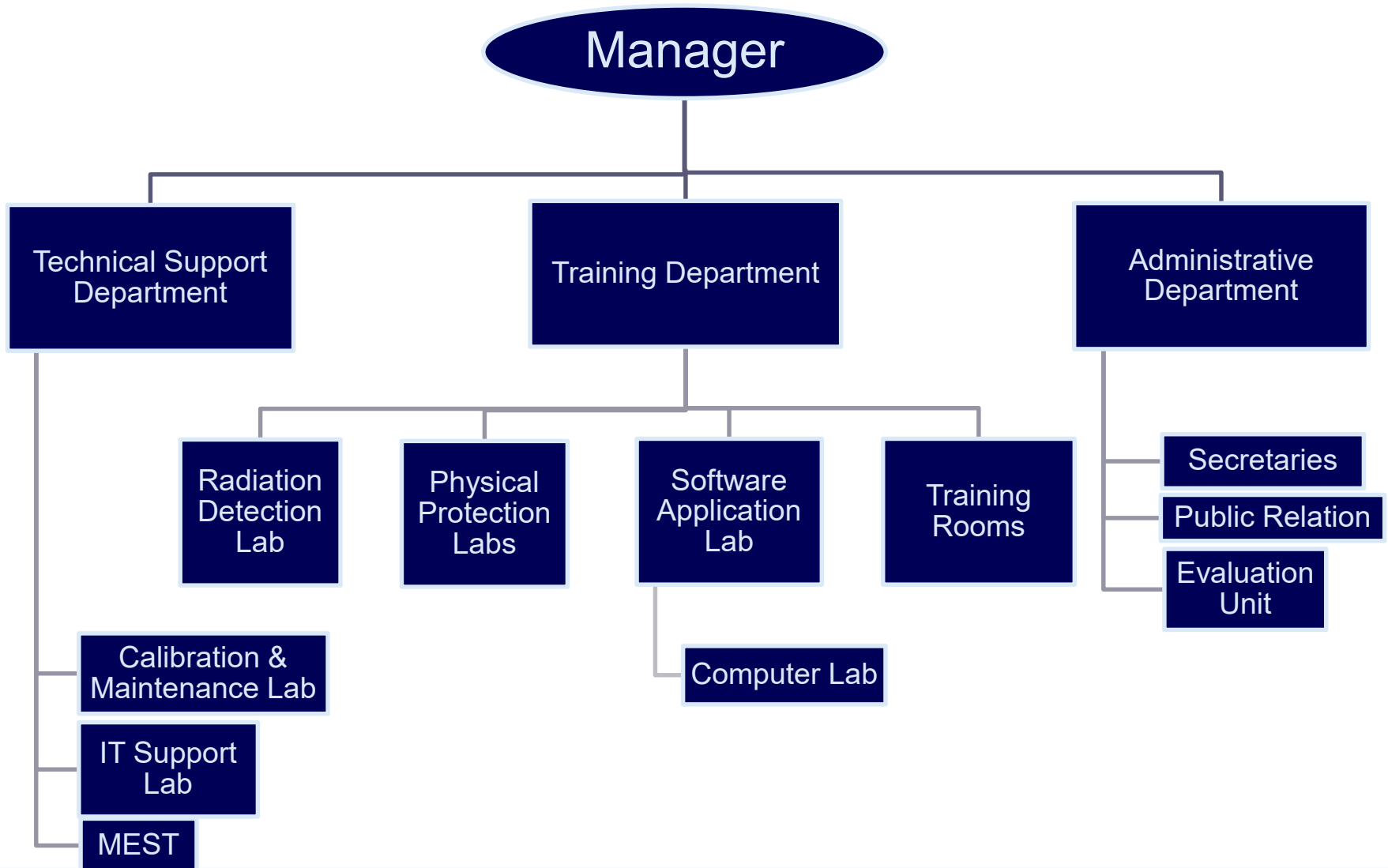
# Introduction

- **Effective nuclear security requires the provision of capabilities to prevent, detect and respond to a criminal or an unauthorized act with nuclear security implications, involving nuclear or other radioactive materials**
- **This can be reached through establishment of sustainable security systems and human resources development through establishing sustainable technical and scientific support service at the nuclear security support center (NSSC).**
- **This center can combine high level technical and scientific expertise to assess alarms, alerts and evaluation of any nuclear or radioactive materials founded and building capacity in human resources devolvement (HRD)**
- **HRD program train the newcomer persons with special training courses for physicist and engineers inspectors. Also these courses contains theoretical and practical training.**

- **This train within limited time (how many hours per course), qualified instructors, and also evaluation (facility, courses, instructors, student) and test in the end of courses in order to qualify them and prepare them in various types of inspections (for example inspector and reviewer for physical protection system).**
- **The risk that nuclear or other radioactive material could be used in terrorist acts is regarded as a serious threat to international peace and security. The nuclear security detection architecture should integrate the nuclear security systems and measures needed to implement a national strategy for the detection of nuclear and other radioactive materials out of regulatory control.**
- **ENRRA depends on that basic scientific research infrastructure in the field of peaceful uses of atomic energy that started at the 60's to provide the needed HR in different fields but requalification program is needed.**
- **ENRRA officially established the ENSSC in 2012 to provide national training and technical support services and to promote nuclear security culture within competent authorities and relevant stakeholders in nuclear security.**

- **The ENSSC training programme has expanded in each of its first four years of implementation, in particular in 2015 and 2016 for provision of national courses in detection and response for different stakeholders.**
- **IAEA assistance in developing the ENSSC, including provision of physical protection and radiation detection equipment and provision of relevant training programme development support.**
- **The Role of Nuclear Security Support Center to Sustain a National Nuclear Security Regime to provide education and training programs for enhancing awareness of nuclear security and non-proliferation, improvement of the physical security system for detection and response to nuclear and other radioactive materials out of regulatory control by development of national technical support centers namely supporting and facilitating the devolvment of sustainable human resources through the provision of national nuclear security training programmes and providing technical support services for lifecycle equipment.**

# NSSC organizational Structure



# Nuclear Security Scientific Expert Support

- The NSSC consists of administrative department, training department, technical and scientific support service department.
- The training department prepares the strategic plans and the annual operational plans of the center, also develops the mechanisms of the work of the center on the scientific basis through the preparation and design of the training programs of the center, based on the provision of scientific studies and research
- This section consists of the following laboratories:
  - Radiation Detection Laboratory, which aims strengthening the technical capacities of the parties concerned with nuclear security and training on different detection equipment's.
  - Physical Protection Laboratory aims to train on various physical protection devices, Provide technical support to the operators of nuclear facilities in the field of physical protection (Access Control Systems Lab, Intrusion Detection Systems Lab, CCTV lab, Facility Mock-up for PPS Demonstration) and also train the internal staff .
  - Computer Lab



## **Nuclear Security Scientific Expert Support(Cont.)**

- **Technical and scientific support service department consists of the following laboratories:**
  - ❑ **Laboratory repair and maintenance devices to assist stakeholders in developing design specifications and procurement of equipment related to nuclear security**
  - ❑ **Computer lab provides technical support and direct follow-up to all the different sections of the Center with all computer requirements and information technologies. As well as analyzing and programming any work that the center departments requires, also follows the calculated programs for electronic training.**
- **The national technical support centers play a key role in the characterization of suspected nuclear and radioactive materials by scientific expert support**

# Role of the Center

- The primary role of the training center is to provide education and training programs for enhancing awareness of nuclear security and non-proliferation based on the Systematic Approach to Training (SAT).
- This program divided to two categories depend on the job of employees at organization and qualifications.
  - Basic training program, required for all employees.
  - Advanced training program, focuses on specialized or technical skills training.

where after this training, the inspector is able to conduct physical protection inspections in nuclear and radiological facilities.

- Sharing of best practices on the implementation of nuclear security is one of the major roles of the center.

# Proposal for Training Courses and Workshops

|    |   |    |   |
|----|---|----|---|
| 1  | Advanced Detection Equipment for Front-Line Officers and MEST           | 19 | Physical Protection Inspections at Nuclear Facilities   |
| 2  | Design Basis Threat   | 20 | Physical Protection of Nuclear Material and Facilities  |
| 3  | Detection and Response – Techniques & Coordination                      | 21 | Physical Protection of Nuclear Material and Facilities (advanced)   |
| 4  | Nuclear Security Detection Architecture                                 | 22 | Physical Protection of Research Reactors  |
| 5  | Development of a Mobile Expert Support Capability                       | 23 | Preventive and Protective Measures Against Insider Threat   |
| 6  | Information and IT Security   | 24 | Protection of Nuclear Facilities against Sabotage   |
| 7  | Information and Computer Security Basic Awareness for Nuclear Security  | 25 | Radiation Detection Techniques for Front Line Officers  |
| 8  | Information and Computer Security: Advanced Topics for Nuclear Security | 26 | Radiation Detection Techniques: Team Leader Training  |
| 9  | Conducting Computer Security Assessments                                | 27 | Radiation Detection Techniques: Train the Trainers  |
| 10 | Physical Protection Detection System Performance Testing                | 28 | Security in Transport of Radioactive Material   |
| 11 | Introduction to Nuclear Forensics                                       | 29 | Security of Radioactive Sources   |
| 12 | Radiological Crime Scene Management                                     | 30 | Security Management and Security Plans for Radioactive Material and Associated Facilities                 |
| 13 | Major Public Events   | 31 | Security of Radioactive Sources - Train the Trainer   |
| 14 | Nuclear Forensics Methodologies   | 32 | Use of Nuclear Material Accounting and Control for Nuclear Security                                       |
| 15 | Essential Elements of Nuclear Security                                  | 33 | Vulnerability Analysis of Physical Protection System  |
| 16 | Nuclear Material Accounting and Control (NMAC)                          | 34 | Train the trainer course on "physical protection of nuclear material and nuclear facilities"              |
| 17 | Nuclear Security Awareness: Nuclear Security Infrastructure             | 35 | International Physical Protection Advisory Service (IPPAS) (for host countries' representatives)          |
| 18 | Nuclear Security Culture  | 36 | International Physical Protection Advisory service (IPPAS) (for potential team members of IPPAS missions) |

# Role of the Center (Cont.)

- The center can play a role in preparing national front liner officer for detection and response to nuclear and other radioactive material out of regulatory, which the center containing mobile support teams that can provide support to responders.
- Also the role of center can participating in preventing nuclear security events which combine high level technical and scientific expertise.
- As well as education program provide guidance for universities and other academic institutions (signed MoU) for a Master of Science programme and a certificate programme in nuclear security.
- Organizing regional & international Relevant Nuclear Security Activities.

# Recommendation

- **The importance of establishing national nuclear security support centers that aim at building-up a team of highly qualified and well trained nuclear security personnel and, at providing specific technical support required for effective use and maintenance of instruments and other nuclear security technical systems, as well as providing scientific support for the detection of and the response to nuclear security events in a country.**
- **Necessity to enhance global nuclear security by developing, sharing and promoting excellence in nuclear security education (Collaborative development and sharing of educational resources (textbooks, lecture slides, data sets, exercises).**
- **Execution of e-learning modules and seminars for promote nuclear security culture in different orgs.**
- **From a sustainability perspective, experience providing capacity building training on nuclear security, of an ongoing effort to monitor trainers after their selection through a train-the trainer process, to ensure that they are well-qualified to provide the desired training.**

- **The center can serve as a unique forum for exchanging technical experience, sharing best practices, developing training courses, and promoting technical collaboration to enhance nuclear security at national level.**
- **Improve the national security courses which focus on physical protection, nuclear security culture and other topics, by using video and audio training aids and other tools.**
- **The importance of establishing national nuclear forensics laboratories and development of a national nuclear-forensics library.**
- **Enhance effectiveness of the training by provide a practical training environment for experience-oriented and interactive lessons on nuclear security through a virtual experience of observing the inside/outside of a nuclear facility (Virtual Reality System).**

- **Ensuring proper infrastructure for maintenance and timely supply of spare parts and regular upgrades of hardware and software to stay up-to-date of technological developments and conduct the routine and scheduled testing to sustain equipment and installed systems.**
- **Necessity of a continuous financial support for the NSSC in order to ensure and sustain equipment and installed systems in the area of physical protection and nuclear security detection.**



# Conclusion

- **Nuclear security education and training centers can play a central role in enhancing security culture.**
- **The centers have additional roles such as: a place for sharing best practices, a center for R&D and technical support.**
- **It is essential for these centers to cooperate in order to improve their efficiency and effectiveness as well as to minimize the duplication of resources.**
- **The human resource development the main pillar for sustaining a national nuclear security regime.**



**Thanks for your attention**