

Identifying and addressing support needs for preventing, detecting and responding to malicious acts involving nuclear and other radioactive material :Morocco as a case

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**International Conference on Challenges Faced by Technical and Scientific Support
Organizations (TSO) in Enhancing Nuclear Safety and Security
25-29 October 2010
Tokyo, Japan**



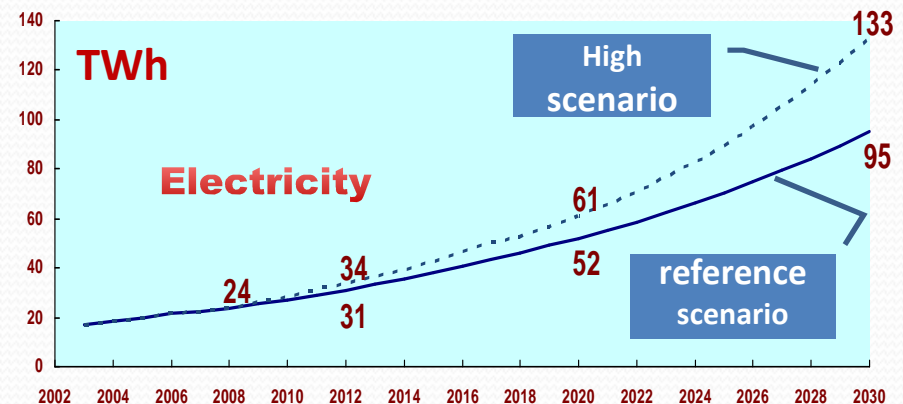
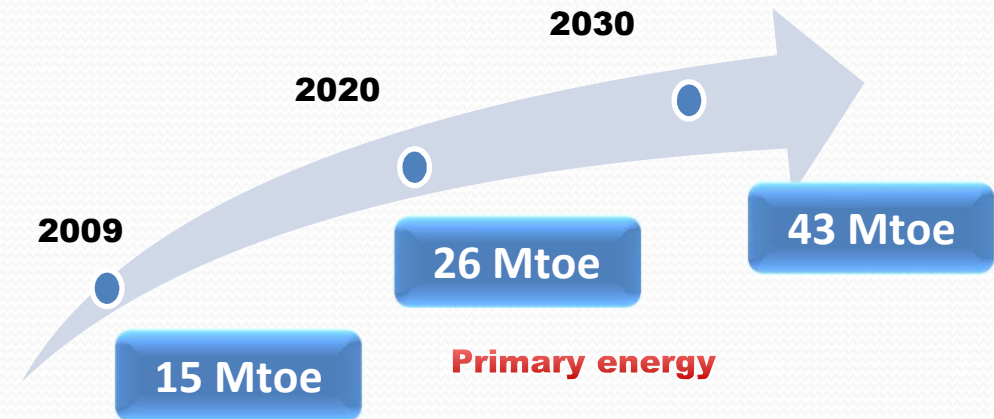
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National Context

- Demography: 30 millions inhabitants
urban population : 55.1%.
- Area : 710 850 km²
- Energy Resources : 95% imported
Growth Rate : 4% to 5% year
- Electricity (2009) : 25 TWh: 6% to 8%/year
- Electrical Installed Capacity (2009) : 6135 MW
- Forecast Needs : 10 000 MW from 2020 to 2030
- Thirteen Universities and several Scientific and Technical Research Centers

GROWING ENERGY NEEDS



National Context (Cont.)

- NUCLEAR POWER CONSIDERED AS AN ALTERNATIVE OPTION FOR THE PERIOD 2020-2030**
- MOROCCO HAS A NUCLEAR RESEARCH CENTER EQUIPPED WITH 2 MWTH TRIGA RESEARCH REACTOR**
- SINCE THE FIFTIES RADIOACTIVE SOURCES ARE USED IN MANY SOCIO-ECONOMIC SECTORS**

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International Commitments

- ❑ **NUCLEAR NON-PROLIFERATION TREATY (NPT), AND ITS COMPREHENSIVE SAFEGUARD AGREEMENTS,**
- ❑ **CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIALS (CPPNM) and its amended version**
- ❑ **UN 1540 RESOLUTION,**
- ❑ **INTERNATIONAL CONVENTION FOR THE SUPPRESSION OF ACTS OF NUCLEAR TERRORISM**
- ❑ **CODE OF CONDUCT ON THE SAFETY AND SECURITY OF RADIOACTIVE SOURCES**
- ❑ **ACTIVE MEMBER OF GLOBAL INITIATIVE AGAINST NUCLEAR TERRORISM**

Current Legislation

- ❑ **LAW ON PROTECTION AGAINST IONISING RADIATION (1971)**
- ❑ **LAW RELATED TO CIVIL LIABILITY FOR NUCLEAR DAMAGE (2005)**
- ❑ **DRAFT LAW ON NUCLEAR AND RADIOLOGICAL SAFETY AND SECURITY IN THE APPROVAL STAGE: PROVISIONS ESTABLISHED FOR NATIONAL SYSTEM ON :**
 - *Physical Protection of nuclear installations and nuclear materials*
 - *Physical protection of radioactive sources*
 - *Accountability and control of nuclear materials*

Regulatory Texts

❑ LICENSING AND CONTROL OF NUCLEAR FACILITIES DECREE:

Applied to the RESEARCH REACTOR Licensing process:

- Construction (Prime Minister decree in 1999);
- Release of radioactive liquid and gaseous effluents (Ministry licensing in 2005);
- Commissioning tests (Ministry licensing in 2006);
- Operating (Ministry licensing in 2009)
- Decommissioning

❑ RADIATION PROTECTION AGAINST IONOSING RADIATION DECREE:

Licensing and control for medical and industrial utilisations

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National Centre for Nuclear Energy, Science and Technology (CNESTEN)

□ IDENTITY:

- + Public Institution created in 1986
- + Reports to the Ministry of Energy, Mining, Water and Environment

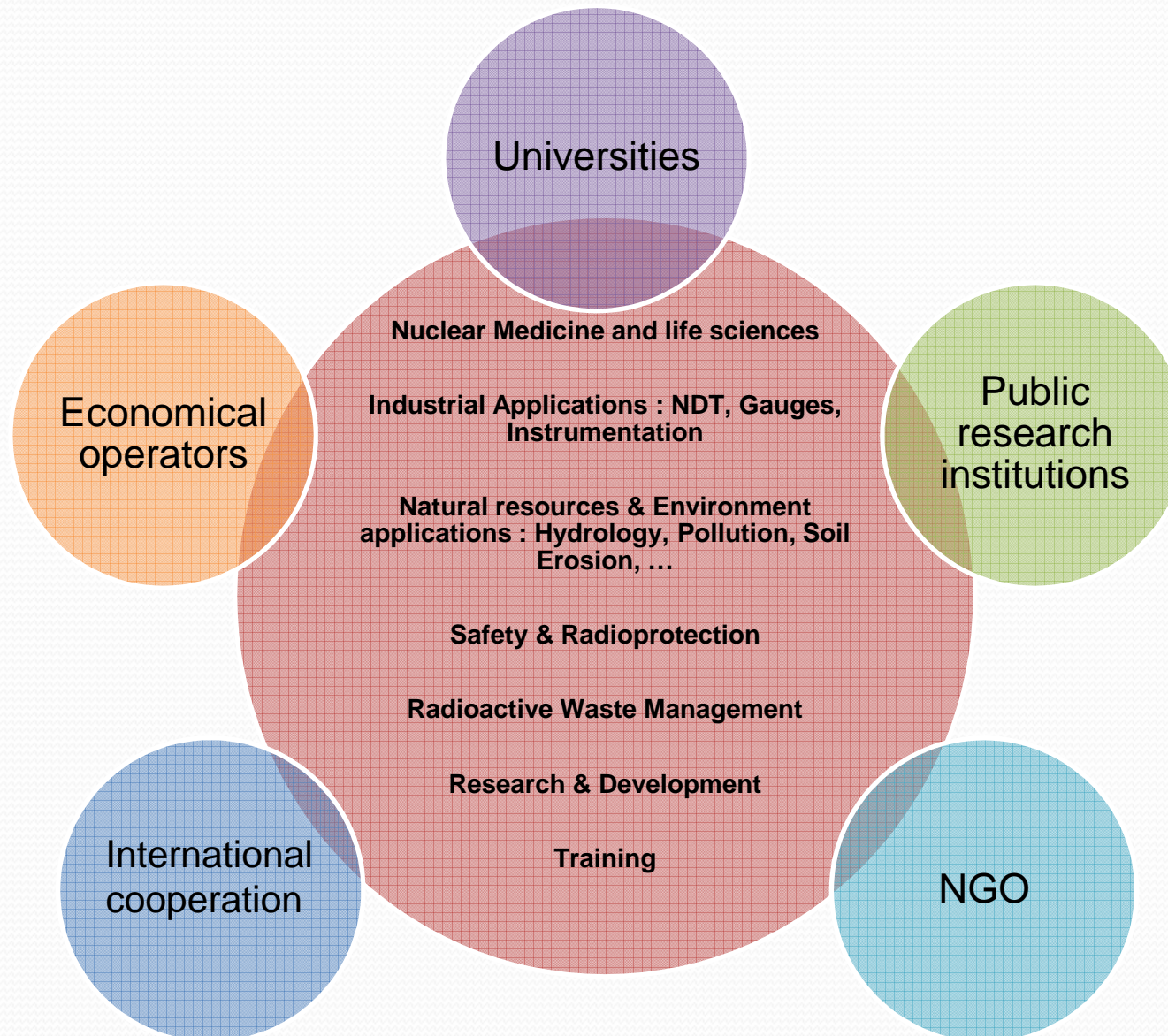
□ MISSION

- + Promote Nuclear Applications in social and economic sectors
- + Offer Technical Support to Public Authorities (radiation protection, radioactive waste, ..)
- + Prepare the technological basis for Nuclear Power Option

□ INFRASTRUCTURE: 2MW RESEARCH REACTOR AND VARIOUS LABORATORIES

□ HUMAN RESOURCES ~260 persons (70% Scientists, Engineers, Technicians)

Overview on CNESTEN: activities and Partnership



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CNESTEN : Integrated vision of safety and security

- ❑ **THE STAFF IN SAFETY AND SECURITY DEPARTMENT REPRESENTS MORE THAN QUARTER OF THE SC&T CNESTEN'S STAFF**

Physical Protection System in CNESTEN Site

TECHNICAL MEASURES RELATED TO THE DETECTION, DELAY AND RESPONSE SYSTEMS ARE IN COMPLIANCE WITH REGULATORY REQUIREMENTS

- Double Fence
- Intrusion Detection System (cameras, barriers, hardened doors, locks)
- Access Control
- Response Force

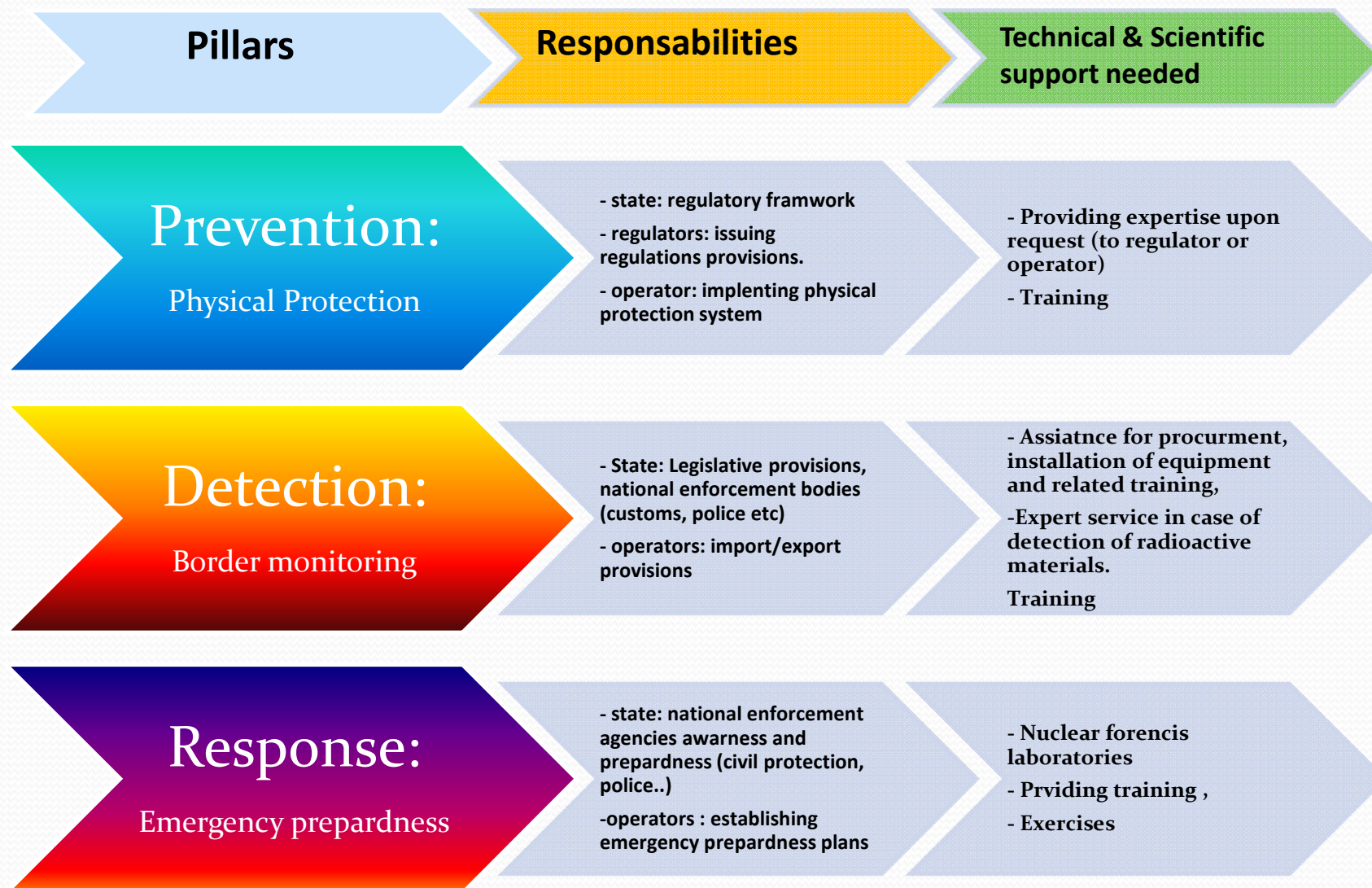
ADMINISTRATIVE MEASURES APPLIED

- Procedures to Access to Controlled Areas
- Trustworthiness
- Surveillance, Patrols 24h/24
- Exercises

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TSO Vs 3 pillars



TSO Vs 3 pillars: Morocco case

Prevention

- Assist in drafting nuclear law
- Implementing physical protection in the nuclear center
- Coordinating security program at the national level (GRTI)
- Training
- Developing international cooperation (IAEA, DOE)

Detection

- Assistance in installation of equipment at borders
- Training,
- Enhancing international cooperation (EU, IAEA, and DOE)

Response

- Supporting national authorities in their effort in this field.
- Training.
- Joint exercises.
- Providing laboratories and expert services

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Role of CNESTEN as TSO

- SUPPORT HUMAN RESOURCES DEVELOPMENT OF STAKEHOLDERS**
- DEVELOP SECURITY FORCE ON SITE : TRAINING, EXERCISES, LOGISTICS.**
- CONTRIBUTE TO STRENGTH SECURITY OF HIGH RADIOACTIVE SOURCES IN THE MEDICAL AND INDUSTRIAL SITES**
- PROVIDE TECHNICAL EXPERTISE TO PUBLIC AUTHORITIES (GLOBAL INITIATIVE TO COMBAT NUCLEAR TERRORISM ACTIVITIES, EMERGENCY PREPAREDNESS, ...)**

Role of NRC to establish and sustain a nuclear security regime (Cont.)

□ BUILDING AND SUSTAINING CAPACITY IN SECURITY AREAS BY THE ESTABLISHMENT OF A NATIONAL SECURITY SUPPORT CENTER

- ✓ **IMPROVING INFRASTRUCTURE FOR TRAINING IN NUCLEAR SECURITY,**
- ✓ **DEVELOPING OF A TRAINING PROGRAM TAILORED TO NATIONAL NEEDS,**
- ✓ **DEVELOPING A NETWORK OF EXPERTISE IN NUCLEAR SAFETY AND SECURITY,**
- ✓ **STRENGTHENING COORDINATION AND NATIONAL COOPERATION**
- ✓ **PROMOTING NUCLEAR SECURITY CULTURE WITHIN NATIONAL ORGANIZATIONS**
- ✓ **DEVELOPING INTERNATIONAL COOPERATION. : IAEA, AFRA, EU, FRANCE, USA,..**

CONCLUSION

- ❑ **CNESTEN: LED PUBLIC AUTHORITIES to INITIATE A NATIONAL SECURITY REGIME**
- ❑ **CNESTEN INFRASTRUCTURE IS THE PLATFORM FOR NATIONAL CAPACITY BUILDING (Civil Protection, Customs, National Police, ...)**
- ❑ **NATIONAL SECURITY CENTER PROJECT FOR EDUCATION AND TRAINING**
- ❑ **MOROCCO AUTHORITIES SUPPORT NETWORKING AMONG TSOs, REGIONAL, INTERNATIONAL COOPERATION and IAEA INITIATIVES**



**THANK YOU FOR
YOUR ATTENTION
AND WELKOM TO
MOROCCO**