

# Preparation for the implementation of the Convention on Physical Protection of Nuclear Material and its Amendment in Senegal

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# **Improving nuclear security in a non-nuclear country: the case of SENEGAL**

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# Introduction





# 1. Introduction

Since its effective establishment in 2011, the regulatory authority began the inventory of sources of ionizing radiation and nuclear material and the associated practices along with laws and regulations applicable to them in the country.

- Many sources of ionizing radiation of all categories.
- Few nuclear material.
- Laws and regulations enacted before and after national independence.
- For the future: national three-year technical cooperation project with IAEA starting in 2018 “Sensitizing and prerequisites development for establishing research reactor and planning toward a nuclear power plant in Senegal”.

# 1. Introduction

**As part of its duties, the Authority of Radiation Protection and Nuclear Safety is responsible [...] to establish and maintain a national register of ionizing radiation sources and collect information in the field of radiation protection and nuclear safety and security” (Decree No. 2010-893)**



11/15/2017





## 2. Regulatory framework

- Law 2004-17 (June 2004) on Radiation Protection.
- Law 2009-14 (March 2009) on Nuclear Safety, Security and Radiation Protection. It creates the regulatory authority “Autorité Sénégalaise de radioprotection et de Sûreté Nucléaire ARSN)” which was established only in end 2011
- Decree 2010-893 on Organization and Functioning of ARSN
  - Art. 3. - The A.R.S.N. to:
    - ✓ assists, advises and provides information on any matter of safety in particular in the following areas: Protection of the environment..., Civil liability (including implementation of national regulations and International conventions ); Physical protection and safeguards...

## 2. Regulatory framework

- ✓ Art. 6.- the A.R.S.N. to:  
Develop and propose to the President the national policy in the field of radiation protection and nuclear safety, the security of sources of ionizing radiation and the management of radioactive waste;  
Develop and propose to the President regulations regarding the principles and criteria of safety and security of sources of ionizing radiation, the safety of radioactive waste and the transport of radioactive materials...
- Prime Minister Circular letter (n°3218 of 28 July 2011) for declaration of all sources of ionizing radiation in the country.

## 2. Regulatory framework

- ❖ NPT ratified ( December 22, 1970) with Safeguards Agreement (14 January 1980), SQPMod (December 15, 2006) and Additional Protocol (ratified July 2017)
- ❖ Convention on the Physical Protection of Nuclear Material (CPPNM): ratified (14 October 2003). Amendement to the convention ratified in July 2017.
- ❖ Convention on Nuclear Safety, **accession: 24/12/2008, entered in force:24/03/2009.**
- ❖ Convention on Assistance in the case of a Nuclear Accident or Radiological Emergency (ASSIST), **in force: 23/01/2009, ratification: 24/12/2008.**
- ❖ Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive waste Management, **in force: 24/03/2009 ; Accession : 24/12/2008**
- ❖ Convention on the Early Notification of a Nuclear Accident.
- ❖ Support to the code of conduct on the safety and security of radioactive sources in November 2010.



## 2. Regulatory framework

- ✓ The existing laws and regulations does not address Nuclear Security in a comprehensive manner and does not yet meet international standards (IAEA Advisory Mission in 2009).
- ✓ Lack of regulations for implementation of the few provisions of law 2004 and law 2009 and the international conventions
- ❑ A rational approach needed to establish a National Nuclear Security Regime taking into account physical protection of nuclear material

## 2. Regulatory framework

✓ New penal code:

Explanatory memorandum:

“in order to bring the national criminal law into conformity with the treaties ratified by Senegal and to thus sanction reprehensible acts not taken into account in the law currently in force, amendments to the Criminal Code are necessary by the creation of new incriminations “

Title II, Chapter V (Offenses related to terrorist bombings, to nuclear or radioactive materials and to nuclear installations) :

Article 279-16: **unauthorized removal of NM**

Is punished by the penalty of forced labor or criminal detention from ten years to twenty years, a person who commits :

.....

3. the act of carrying, sending or moving nuclear material into or out of a State without the required authorization.

## 2. Regulatory framework

Article 279-18. **Action against the normal functioning of a NF**

Is punished by the penalty of forced labor or criminal detention of ten to twenty years, **the one that uses a nuclear facility, causes damage to a nuclear facility, disrupts the operation or commits any other act directed against a nuclear facility, in order to release or risk of release of radioactive material :**

1. with the intention to cause death or serious bodily injury or substantial damage to property or the environment ....
3. in order to compel natural or legal person, international organization or State to do or to abstain from doing an act.

Is punished by the penalty of forced labor or criminal detention from ten years to twenty years, the one who threatens, under circumstances which **make the threat credible**, to commit any of the offences mentioned in the first paragraph of this article.



# 2. Regulatory framework

✓ Draft Law (reviewed by OLA and submitted to the Government) :

## 1) Physical Protection:

Article 191.- The ARSN, together with the administrations concerned, regularly assesses the threat to the State. On this basis, it lays down the requirements for the Physical Protection of nuclear and other radioactive materials.

These protective measures include:

- (a) a **categorization** of nuclear and other radioactive materials based on an assessment of the damage that could result from theft or diversion of such material or from sabotage of a facility containing such material;
- (b) the necessary **protective measures** for the different categories of material;
- (c) **accounting and control measures** for nuclear and other radioactive materials;
- (d) the rules, procedures and conditions for the issuance of **authorizations** including Physical Protection provisions;
- (e) **inspection and surveillance** measures to verify compliance with the applicable Physical Protection rules.

## 2. Regulatory framework

### 2) Responsibilities of the holder of an authorization:

Article 192.- Any person or entity holding an authorization to carry out activities or practices under which nuclear or other radioactive materials are used shall have **primary responsibility for ensuring physical protection and other security measures** for these materials and associated facilities in accordance with the applicable regulations and the conditions attached to the authorization...

## 2. Regulatory framework

### 3) International and national cooperation and assistance:

Article 194.- In the event of theft, robbery or illicit procurement of nuclear material or other radioactive material, or the likely threat thereof, the ARSN shall take, together with the relevant State administrations , appropriate measures as soon as possible to **inform other States or international organizations likely to be affected** on the circumstances of the incident. The ARSN shall collaborate with the relevant State administrations in the preparation and implementation of **measures to recover** and intervene in the event of theft or illegal acquisition of such materials or sabotage of such materials or a nuclear facility.



## 2. Regulatory framework

In the event of theft or illegal acquisition of nuclear or radioactive materials, the ARSN shall cooperate with the relevant State administrations for any necessary **agreement and assistance with any State or international organization in order to recover and protect such materials.**

Article 195.- The ARSN shall provide the IAEA, through mechanisms established by the IAEA, information on cases of theft, robbery or illegal acquisition of nuclear material, radioactivity or sabotage of a nuclear installation.

### **3. International and national cooperation for security of nuclear material**

- IAEA helped for a National Workshop for the establishment of an INSSP (21-23 January 2013). All relevant national institutions invited.
- An INSSP (which includes Physical Protection in its objectives) is adopted (8 April 2014) by the Prime Minister and reviewed in March 2017.
- IAEA helped for a National Design Basis Threat Training Workshop held 5-8 August 2014.

### 3. International and national cooperation for security of nuclear material

- ARSN joined International Network for Nuclear Security Support Centres in October 2015 and is also member of NSGC.
- Senegal Participates to FNRBA TWG 10 (Nuclear Security)
  - Senegal joined Incident and Trafficking Database program (ITDB) on February 2014. Some events related to illicit trafficking in Senegal have been reported by our national point of contact.
  - Senegal also designated NUSIMS Point of contact (November 2014) who attended the NUSIMS POC Meeting, from 16 to 18 February 2016 in Vienna, Austria.



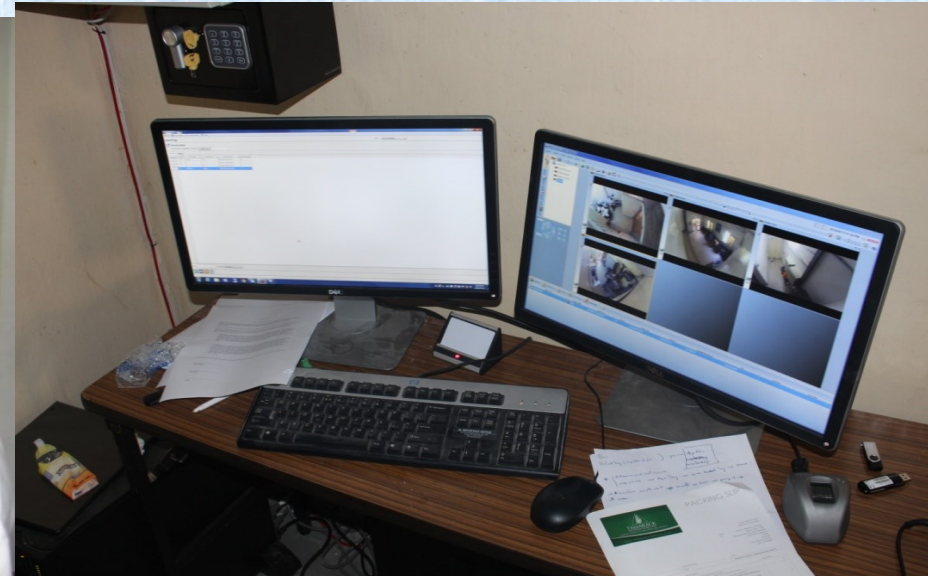
### **3. International and national cooperation for security of nuclear material**

- Support from US DOE Global Threat Reduction Initiative (GTRI) and US NRC:
  - GTRI Basic Search and Secure Training Workshop (Dakar, Senegal April 14<sup>th</sup> – 18<sup>th</sup>, 2014)
  - Upgrading the physical protection of the Category 1 Cobalt Source and procurement of equipments.
  - US NRC support (protocol signed with ARSN and being implemented) on national inventory of radioactive source and nuclear material and training on inspection.

### 3. International and national cooperation for security of nuclear material



Visit to Institut Curie



### **3. International and national cooperation for security of nuclear material**

- Cooperation with European Union CBRN Centres of Excellence (EU CoE).
- Many projects and Training Courses for Policy makers and First Responders on Radiologic and Nuclear Threats issues.
- A CBRN National Action Plan has been drafted in November 2015 and an CBRN national exercise conducted in October 2016.
- National CBRN Comity creation in progress.
- Protocol with Mauritania on Radiation protection, Nuclear Safety and Security including Import-Export, and illicit trafficking issues.



### **3. International and national cooperation for security of nuclear material**

#### **➤ Cooperation between National Institutions:**

- Protocols signed between ARSN and Gendarmerie, Army and Customs.

Provisions are made in the Protocols for training but there is no Nuclear Security training Centre yet available in the country.

- Nuclear Security included in the Master degree curricula of “Institut de Technologie Nucléaire Appliquée” of Université Cheikh Anta Diop de Dakar.

# 3. International and national cooperation for security of nuclear material

Fire Brigade CBRN Unit Training



11/15/2017





### 3. International and national cooperation for security of nuclear material





# 4. Conclusion

Radioactive sources and few amount of nuclear material have been inventoried in Senegal.

A national regulatory framework is established. It is being revised to meet international standards on nuclear safety, security and safeguards.

The experience acquired by the ARSN and the other relevant national institutions through the development of a new regulatory system, the preparation and the implementation of the INSSP as well as national and international cooperation will be useful for the implementation of the convention on the physical protection of nuclear material and its amendment.

**TANK YOU FOR  
YOUR ATTENTION**