



## **Paper Title**

**IAEA'S Technical Support for  
Establishing Requirements for the security Up-Grades  
at Egypt's Research Reactor Complex  
ICONS2020**

**Ass. Prof. Dr. Amir Abdel Wadoud**  
**Second Research Reactor (ETRR-2) of Egypt**  
**Egyptian Atomic Energy Authority (EAEA)**  
**Vienna, Austria,**

## Introduction

The International Physical Protection Advisory Service (IPPAS) programme, initiated in 1995, is a fundamental part of the IAEA's efforts to assist Member States to establish and maintain an effective nuclear security regime to protect against the unauthorized removal of nuclear material and the sabotage of nuclear facilities and material

In November 2004, the EAEA requested an IPPAS mission from the IAEA. The IPPAS mission has been conducted by IAEA for the Egyptian Atomic Energy Authority, (EAEA) in December 2005.

**The IAEA's Division of nuclear security, EAEA and ENRRA (Regulatory)** held a joint meeting in May 2014 in Cairo, Egypt to recommend how to proceed with the implementation of the IPPAS mission recommendation of 2005.

**The meeting had two objectives:**

- To develop and finalize an action plan for the technical upgrade of the physical protection system of **Egypt's Research Reactors ETRR-1 and ETRR-2**
- To contribute in the implementation of IPPAS mission recommendation report of 2005

# OR#1

**The output of the meeting** was determine the first level of operational requirement (OR1). OR is a statement of need based upon a thorough and systematic assessment of the problem to be solved and proposed solutions

- **the OR1** would, in due course, be further developed to form a **Statement of Work (Sow)** that would define the project in detail and be subject of a competitive tender process.

- **OR1 outlines** the highest level requirements for the upgrading of the physical protection system and measures the nuclear research centre for ETRR-1 and ETRR-2 (plus co-located facilities) in accordance with the national regulations and IAEA nuclear security recommendations #13 and #14

- **OR1 reviewed** the current situation of Perimeter wall, Existing ECP, Lighting system , intrusion detection system, and CCTV at ETRR-1, ETRR-2 sites and determined the needs should be done



# Operational Requirement Level-1

The Level 1 OR provides a statement of the overall security need



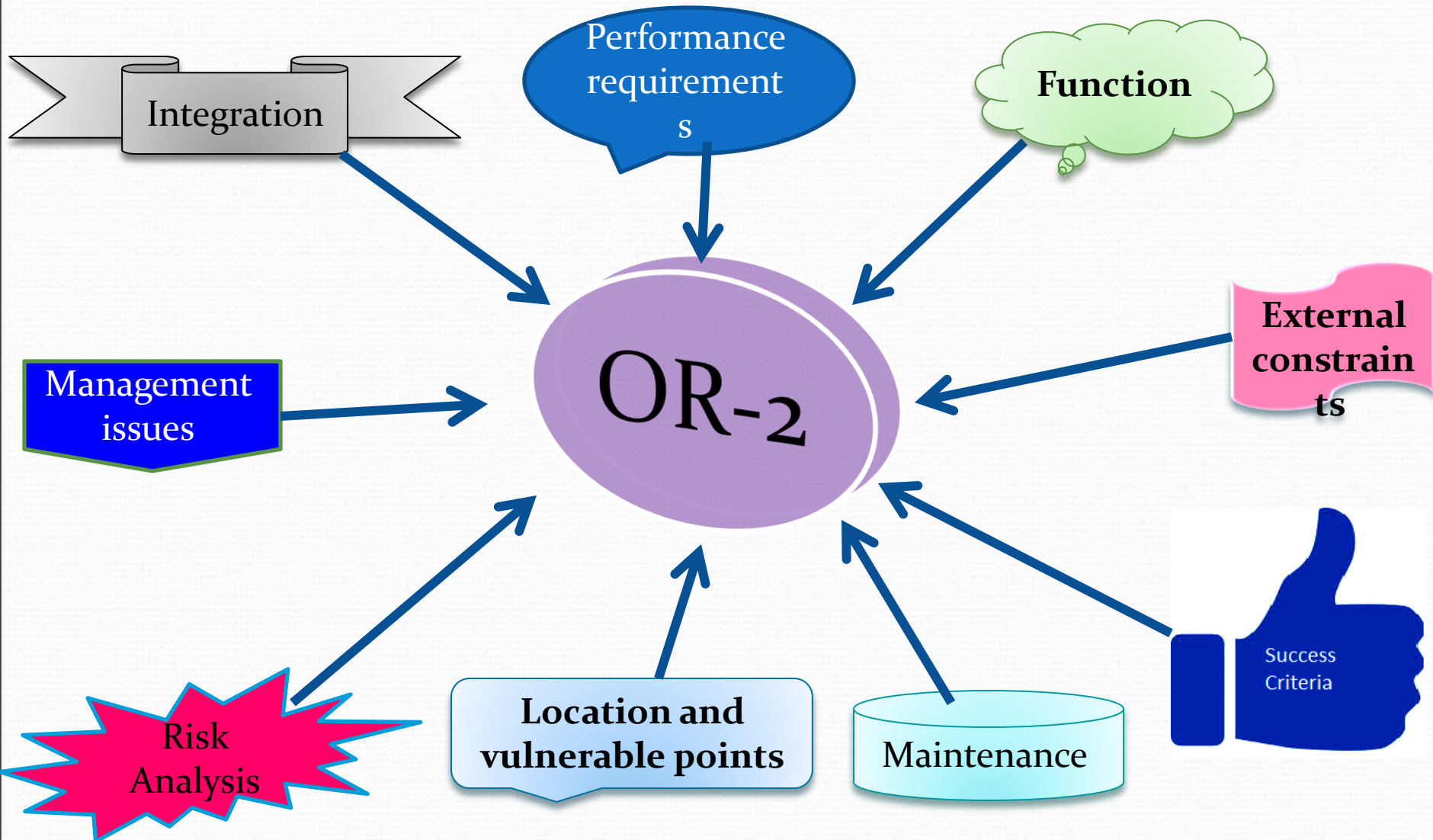
## OR#2

After IAEA and EAEA determinate of the OR1, a site visit was done to review the existing security measures to determine the second level of the operation requirement (OR2).

**The level 2 OR (OR2)** follows on from the completed Level 1 OR and address individual security measures (fences, CCTV, control of access etc) in a similar fashion to the Level 1 procedure, but which together provide the basis for a fully integrated security solution to the security of the Egypt's research reactors ETRR-1 and ETRR-2

**Checklists are given, in this document**

# OR-2 Checklist Contents



# There are three key stages when planning the installation of PPS



*FIG. 1. Three key stages when planning*

## IAEA'S TECHNICAL SUPPORT

The IAEA's Division of Nuclear Security (NSNS) and Egyptian Nuclear Regulatory Authority (ENRRA) authorized an INSSP to assist Egypt with its physical protection upgrades at Egypt's Research Reactors ETRR-1, and ETRR-2. **IAEA-Egypt Nuclear Security Cooperation Program has been Launched for Upgrading Process**



# IAEA Proposed Project Scope for Egypt's Research Reactors

- Upgrade Entry Control Point (ECP) with 2 pedestrian entry channels, including civil works as required,
- Replace inline CCTV system
- Review / upgrade intrusion detection system softw/equip
- Install an automatic interlock mechanism for the vehicle entry area
- Review lighting to see if it meets current regulatory requirement and is adequate for the CCTV system
- Integrated security management system including a new access control system
- the primary and secondary CASs should be hardened
- Vital areas to be hardened, install necessary PPS

# The Project Initiation and Planning Document (PID)

For the project to begin the Project Initiation and Planning Document (PID) has been done by EAE team. PID introduced; the ETRR-2 project objective , scope and the facility operation requirements, constrain -risk management communication planning-timeline and etc.....

## The Statement of Work (SOW)

IAEA and Egypt's research reactors technical teams are invited to IAEA headquarters in Vienna to finish (SOw), the SoW

- Determined the scope of work (Detailed Design- Implementation and commissioning-warranty and maintenance period).
- Introduced the Facilities Requirements and Technical Specifications for the New Security Systems and for each component in details

# **Tender Processing**

For the project to begin the process of upgrades: Local companies at Egypt were invited to **international tender** and the companies offers have been submitted to the IAEA according to the IAEA rules, after technical bit is finished by IAEA, ENRRA, and EAEA the selected company has been started and done the followings 3 phases works:

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## **Phase #1**

### **the following systems have been installed**

- External Intrusion Detection Systems, at a Perimeter Area
- Interlock-Mechanism System at the Vehicles Checking Area
- Full Height Double Sided Turnstile Gates, at Entry Check-Point
- New Access Control System, for all gates of, ETRR-1 and ETRR-2
- Pedestrian Radiation Portal Monitor Device, at Exit path Check-Point
- Metal Detection Gates at Checkpoints
- Reinforced Doors and Bullet Proof Glasses at control room area
- X-Ray Baggage Scanner at Entry Checkpoint (ECP)
- Hand Held Metal Detector, and Pocked Radiation Detector at ECP
- Smart key cage systems for keys control
- Backup power supplies (UPSs)

## •Phase #2,

### **In progress and the Phase #2, objective**

- Replacement of the Internal Alarm System Egypt's Research Reactors ETRR1,2, In addition to, Installation of
- New Closed Circuit Television System (CCTV),
- Under Vehicles Electronic Inspection System
- Backup power supplies (UPSs)
- Installation of motorized metal sliding doors at main entrances
- Harden all the glass windows by metal mesh grilled windows

## **Phase #3,**

### **In Planning stage**

each of OR#1, OR#2, and PID documents are introduced to IAEA. The initialisation stage started. The project objective “Enhancement for of the physical protection System at the radio isotopes production facility



## TRAINING OF PERSONNEL

IAEA pushed training programme to EAEA team in parallel with the project process for designated personnel in order to operate and maintain all installed systems and equipment. The training (up till now) included the following areas:

- Security Culture
- Training Course on Security Plans
- Training Program on Physical Security Operation
- Physical Protection Inspection
- Testing/diagnostic procedure to ensure the correct operation and performance of the systems
- Training Program on Advanced Security System

## Conclusion

the IAEA assets Egypt for upgrading the physical protection systems



**Thank you for  
Attention**

**شكراً لكم**