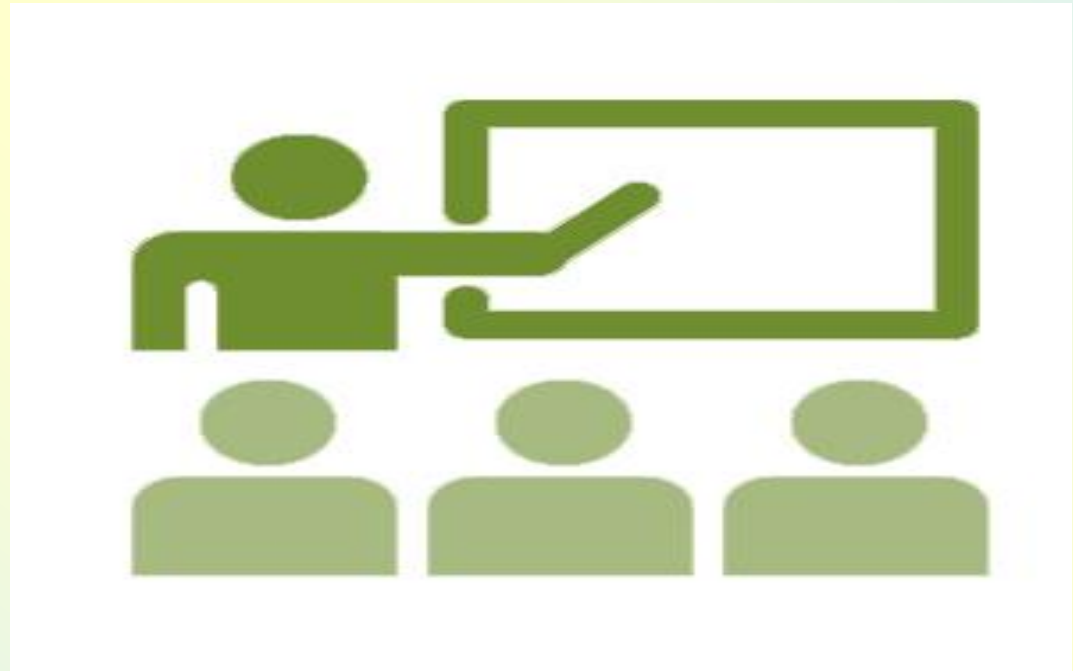


Capacity Building in Nuclear Security Education and Job Specific Trainings in Pakistan

Speaker:
Ishtiaq Ahmad



Pakistan Atomic Energy Commission Islamabad

Presentation Overview

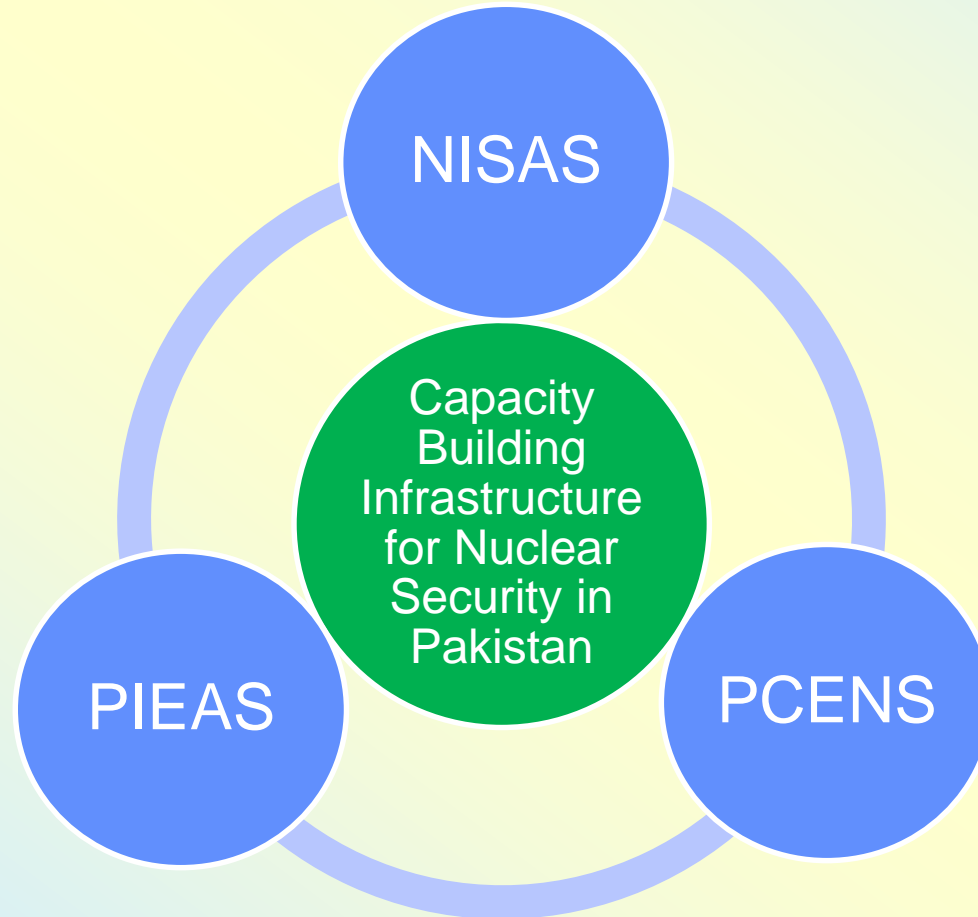
- Introduction
- National Institute of Safety and Security (NISAS)
 - ❖ PPIL
 - ❖ PPEL
 - ❖ Overview of Nuclear Security Trainings at NISAS
- Pakistan Centre of Excellence for Nuclear Security (PCENS)
- Pakistan Institute of Engineering and Applied Sciences (PIEAS) –Educational Laboratory
- Conclusion

Introduction

- Education and training play a pivotal role in the development and up-gradation of overall security system
- Nuclear Security education and training in Pakistan has been designed and delivered for awareness of employees involving in various activities of nuclear power programme, nuclear medical centers, agriculture centers and food industry etc.
- The paper describes a program which is implemented in Pakistan for capacity building of personnel in the field of nuclear security focusing on job-specific trainings which is effective and can be used as a training module for nuclear security trainings

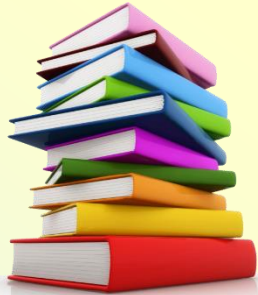
Introduction (Contd....)

Centre of Excellence (CoE)



Introduction (Contd....)

Features of the Infrastructure



Up-To-Date
Syllabus



Work in
Collaboration



Class-Room
Environment



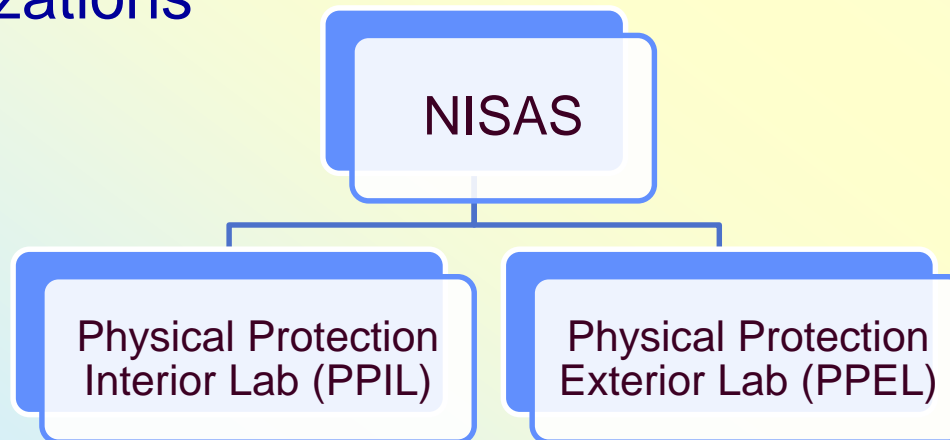
Sophisticated
Classroom Accessories



State of the Art
Laboratories

National Institute of Safety and Security (NISAS)

- To enhance capabilities for effective regulatory operations
- Imparts training, knowledge and skills to newly recruited officers, as well as, arranges refresher courses for the existing staff
- Training courses for participants of other organizations



Physical Protection Interior Lab (PPIL)

Nuclear Power Plant Major Equipment Model Lab

- NISAS is equipped with a Lab having NPP major equipment cutaway models.
- The models are replica of major equipment/ systems and prepared at reduced scale for demonstration purposes.
- The trainees are briefed about major equipment; manufacture, functionality, security by design characteristics etc.



Physical Protection Interior Lab (PPIL) Contd...

Access Control System (ACS) Lab

- Consists of wall mounted ACS panels
- For example, one of the panels consists of a reader, occupancy sensor, CCTV camera, egress switch and a miniature door with magnetic lock and sensor
- Readers with different combinations
- Stand-alone ACS: face recognition system, hand geometry reader, X-ray Package scanner etc.



Physical Protection Interior Lab (PPIL) Contd...

Intrusion Detection System (IDS) Lab

- Wall mounted panels
- To demonstrate characteristics of various IDS gadgets
- The lab also has ceiling mount sensors, sensors on glass windows and walls
- Some sensors used at exterior applications such as fence associated sensors and the free-standing sensors



Physical Protection Interior Lab (PPIL) Contd...

CCTV System & Mock Up Model Lab

- The lab is equipped with CCTV display monitors, storage server and other accessories
- A number of cameras are installed in corridors, hallways and entrances
- Cameras with built-in IR illuminator, Dome cameras
- A mock-up model which shows different security zones of a hypothetical NPP



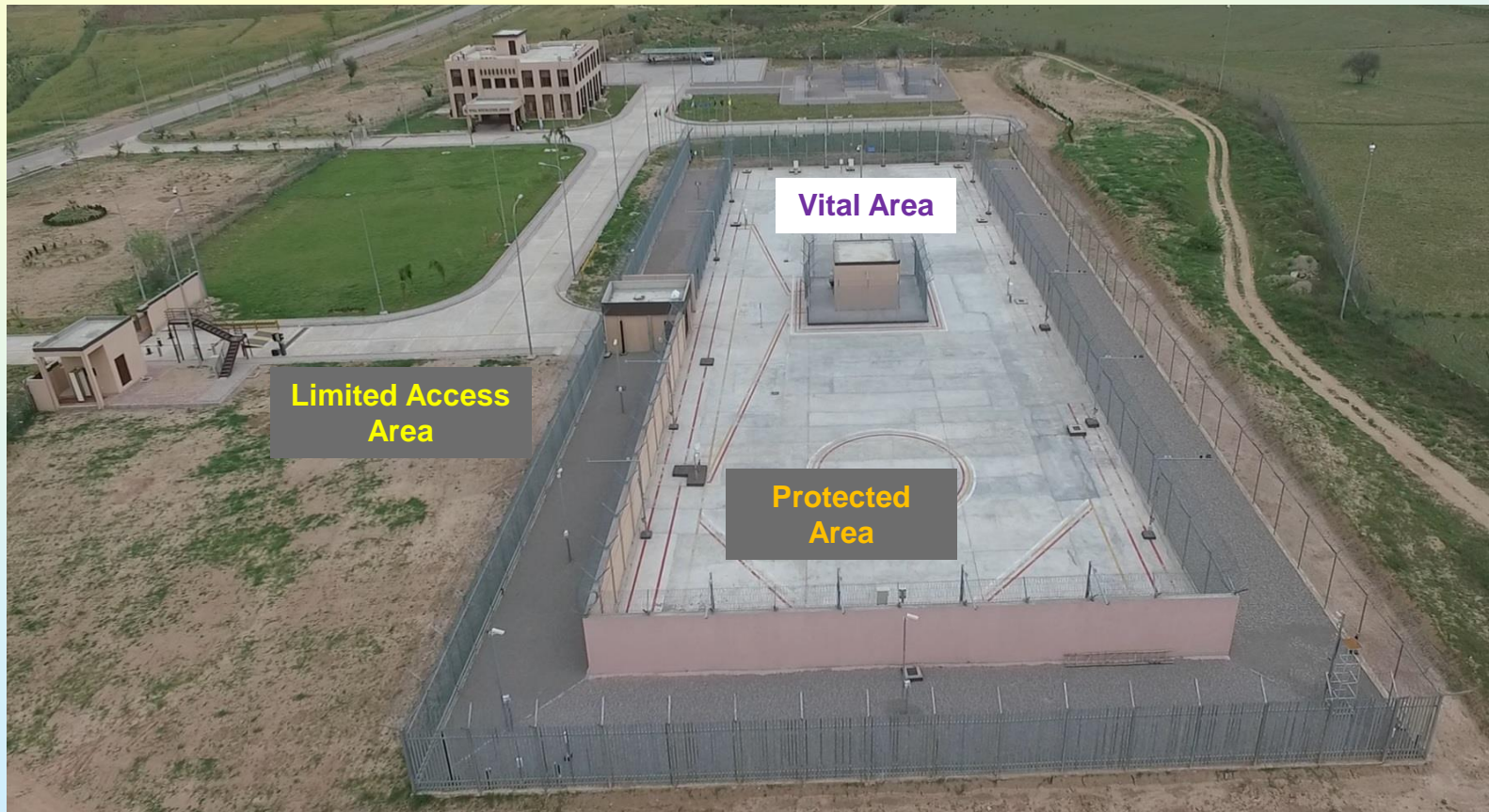
Physical Protection Exterior Lab (PPEL)

- Sophisticated physical protection technologies used in exterior applications
- Hands-on training of national and international participants
- To enable participants to design, install, operate and integrate various security systems

IDS	Vehicle & Pedestrian ECPs
ACS	Vehicle Barriers
Isolation Zone	Pedestrian Barriers
CCTV Systems	Fence Testing Bed
UVSS	Lighting System

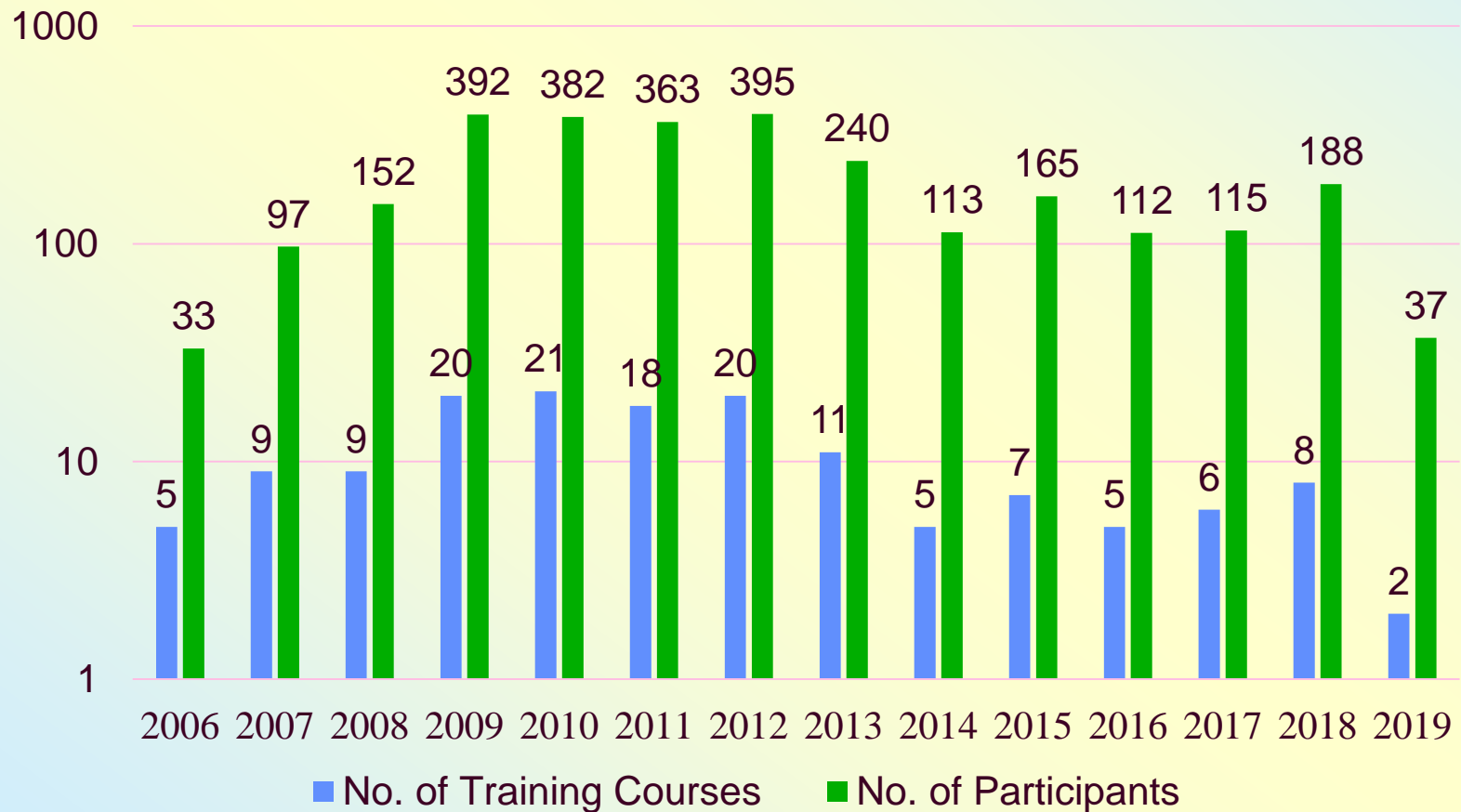
Physical Protection Exterior Lab (PPEL) Contd...

Designed to replicate a Nuclear Facility



Overview of Nuclear Security Trainings at NISAS

Overview of Nuclear Security Training Courses



Pakistan Centre of Excellence for Nuclear Security (PCENS)

- Established to train dedicated security force with a focus on security, intelligence, counter-intelligence and technical training
- Regional and international hub for education in the field of nuclear security
- It has so far trained over 12,000 personnel in the field of nuclear security

Pakistan Centre of Excellence for Nuclear Security (PCENS) Contd...

Protective Force and Physical Protection

- Security Soldier Basics
- Quick Response Force
- Special Response Force
- Basic Level Physical Protection
- Design Basis Threat
- Vulnerability Assessment and Performance Testing, and
- Security of Radiation Sources, etc.

Security and Intelligence

- Security Familiarization
- Intelligence Familiarization
- Nuclear Security Culture
- Cyber Security, and
- Counter-Intelligence, etc.

Pakistan Centre of Excellence for Nuclear Security (PCENS) Contd...

Material Control and Accounting

- Intrusion sensing
- Alarm assessment
- Alarm communication
- Entry control
- Radiation monitoring, and
- Inventory verifications etc.

Delay and Response

- Passive and active barriers
- Engagement
- Communication to response force
- Deployment of response force
- Threat neutralization
- Human Reliability Programme (HRP), and
- Transportation of nuclear material, etc.

Pakistan Inst. of Eng. & Applied Sciences (PIEAS): Educational Lab

- The third entity that affiliates into the integrated capacity building infrastructure of Pakistan
- PIEAS is a No. 1 engineering university on HEC ranking in Pakistan
- Under the IAEA-Pakistan Nuclear Security Cooperation Programme, PIEAS has developed a physical protection laboratory
- This is an educational laboratory intended for master students of PIEAS

Pakistan Inst. of Eng. & Applied Sciences (PIEAS): Educational Lab Contd...

- As sub-specialty of MS Nuclear Engineering, PIEAS in close collaboration with NISAS (PNRA) offers various courses for students
- The ultimate target is to establish an independent and dedicated department for nuclear security master degree programme for national, regional and international students
- The lab offers concept-demonstration of the operation and working principles, maintenance, hands-on training and practical exercises on available technologies and physical protection equipment

Pakistan Inst. of Eng. & Applied Sciences (PIEAS): Educational Lab Contd...

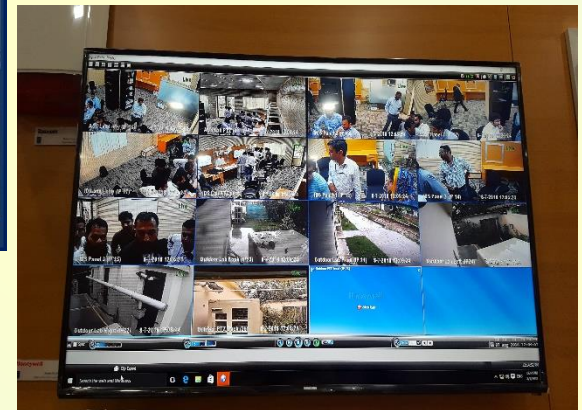
PIEAS laboratory covers following physical protection system modules/ systems



Intrusion Detection System (IDS)



Access Control System (ACS)



CCTV System

Conclusion

- An integrated infrastructure for capacity building in nuclear security enhances efforts of a state to maintain & sustain its nuclear security programme.
- Pakistan's nuclear security capacity building infrastructure is aimed at keeping nuclear security professionals up-to-date and technologically advanced with regard to their specific jobs, in order to safeguard against a wide threat spectrum.
- If adversaries cannot deter from malicious intentions, nuclear security professional will continue to grow and evolve nuclear security programme, wherein, state of the art capacity building infrastructure adds to maintaining and sustaining the programme.

Thank You

Questions