



Moroccan Agency for Nuclear and  
Radiological Safety and Security



الوكالة المغربية للأمن والسلامة  
في المجالين النووي والإشعاعي



*Sharing Experience on Emerging threats of  
Cybersecurity & Artificial Intelligence  
- Morocco's Experience -*



*Reda NOUR – Secretary General of AMSSNuR*

# 1- NATIONAL CONTEXT

## Overview on Nuclear & Radiological Applications



More than 11000 X-ray facilities

### HEALTH

60 radiotherapy centers  
79 particle accelerators for radiotherapy  
40 brachytherapy facilities

More than 35 Nuclear Medicine Centers  
32 PET/CT scans  
13 SPECT/CT  
2 Gamma knife Facilities



More than 400 radiometric gauges used for quality control in cement plants, petrochemicals, sugar factories

### INDUSTRY

More than 15 NDT companies  
3 particle accelerators used in the wiring industry



More than 700 scanners installed at ports, airports and other

### SECURITY CONTROL

More than 20 particle accelerators dedicated to the control of goods.



More than 10 research laboratories

### RESEARCH AND EDUCATION



+ 2MW Nuclear Research Reactor



2 Cyclotrons for the production of Fluorine-18

### RADIOPHARMACEUTICALS

1 laboratory for the production of Iodine-131 (in the test phase)



More than 20 veterinary radiology installations

### AGRICULTURE

One (01) irradiator of food for Research  
One (01) irradiator used in the Sterile insect technique (SIT)

### ENERGY

Nuclear Energy is considered in the future Energy Mix

# 1- NATIONAL CONTEXT

## Moroccan International Commitments



Convention on Nuclear Safety

May 2019

Convention on  
Early Notification  
of Nuclear  
Accident

October 1993

Convention on The  
Physical Protection  
of Nuclear  
Material (CPPNM)  
and its  
Amendment

2012 and 2015

The 2005  
Amendment of the  
CPPNM

2015



November 1970

Joint Convention on  
Safety of Spent Fuel  
management and  
Safety of  
Radioactive Waste  
Management

July 1999

Convention on  
Assistance in case  
of Nuclear  
Accident or  
Radiological  
Emergency

October 1993

### ADDITIONAL PROTOCOL

VERIFYING THAT ALL NUCLEAR MATERIAL REMAINS IN PEACEFUL ACTIVITIES

#### KEY FACTS



The Model Additional Protocol was approved by the IAEA Board of Governors in 1997 to supplement a State's safeguards agreement.



While voluntarily concluded, once it enters into force the Additional Protocol becomes legally binding.



As of November 2018, the Additional Protocol was being implemented in 133 States.

2011

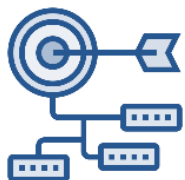
- Safeguards Agreements (1975)
- The African Nuclear-Weapon-Free Zone "Pelindaba Treaty" (2022)
- International Convention for the Suppression of Acts of Nuclear Terrorism
- International Convention for the Suppression of the Financing of Terrorism
- International Convention for the Suppression of Terrorist Bombings

+ *Non-Binding Instruments : Codes of Conduct on Safety of the Research Reactors & Safety of Radioactive Sources*

## 2- AMSSNuR : THE MOROCCAN AGENCY

### *Vision & Mission*

*The Objective is to protect People & the Environment from the harmful effects of ionizing radiation.*



#### MISSION

Our mission is to :

**Oversee** the protection of workers, patients, the public and the environment from risks associated with ionizing radiation, and to **Ensure compliance** with Morocco's international commitments on Safety, Security and Safeguards, including the international best practices.

**Facilitate while being strict**



#### VISION

An Authority which is :

- **Strong**, through its human capital, its experience, and the development of the Technical, Organizational & Human competencies.
- **Exemplary**, through the rigorous execution of its mission, the continuous improvement of its processes, promoting a strong Leadership and Culture for Safety & Security.
- **Independent**, in the execution of its regulatory mission in accordance with the Law 142-12 and related regulations.

## 2- AMSSNuR : THE MOROCCAN AGENCY

### *Main Regulatory Functions*

### Regulate

AMSSNuR proposes to the government the legislation and regulations relating to nuclear and radiological safety and security, & gives its opinion and advice.

### Authorize

AMSSNuR authorizes activities and installations using ionizing radiation.



### Inspect

AMSSNuR verifies the regulatory compliance of the authorized facilities and activities involving ionizing radiation.

### Enforce

AMSSNuR applies, in case of non-compliance, the enforcement measures provided for by the Law and regulations in force.

## 2- AMSSNuR : THE MOROCCAN AGENCY

### *Main Regulatory Functions*

### Inform

AMSSNuR informs the public on regulatory processes and the aspects relating to Safety, Security & Safeguards.

### Contribute

AMSSNuR contributes to the national radiological and nuclear emergency preparedness and response plan.



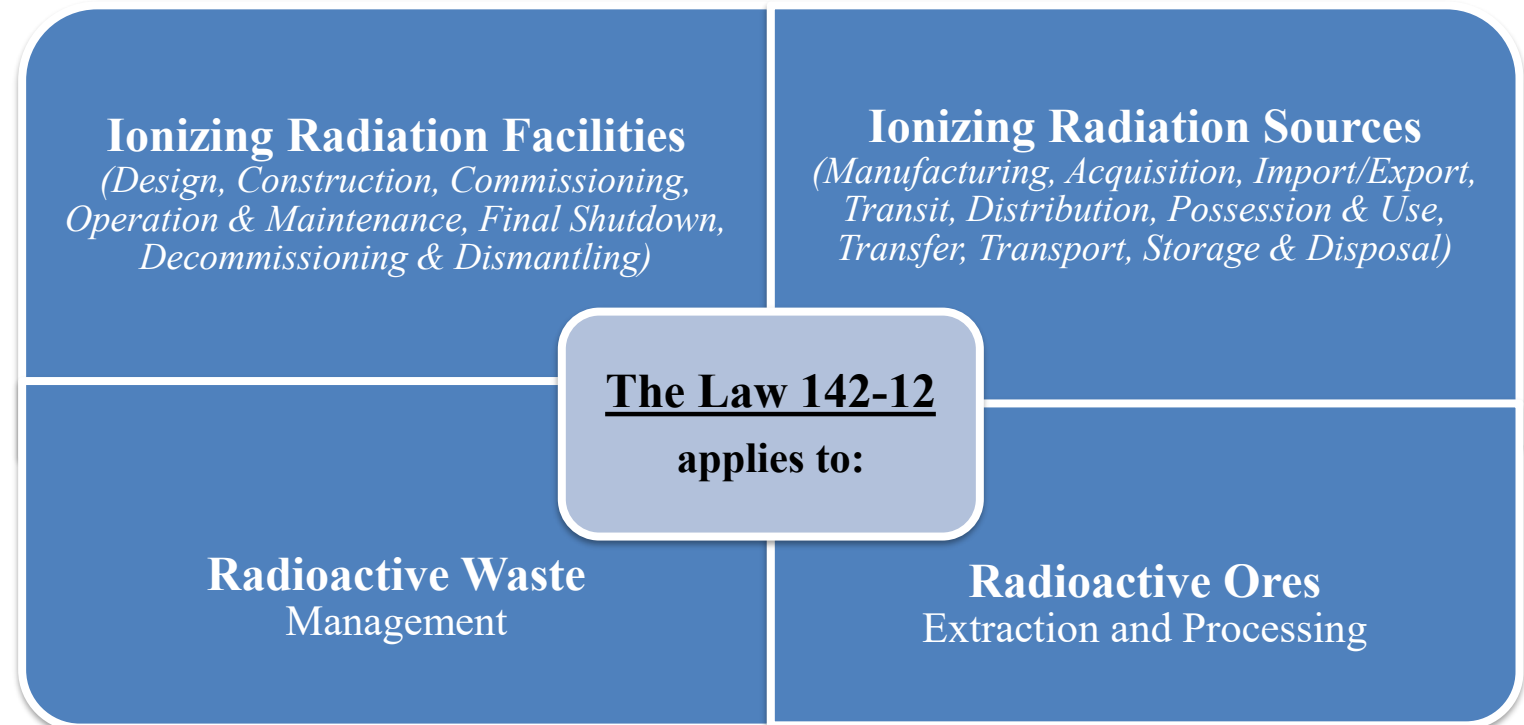
### Ensure

AMSSNuR ensures a permanent watch on Safety, Security, and Safeguards, as well as on Scientific and Health matters taking into account the progress made at international level.

### 3- MOROCCO'S EXPERIENCE

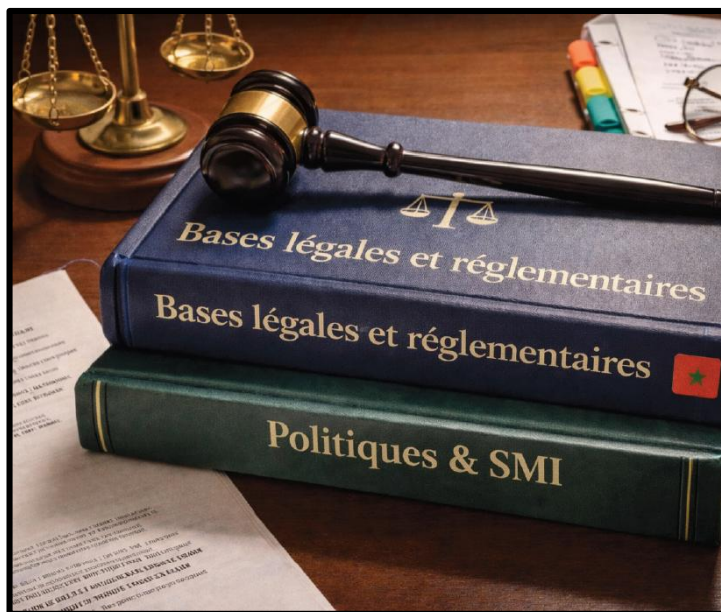
#### *Legal & Regulatory Framework*

- ❑ **The Law 142-12**, adopted in 2014, relates to nuclear and radiological safety and security, and the creation of the Moroccan Agency for Nuclear and Radiological Safety and Security (AMSSNuR) as an independent authority under the supervision of the Head of Government.



### 3- MOROCCO'S EXPERIENCE

## *Legal & Regulatory Framework*



**Law 142-12:**  
**on Nuclear and  
Radiological  
Safety & Security**  
*(22 August 2014)*

**Law 05-20:**  
**on  
Cyber-Security**  
*(25 July 2020)*

**Law 09-08:**  
**on the Privacy and  
the Protection  
of Personal data**  
*(18 February 2009)*

**Law 53-05:**  
**on the electronic  
Exchange of  
Legal data**  
*(30 November 2007)*

**Law 43-20:**  
**on trusted Services  
for electronic  
Transactions**  
*(31 December 2020)*

# 3- MOROCCO'S EXPERIENCE

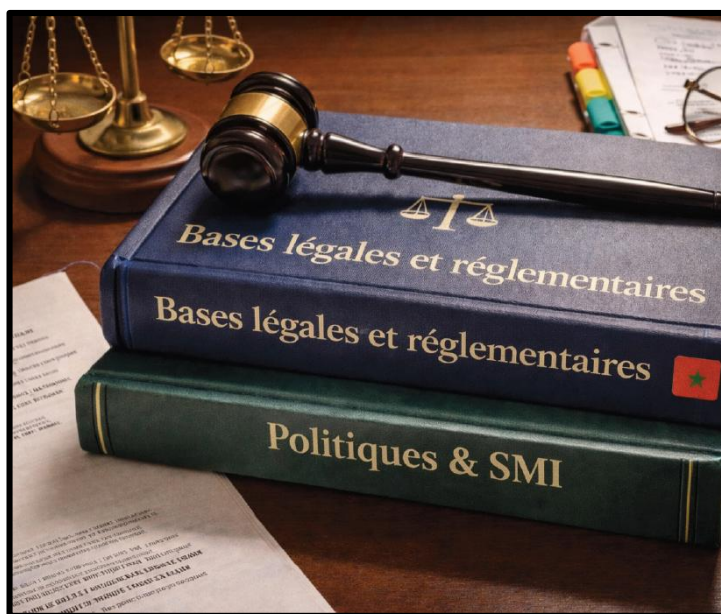
## *Legal & Regulatory Framework*

❑ **The Law 05-20 on Cybersecurity:** establishes the rules and the security provisions applicable to vital infrastructures :

- ✓ **Vital infrastructure:** Facilities and Systems that are essential for maintaining the vital functions of Safety, Security, Health, Society, Economy, and whose damage or destruction would have an impact leading to the failure of these vital functions.

❑ **Decree 2-21-406:** adopted in July 15<sup>th</sup> 2021, is the implementing regulation for Law 05-20 relating to Cybersecurity. It details the practical procedures for enhancing the protection of the sensitive Information Systems.

- ✓ **This Decree requires** “Strategic Entities” to appoint a Chief Information Security Officer (RSSI) and to regularly submit their infrastructure to compliance checks and audits based on the National Directive for Information Systems Security (DNSSI).



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | SUBJECT                                                                                             | Partner(s) | Date                                                     | Status                  |
|---|-----------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------|-------------------------|
| 1 | <b>MoU with the NNSA : Renewal</b><br><i>including activities related to Cybersecurity &amp; AI</i> | NNSA       | Signed in 2025<br>during the 69 <sup>th</sup><br>IAEA GC | On-going<br>Cooperation |



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | <i>SUBJECT</i>                                                        | <i>Partner(s)</i> | <i>Date</i>    | <i>Status</i>    |
|---|-----------------------------------------------------------------------|-------------------|----------------|------------------|
| 2 | <b>National Workshop on Cybersecurity &amp; Regulatory Frameworks</b> | <b>NNSA/INS</b>   | September 2025 | <b>Completed</b> |



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | <i>SUBJECT</i>                                                                                   | <i>Partner(s)</i>            | <i>Date</i>           | <i>Status</i>    |
|---|--------------------------------------------------------------------------------------------------|------------------------------|-----------------------|------------------|
| 3 | <b>Regional Workshop on AI &amp; Insider Threat Mitigation for FR-speaking African countries</b> | IAEA & NNSA<br>(INFICRC/908) | 21–23 October<br>2025 | <b>Completed</b> |



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | SUBJECT                                                                                          | Partner(s)                   | Date                  | Status    |
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#### ■ Key Takeaways :

- *Keeping final Decisions related to information security under Human authority.*
- *Using AI systems only when relevant “training data” are available and understood.*
- *Enhancing and Extending Regional Cooperation to support exercises and peer learning.*
- **Cameroon, Democratic Republic of Congo, and Madagascar** expressed interest in subscribing to INFCIRC/908:



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | <i>SUBJECT</i>                                                                                     | <i>Partner(s)</i>                        | <i>Date</i>           | <i>Status</i>    |
|---|----------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------|------------------|
| 4 | <b>Steering Committee of INFCIRC/908 on Insider Threat Mitigation, incl. Cybersecurity threats</b> | <b>IAEA &amp; NNSA<br/>(INFICRC/908)</b> | 26-28 January<br>2026 | <b>Completed</b> |

- Morocco (AMSSNuR) is a **subscribing member** of **INFCIRC/908** on Insider threat Mitigation since its inception in **December 2016**.
- In addition, **AMSSNuR is an active member** of this International Working Group, co-chaired by Belgium (FANC) and USA – DoE (NNSA).



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Last 12 months highlights*

|   | <i>SUBJECT</i>                                                     | <i>Partner(s)</i> | <i>Date</i>       | <i>Status</i> |
|---|--------------------------------------------------------------------|-------------------|-------------------|---------------|
| 5 | <b>Regional Workshop on Drafting Computer Security Regulations</b> | IAEA              | 2-6 February 2026 | Completed     |



### 3- MOROCCO'S EXPERIENCE

#### *Building Capacities : Upcoming events*

|   | <i>SUBJECT</i>                                                                                          | <i>Partner(s)</i> | <i>Date</i>     | <i>Status</i>      |
|---|---------------------------------------------------------------------------------------------------------|-------------------|-----------------|--------------------|
| 1 | <b>Workshop on Drafting Cybersecurity Regulations for Nuclear Installations incl. Research Reactors</b> | <b>NNSA/INS</b>   | 18-21 May 2026  | <b>In progress</b> |
| 2 | <b>National Workshop on Drafting Cybersecurity Regulations for Radioactive Sources</b>                  | <b>NNSA/ORS</b>   | 15-19 June 2026 | <b>In progress</b> |
| 3 | <b>National Workshop on Drafting Cybersecurity Regulations for Nuclear Installations</b>                | <b>NNSA/INS</b>   | 7-11 Sep. 2026  | <b>In progress</b> |
| 4 | <b>National Workshop on Design Basis Threat, including Cybersecurity emerging threats</b>               | <b>NNSA/INS</b>   | Oct. 2026       | <b>In progress</b> |

## 4- CONCLUSION

### *Building Strong Capacities*

***Building a Strong Regulatory Capacity in Cybersecurity & AI is very crucial to face the fast-evolving threats:***

- ➡ ***Good progress in developing our Regulatory Framework related to Cybersecurity thanks to the precious support of our partners, in particular the IAEA & the NNSA (USA).***
- ➡ ***Our Priority is to continue at the same pace in Building our Capacities to enhance our protection, our response and our mitigation plans facing the computer security emerging threats.***



*Good progress!*

*Thank you for your attention*

