

**REPUBLIQUE DU NIGER**  
**REPUBLIC OF NIGER**



**Convention on Nuclear Safety**



National Report of the Republic of Niger to the 9<sup>th</sup> Review Meeting  
**September 2022**

### A. Introduction

Since the country took the decision to develop a nuclear power program (PNP), significant institutional and legal advances have been made. On December 2013, in order to promote the peaceful use of atomic energy, Niger created a High Authority for Atomic Energy (HANEA) within residing a Technical and Scientific Advisory Committee (CTSC) bringing together the executives of the various institutions that can intervene in the country's nuclear sciences and techniques. In the same vein, the Government has created the Nuclear Regulation and Safety Authority (ARSN) whose main mission is to regulate activities and practices related to the use of nuclear and radioactive substances and materials, as well as those related to sources of ionizing radiation.

To conduct the nuclear power program (NPP), the Government has set up two committees:

- the National Technical Committee for the Electronuclear Program (CTNPEN) or NEPIO within HANEA;
- the Strategic Steering Committee for the Electronuclear Program (COSPEN) chaired by the Prime Minister.

The CTNPEN aims to analyze the nineteen (19) areas that make up the nuclear power infrastructure with a view to identifying deviations from international requirements for the introduction of nuclear electricity into the national energy mix.

Niger plans to acquire a research reactor in the short term and to commission a nuclear power plant by 2035 in accordance with the safety convention.

The essential elements necessary to build an appropriate framework for the development of the national safety infrastructure have been identified. As such, the government has put in place a legal framework for the licensing and control of radiological and nuclear facilities (requirements 1, 2, 3 and 4 GSR Part 1, requirements 2 GSR Part 3, requirements 1 GSR Part 5, requirements 3.3 and 3.4 WS-R-5).

Therefore, Niger has:

- adhered to all relevant international legal instruments
- adopted a general law on safety, security, nonproliferation and civil liability
- created ARSN, an independent regulatory body.

The Integrated Nuclear Infrastructure Review (INIR) Phase 1 mission was conducted from April 16-23, 2018, to assess the status of national infrastructure development. At the end of this INIR mission, conducted by IAEA experts, key areas were identified for further actions which are:

- to develop an integrated view of the overall costs of the NPP project in order to strengthen the rationale for moving forward;
- to assess and develop its legal and regulatory framework and ensure that all necessary elements of a national security policy and strategy are addressed;
- to strengthen the management and documentation of its activities to develop the nuclear power program;
- to strengthen its approach to human resource development;
- to strengthen its approach to human resource development; and
- to strengthen its industrial involvement and radioactive waste management.

Also, an Integrated Work Plan (IWP) has been developed by the IAEA in collaboration with Niger. On this basis, a national action plan has been prepared by Niger to respond to the recommendations and suggestions, which are currently being implemented.

### **B. Summary**

The Convention on Nuclear Safety (CNS) was opened for signature on 20 September 1994 at the headquarters of the International Atomic Energy Agency in Vienna. The Republic of Niger signed IAEA Safeguards Agreement on 11 June 2002. Niger deposited its instruments of accession to this convention on 5 December 2016.

The Convention objective is to achieve and maintain a high level of nuclear safety throughout the world. One of the obligations of the Parties to the Convention is to prepare a periodical National Report. This report must describe all the measures taken to fulfill the objective of the Convention.

Article 5 of the Convention on Nuclear Safety states that "Each Contracting Party shall submit for consideration, prior to each meeting referred to in Article 20, a report on the measures it has taken to implement each of the obligations of the Convention". This is why Niger is submitting its report to the 9th review meeting of the Convention on Nuclear Safety. In it, the various actions related to the development of the nuclear power program are summarized in accordance with the various stages of development of the national infrastructure in accordance with the guides of the IAEA, the CNS and the NPT.

Niger does not have any nuclear facilities as defined by the CNS. Current nuclear practices and activities are essentially related to the import, export, transport and use of radioactive sources and materials in the medical, industrial, educational and other fields related to nuclear technology.

In accordance with the provisions of Article 4 of the NPT, Niger informed the IAEA in 2010 of its intention to develop a peaceful civilian nuclear program and to cooperate in this field in accordance with Resolution GC (52) RES/12/BC adopted in October 2008. Indeed, the energy demand in Niger is increasing and the forecasts show the need to have, in the future, important sources of production such as nuclear energy.

As Niger is a major uranium producer, the Government intends to take advantage of this resource and the benefits it brings in providing better living conditions for the people of Niger. So, Niger will spare no effort for adequate exam of all the issues related to the nuclear program.

By this regard, Niger welcomes resolution GC (53) RES / 13B adopted in September 2009 at the 53rd session of the General Conference of the IAEA.

In addition, Niger has pledged to work with the international community to comply with international legal provisions on safety and environmental protection so that nuclear power contributes to development and peace in Niger and in the world. The following section summarizes the various measures taken to comply with the provisions of the Convention on Nuclear Safety.

## C. Obligations of the convention

### Article 7 Legislative and regulatory framework

*Each Contracting Party shall establish and maintain a legislative and regulatory framework to govern the safety of nuclear installations.*

*2. The legislative and regulatory framework shall provide for:*

*i) the establishment of applicable national safety requirements and regulations;*

*ii) a system of licensing with regard to nuclear installations and the prohibition of the operation of a nuclear installation without a license;*

*iii) a system of regulatory inspection and assessment of nuclear installations to ascertain compliance with applicable regulations and the terms of licenses;*

*iv) the enforcement of applicable regulations and of the terms of licenses, including suspension, modification or revocation.*

#### **7.1. Establishing and maintaining a legislative and regulatory framework**

##### **7.1.1. Historical overview of legislative and regulatory framework**

In 1995, the IAEA launched Model Projects, to assist its Member States that had not yet established national regulatory infrastructures. This assistance concerns the development of legislation and regulations in line with the core international standards of protection Against Ionizing Radiation and the Safety of Radiation Sources (BSS) which is based on the recommendations of the International Commission on Radiological Protection (ICRP).

These standards can only be implemented through a national regulatory infrastructure, taking into account the local situations of each State. It is within this framework that the National Center for Radiation Protection (CNRP), a public administrative institution, was created by Law No. 98-011 of May 7, 1998, then amended by Law No. 2006-18 of June 21, 2006. Law No. 2006-17 June 21, 2006, on nuclear safety, security and protection against dangers of ionizing radiation, sets out the guidelines for the policy of prevention and protection against the dangers of ionizing radiation and strengthens the activities of the National Radiation Protection Center (CNRP).

However, this center plays both the role of regulatory authority and technical support for the promotion of nuclear technology applications. This is contrary to IAEA standards. This is why State of Niger has created a national regulatory authority and a promotion authority.

The diversification of activities to be taken into account requires the State to equip itself with a structured regulatory regime, commensurate with the scale and potential nature of the risk to be controlled.

One of the first steps was the establishment of the High Authority for Atomic Energy of Niger (HANEA), by Decree No. 2013-490 / PRN of 04 December 2013, under the Presidency of the Republic. This Authority is responsible for the promotion of all peaceful nuclear activities in Niger.

The second step was the continued commitment to establish a national regulatory framework in conformity with the international conventions to which our country has subscribed. This regulatory framework is being upgraded by the development of several laws, draft laws and conventions.

### **7.1.2. Overview of the primary legislative framework for nuclear safety, including interfacing national legislation**

Niger has a modern and solid legislative and regulatory framework. This framework consists of laws passed by the Parliament of Niger that govern the regulation of Niger's nuclear domain, as well as regulatory instruments such as regulations:

- Law No. 2006-17 of June 21, 2006 on nuclear safety and security and protection against the dangers of ionizing radiation and Law No. 2006/18 of June 21, 2006 establishing the National Radiation Protection Center (CNRP) as regulatory service (including their implementing decrees) which are insufficient for the development of a nuclear power program.
- Law No 2016-45 of December 6, 2016 creates a new authority, called the Nuclear Regulatory and Safety Authority (ARSN),
- Niger has adopted a National Nuclear law No 2018-021 of 27 April 2018 on safety, security and peaceful use of atomic energy (SSUPEA) by replacing the law No 2006-18 of 21 June 2006. This law therefore reflects Niger's commitments to the International Atomic Energy Agency (IAEA) and the world community on safety and security in the nuclear and radiological non-proliferation into statutory and legislative texts. It also aims to complement and strengthen the current legislative arsenal for nuclear and radiological safety and security.

The purpose of those two last laws and other relevant legal instruments is to enable the Nigerien State to assert its commitment and ability to regulate and control the safe and peaceful use of nuclear science and technology and ionizing radiation sources.

### **7.1.3. Ratification of international conventions and legal instruments related to nuclear safety**

Niger has committed to the following legally binding instruments:

- CSN: Convention on nuclear safety Signature: 1994-06-17 and ratified by law 2016-16 of May 26, 2016;
- The convention on early notification and assistance in the event of a nuclear accident or radiological emergency, adopted in Vienna on September 26, 1986;
- JC: Joint Convention on the safety of spent fuel management and on the safety of radioactive waste management Signature: 1997-09-05 and ratified by Law No. 2016-17 of May 26, 2016;
- NOT: Convention on early notification of a nuclear accident Signature: 1986-09-26 and ratified by Niger by law No. 2018-04-12;
- ASSIST: Convention on assistance in the event of a nuclear accident or radiological emergency Signature: 1986-09-26 and by law No. 2016-18 of May 26, 2016.

## **7.2. National safety requirements and regulations**

### **7.2.1. Overview of the secondary legislation for nuclear safety**

Implementing Decrees for laws 2018-21 and 2016-45 are in the pipeline of adoption;

### **7.2.2. Overview of regulations and guides issued by the regulatory body**

- Draft inspection and authorization procedure;
- Examination-assessment plan for an application for authorization: radiotherapy.

### **7.2.3. Overview of the process of establishing and revising regulatory requirements, including the involvement of interested parties**

A decision determining the composition of a consultation committee, in which all interested parties are involved, relating to the national regulatory framework for nuclear and radiological

safety and security is in progress. This decision determines its missions and its operating methods. According to this text, the Chairman of the Committee ARSN may call on any person whose competence he deems necessary for the accomplishment of his mission. Among the missions of the committee, one is to support ARSN. As such, ARSN is responsible for initiating and/or participating in the development of national policies and strategies for radiological and nuclear safety, as well as legislative and regulatory texts.

As part of Niger's nuclear power program, there is a regulatory framework sub-committee in charge of drafting projects, texts, the national radiological and nuclear emergency response plan, policy document and nuclear safety.

### **7.3. System of licensing**

#### **7.3.1. Overview of the licensing system and processes including types of licensed activity and, where appropriate, the procedure for relicensing**

Any person intending to possess and/or use radiation sources must declare it and obtain an authorization from ARSN in accordance with the regulations (article 11 of law 2018-21 of April 27, 2018)

The authorized activities relate to the design, manufacture, construction or assembly, acquisition, import or export, distribution, sale, loan or rental, commissioning, processing, possession, use and operation, maintenance or repair, transfer or decommissioning, dismantling, transportation, storage and recycling or disposal of an ionizing radiation source.

#### **7.3.2. Involvement of the public and interested parties within the Contracting Party**

A public information mechanism is put in place and interested parties affected by the existing exposure situation are involved in the planning, implementation and verification of the corrective actions, including any control and monitoring after the restoration of the site.

#### **7.3.3. Legal provisions to prevent the operation of a nuclear installation without a valid license**

Law 2018 in Title VIII, Offences, Coercions and Sanctions.

Any operator who exercises without authorization or who obtains authorization by providing false information, any person who commits one of the following offences:

- non-compliance with the formal notice from ARSN;
- exercise without respecting the conditions contained in the authorization;
- fraudulent transfer or assignment of authorization;
- disclosure of confidential information;
- operation of a facility other than a reactor without a license;
- violation of the provisions on the construction and operation of a nuclear installation and the conduct of related activities;

The communication by clumsiness, imprudence, inattention, negligence or non-observance of regulations, of information relating to the expectation of the security of nuclear materials ...

#### **7.3.4. Coercive measures**

Decree implementing Law 2016-45 in Chapter 5:

ARSN establishes and implements a policy of coercion within the legal framework, based on a graduated approach, to respond to non-compliance by license holders with the legislative and regulatory requirements in force as well as the conditions and terms specified in the

authorization. Coercive measures include administrative, civil and criminal sanctions in accordance with the provisions of the aforementioned law 2018-21.

### **7.4. System of regulatory inspection and assessment**

#### **7.4.1. Regulatory strategies**

The regulatory strategy is on going

#### **7.4.2. Overview of the regulatory inspection and assessment process with regard to the safety of nuclear installations**

Although Niger does not have nuclear facilities, provisions exist in the Law No 2018-21 in chapter III relating to the safety of nuclear facilities and decommissioning

In Chapter II, Title 2, regulatory activities on inspections and assessments.

#### **7.4.3. Basic features of inspection programmes**

Installations comprising sources of ionizing radiation and equipment are controlled and inspected by ARSN at least once a year.

In addition, holders of ionizing radiation sources must submit them to ARSN for inspection before their first commissioning, after any modification, in the event of the exposure limit being exceeded or whenever necessary.

Control and inspection procedures are established by ARSN.

All license holders must regularly carry out checks on their sources of ionizing radiation and the working atmospheres.

Measures to enforce applicable regulations and conditions of authorization

### **7.5. Enforcement of applicable regulations and terms of licenses**

#### **7.5.1. Power for legal actions**

It is stipulated in Article 2 of Law 2016-45, ARSN is an independent administrative authority with legal personality and financial autonomy.

It is also stipulated in Article 119 of Law 2018-21: In case of violation of this Law, applicable rules or the terms of the authorization, ARSN shall take the necessary coercive measures proportionate to the seriousness of the violation.

The person or entity subject to the enforcement action shall make every effort to comply with the law within the time period prescribed by ARSN.

Where the violation is minor, ARSN may issue a written warning and set a deadline for corrective action.

Where there is immediate danger, ARSN will suspend the violator's activities until the situation is normalized. In such cases, ARSN may also suspend, withdraw, or modify the terms and conditions of the authorization.

In the event of repeated or extremely serious violations of the terms of an authorization, or in the event of a significant release of radioactive waste into the environment, ARSN withdraws the authorization and requires the offender to remedy all problems, without prejudice to criminal prosecution.

#### **7.5.2. Overview of enforcement measures available to the regulatory body**

Enforcement measures in the event of non-compliance or violation of the applicable law and regulations and the conditions attached to the authorization exist.



## Article 8 Regulatory body

- 1. Each Contracting Party shall establish or designate a regulatory body entrusted with the implementation of the legislative and regulatory framework referred to in Article 7, and provided with adequate authority, competence and financial and human resources to fulfill its assigned responsibilities.*
- 2. Each Contracting Party shall take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy.*

### **8.1. Establishment of the regulatory body**

#### **8.1.1. Legal foundations and statute of the regulatory body**

The regulatory authority called ARSN is created by Law No 2016-45 of December 6, 2016 and completed by Law No 2020-48 of October 14, 2020.

It sets up for all nuclear activities and installations using ionizing radiation sources.

the regulatory body established is independent for the control of nuclear activities, ARSN is responsible for the granting of authorizations and control of nuclear and radiological activities and also a department in charge of the system of accounting and control of nuclear material have been put in place.

#### **8.1.2. Mandate, mission and tasks**

ARSN's mission is to regulate activities and practices related to the use of nuclear or radioactive substances and materials, as well as those related to ionizing radiation sources.

In this respect, it is responsible for

- assisting the Government in the elaboration of policies and strategies in the nuclear and radiological field;
- establishing and publishing technical standards for radiation protection, safety, security and guarantees
- safeguards;
- ensuring compliance with nuclear safety and security regulations and safeguards;
- take enforcement action in the event of violations of laws and regulations or in the event of an unsafe or potentially unsafe situation at any location where licensed activities are conducted;
- Cooperate with IAEA in the implementation of safeguards in accordance with the Safeguards Agreement and its Additional Protocol between Niger and IAEA, including the conduct of inspections and visits, the exercise of the right of complementary access, and the provision of assistance or information required by designated IAEA inspectors in the discharge of their responsibilities;
- to inform, educate and consult the public and all other stakeholders on the regulatory process and the safety, security, health and environmental aspects of these practical activities, including incidents, accidents and abnormal events;
- Cooperate with all relevant structures to develop and maintain a plan for the preparation and conduct of emergency response involving nuclear or other radioactive materials in accordance with the national emergency plan;
- participate in the definition of the design basis threat for the application of security measures;
- to cooperate with the regulatory bodies of other States and the competent international organizations.



In order to carry out its missions, ARSN may request the advice or opinions of experts as needed, in particular by recruiting consultants, subcontracting specific projects or creating permanent or special bodies.

### **8.1.3. Authorities and responsibilities**

ARSN provides a public service mission. Its decisions are administrative acts. They may be appealed.

ARSN is associated with the preparation of the position of Republic of Niger in international negotiations related to its missions.

ARSN shall ensure a permanent watch through its regulatory functions, on any exposure situation, in particular planned exposure, existing exposure and emergency exposure, involving a health risk resulting from exposure to ionizing radiation which cannot be neglected from the point of view of protection against ionizing radiation or with regard to the environment, with a view to long-term protection of human health. As such, it is endowed with responsibilities and functions in the field of regulatory control of medical, professional and public exposure.

ARSN is endowed with the authority to take the necessary measures in accordance with the legislative and regulatory provisions in force for the management of radiological risks.

ARSN shall perform its functions in such a way as not to compromise its independence. To this end, it shall ensure that, in its dealings with interested parties, its functions are clearly distinct from those of organizations or bodies responsible for the promotion of nuclear techniques to which responsibilities have been entrusted in relation to the facilities or activities that ARSN regulates.

Only organizations approved by ARSN, in accordance with the terms and conditions established by decision of ARSN, may provide the following technical services:

- individual dosimetric monitoring of workers exposed to ionizing radiation;
- calibration of ionizing radiation detection equipment;
- training and knowledge control of persons competent in radiation protection;
- the measurement of radioactivity as required by ARSN;
- installation and maintenance of ionizing radiation equipment or sources for medical use;
- external quality control of medical equipment or ionizing radiation sources;
- control of the effectiveness of the technical and organizational means put in place by the operator to meet nuclear safety and security requirements;
- technical control of radiation sources and equipment emitting ionizing radiation, protection and alarm devices, and measuring instruments used.

ARSN may, as necessary, complete or modify the above list in accordance with changes in the safety and security requirements applicable to the activities set forth in the aforementioned Law No 2018-21.

### **8.1.4. Organizational structure of the regulatory body**

ARSN is composed of two organs:

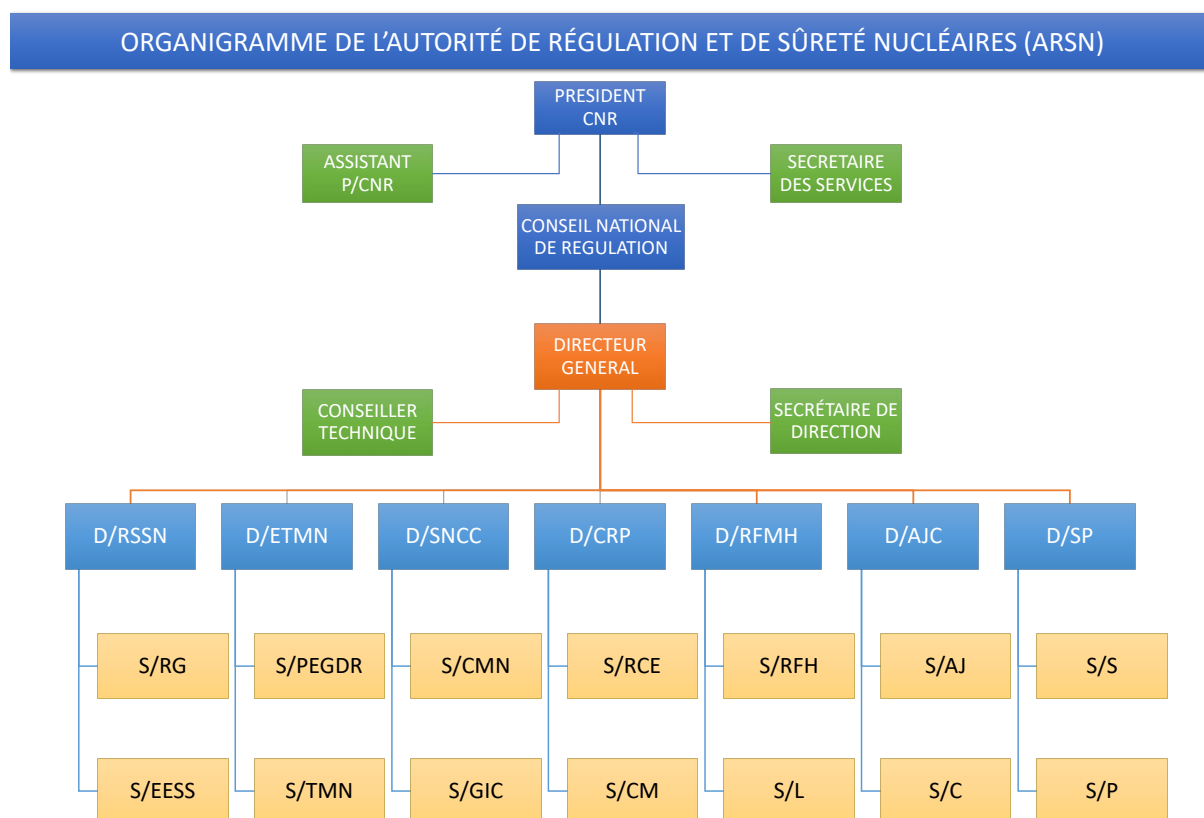
- The National Regulatory Council is composed of seven (7) advisers headed by a president, and
- The General Direction.

The General Direction is headed by a Director General, includes: the Secretariat of the Director General, a technical adviser and the following Departments:

- Environment and Transport of Nuclear Materials Department (D/ETMN),
- In charge of the National Accounting and Control System for Nuclear Materials (D/SNCC),

- Communication and Public Relations Department (D/CRP),
- Radiation Protection, Nuclear Safety and Security (D/RSSN),
- Financial, Material and Human Resources Department (D/RFMH),
- Legal Affairs and Litigation (D/AJC),
- Strategies and Forecasts Department (D/SP).

### Organization chart



#### 8.1.5. Development and maintenance of human resources over the past three years

Nine (9) CNRP agents and two (2) from HANEA were transferred to ARSN. This was followed by the recruitment of three other agents.

#### 8.1.6. Measures to develop and maintain competence

ARSN will establish a process to develop and maintain the necessary skills and abilities of staff, as part of knowledge management. This process includes the development of a specific training program based on an analysis of the skills and abilities needed. The training program covers the principles, concepts and technological aspects, as well as the procedures followed by ARSN to evaluate applications for authorization and approval, to inspect installations and activities and to enforce regulatory requirements.

#### 8.1.7. Developments with respect to financial resources over the past three years

Over years, the financial resources are growing. ARSN's financial resources come from:

- initial endowments and state subsidies;
- revenue generated by the issuance of authorizations and approvals;

donations and bequests from natural or legal persons other than those in the regulated sectors or having interests with them.

### **8.1.8. Statement of adequacy of resources**

The resources of ARSN are entirely and exclusively assigned to the performance of its organic or statutory missions.

ARSN deposit accounts are administered by the Director General; responsible and signatory of any related act.

### **8.1.9. (Quality) management system of the regulatory body**

ARSN is in the way to adopts an Integrated Management System (IMS) for the management of its services and interfaces with all stakeholders in the radiological and nuclear sector.

ARSN Management System aims to:

- ensure that the responsibilities assigned to ARSN are properly exercised;
- maintain and improve the performance of ARSN through the planning, control and supervision of its activities related to nuclear safety and security and safeguards;

fostering and supporting a nuclear safety and security culture within ARSN through the development and reinforcement of leadership and good safety and security attitudes and behaviors on the part of individuals and teams.

### **8.1.10. Openness and transparency of regulatory activities including actions taken to improve transparency and communication with the public**

ARSN will put in place appropriate means of informing and consulting the interested parties and the public on the possible radiological risks associated with the facilities and activities, and on the regulatory processes.

### **8.1.11. External technical support, if appropriate**

ARSN engages, as needed, experts outside its permanent staff as advisers, consultants or auditors to help it fulfill its regulatory responsibilities.

ARSN establishes the recruitment criteria for these consultants, experts and auditors.

ARSN ensures that the technical support received from outside bodies or experts is provided in such a way as to avoid any conflict of interest or any undue influence on regulatory decision-making.

The procedures for using these external services are defined in a procedure's manual duly drawn up by the General Management and approved by the National Regulatory Council.

### **8.1.12. Advisory committees, if appropriate**

ARSN will establish, as needed, advisory committees that may be useful and appropriate for the exercise of its regulatory responsibilities in accordance with Paragraph 4 of Article 51 chapter 6, communication and participation of stakeholders of the nuclear law.

The use of advisory bodies or outside experts does not exempt ARSN from its responsibilities under the applicable legislation, other relevant laws and applicable regulations, Paragraph 5 of article 51

### **8.1.13. National cooperation and coordination**

ARSN plans to sign a memorandum of understanding with certain national institutions concerned, each in its field of competence:

- Ministry of Finance: Customs control;
- Universities of Niger: Training and research;

- Ministry of the Interior: Civil protection, border police, police scientific laboratory...;
- HANEA: Dosimetry and spectrometry analysis results
- Ministry of the Environment: Environmental control over the management of radioactive sources and waste;
- Ministry of Public Health: Authorizations and inspections of X-ray sources and generators;
- Ministry of Transport: Transport of radioactive sources and nuclear materials;

Ministry of Equipment and Urban Planning: Use of radioactive sources in construction.

### **8.2. Status of the regulatory body**

The document concerning the status will be developed

#### **8.2.1. Place of the regulatory body in the governmental structure**

ARSN is attached to the Cabinet of Prime Minister article 1 of the creation of ARSN law No 2016-45.

#### **8.2.2. Reporting obligations (to the parliament, government, specific ministries)**

At the end of each year, the Director General shall submit to CNR for approval an annual report of the activities of ARSN, as well as the accompanying documents including all commitments. Article 21 of Law No 2016-45, and Article 70 of the implementing decree of the same law.

#### **8.2.3. Means by which effective separation is ensured between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy, and means by which independence of the regulatory body in making its safety-related decisions is assured.**

Article 2 of Law No 2016-45, ARSN is an independent administrative authority with legal personality and financial autonomy.

### **Article 9 Responsibility of the licence holder**

*Each Contracting Party shall ensure that prime responsibility for the safety of a nuclear installation rests with the holder of the relevant licence and shall take the appropriate steps to ensure that each such licence holder meets its responsibility.*

### **9.1. Formulation in the legislation (quotation) assigning the prime responsibility for safety to the licence holder**

Obligations and responsibilities of license holders and practitioners

The primary responsibility for safety and security rests with the natural or legal person(s) authorized by an authorization to undertake activities or practices using ionizing radiation and nuclear energy Article 24.

The natural or legal persons holding authorizations ensure compliance with the prescriptions and dose limits set by ARSN and ensure that the doses to workers and the public, including the doses resulting from discharges into the environment, are as low as reasonably achievable, taking into account social and economic factors.

Authorization holders make the necessary arrangements to ensure the monitoring and accounting of the nuclear materials placed under their responsibility. This accounting is subject to periodic checks by ARSN.

Authorization holders ensure compliance with all of the radiation protection requirements as contained in the law, the implementing regulations and the license conditions:

- Description of the main means by which the holder of an authorization fulfills its prime responsibility for security;
- Description of the mechanism by which the regulatory body ensures that the holder of a license fulfills its prime responsibility for safety;

ARSN establishes prescriptions for the protection of people against the harmful effects due to exposure to ionizing radiation Article 22:

ARSN establishes dose limits for people, in the context of activities UNDER regulatory control. These dose limits take into account the recommendations of recognized international bodies, including the IAEA.

ARSN determines the sources or practices that are exempt from regulatory control based on the following criteria:

- the radiological risk for the people exposed is sufficiently low;
- the collective radiological impact is sufficiently low; the source or practice is considered to be inherently safe, the probability of situations which could lead to non-compliance with the preceding criteria being non-existent.

### **9.2. Description of the main means by which the licence holder discharges the prime responsibility for safety**

### **9.3. Description of the mechanism by which the regulatory body ensures that the licence holder discharges its prime responsibility for safety**

Law 2018-21 in Article 18 states that ARSN:

- shall establish a regulatory inspection program to verify compliance with the provisions of this Act, any applicable regulations, and the terms and conditions of licenses issued under its authority;
- have the authority to place inspectors on the site of a nuclear facility when deemed necessary;
- ensure that the regulatory inspection program has adequate financial, technical and human resources to achieve its objectives.

### **9.4. Description of the mechanisms whereby the licence holder maintains open and transparent communication with the public**

Decree No. 2022-849/PRN/PM implementing Law 2018-21 in Article 64 (Management Requirements) states that the licensee must establish a management system appropriate to the size and nature of the licensed activity, which ensures that:

- policies and procedures that identify safety as the highest priority are established,
- problems affecting protection and safety are promptly identified and corrected to the extent of their significance
- the responsibilities of each individual for safety are clearly identified and each person is appropriately trained and qualified
- clear lines of authority for safety decisions are defined
- organizational arrangements and lines of communication are established to achieve an appropriate flow of safety information within and between the different levels of the licensee's organization.

## **Article 15 Radiation Protection**

### **15.1. Implementation of radiation protection programmes by the licence holders, including**

Decree No. 2022-849/PRN/PM of November 03, 2022 implementing Law 2018-21 in its Article 62 (Dose Limit) states that:

- The licensee shall ensure that exposures to individuals due to licensed practices are restricted so that neither the effective dose nor the dose equivalent to tissues or organs exceeds any applicable dose limit as established below:
  - The effective dose to exposed workers is limited to 20 mSv per year averaged over five consecutive years and 50 mSv in a single year. This limit applies to the sum of the equivalent dose due to external exposure during the period concerned and the equivalent dose committed in terms of 50 years as a result of intakes that take place during the same period;
  - The equivalent dose to the lens of the eye is limited to an average of 20 mSv per year over five consecutive years and 50 mSv in a single year;
  - The equivalent dose to the extremities, hands and feet or to the skin is limited to 500 mSv in one year.
- Persons under 18 years of age are not permitted to work in controlled areas except under supervision and only for training purposes. In this case, exposure must be controlled so that the following limits are not exceeded
  - effective dose of 6 mSv in one year;
  - equivalent dose to the lens of the eye of 20 mSv in one year;
  - equivalent dose to the extremities or skin of 150 mSv in one year.
- For public exposure, the dose limits are as follows:
  - an effective dose of 1 mSv per year;
  - in special circumstances, a higher effective dose could be permitted in a single year provided that the average effective dose over five consecutive years does not exceed 1 mSv per year;
  - an equivalent dose to the lens of the eye of 15 mSv per year;
  - a skin equivalent dose of 50 mSv per year.
- The dose limits in this section do not apply to patients. However, ARSN shall establish, in collaboration with the organizations concerned, equivalent dose limits for cases of use of ionizing radiation or radioactive substances for medical research purposes, when the exposed individual does not derive a direct benefit from the irradiation.

### **15.2. Regulatory review and control activities**

Decree No. 2022-849/PRN/PM of November 3, 2022 implementing Law 2018-21 stipulates in Section 2: INSPECTIONS AND SOURCE CONTROLS:

#### Article 31

- a. Facilities comprising ionizing radiation sources and equipment shall be monitored and inspected by ARSN at least once a year.
- b. In addition, holders of ionizing radiation sources must submit them to ARSN for inspection before they are first put into service, after any modification, if the exposure limit is exceeded or whenever necessary.
- c. The control and inspection procedures are established by ARSN.

#### Article 32

All Authorization Holders must carry out regular checks of their ionizing radiation sources and work environments.

#### Article 33

As part of the checks, the following information must be available for any sealed source

- a. the registration number of the source, its year of manufacture and its initial activity;
- b. the date of its receipt;
- c. the name and address of the source supplier;
- d. the serial number or certification number of the device in which the source is installed
- e. the safety provisions provided for in case of operation on the source and the apparatus containing it and in case of fire.



### Article 34

In the context of inspections, the following information must be available for each x-ray generator and x-ray tube

- a. the model or type;
- b. the serial number;
- c. manufacturing standard or approval number;
- d. name and address of manufacturer and supplier;
- e. maximum high voltage and power of the generator;
- f. the maximum current intensity and the maximum exposure time.

### Article 35

- a. Contamination checks of the devices for the use of radioactive sources and of the premises shall be carried out. The results shall be recorded in a register kept by the Permit Holder and made available to the radiation protection inspectors.
- b. In the event of a leak of radioactive material, all measures must be taken without delay by the licensee to remedy the situation.
- c. The results of inspections are documented, recorded and made available to competent persons and licensees or other entities as a basis for corrective or enforcement action in specific cases or for regulatory improvement.
- d. The technical details of the inspection shall be established by regulation

## Article 16 Emergency preparedness

1. *Each Contracting Party shall take the appropriate steps to ensure that there are on-site and off-site emergency plans that are routinely tested for nuclear installations and cover the activities to be carried out in the event of an emergency. For any new nuclear installation, such plans shall be prepared and tested before it commences operation above a low power level agreed by the regulatory body.*
2. *Each Contracting Party shall take the appropriate steps to ensure that, insofar as they are likely to be affected by a radiological emergency, its own population and the competent authorities of the States in the vicinity of the nuclear installation are provided with appropriate information for emergency planning and response.*
3. *Contracting Parties which do not have a nuclear installation on their territory, insofar as they are likely to be affected in the event of a radiological emergency at a nuclear installation in the vicinity, shall take the appropriate steps for the preparation and testing of emergency plans for their territory that cover the activities to be carried out in the event of such an emergency.*

### 16.1. Plan and response to radiological emergencies

Law 2018-21 provides that Niger adopts a National Plan for Intervention in Radiological and Nuclear Emergency Situations (PNIU). In addition, the 2017 law relating to ORSEC and its implementing decree take these aspects into account.

A draft policy, strategy and plan document on nuclear and radiological emergencies is under development.

Niger's nuclear and radiological emergency policy and strategy is an integral part of the general security policy and strategy.



Nuclear and radiological risks are justified by the use of radioactive sources in various socio-economic, industrial and health fields.

In fact, a committee has been set up to develop a national policy and strategy document in the event of a nuclear or radiological emergency.

Effective Management of Nuclear & Radiological emergency requires a national plan and arrangement to be in place, for this task a sub-committee has been set up for the development of a protection strategy in the event of a nuclear or radiological emergency.

Effective management of nuclear and radiological emergencies requires a national plan and capability. A well-maintained and shared joint exercise must be conducted regularly as part of the national strategy.

Decree No. 083 of February 19, 2009 / MSP created a national team of intervention in case of radiological emergency stipulating in its Article 2, the mission and composition of the team is defined in Article 3.

The national plan of intervention in case of radiological and nuclear emergencies is under development.

Actually, we have a draft of a national radiological and nuclear emergency response plan which takes into account the nuclear aspect.

### **16.2. Legal framework of ORSEC plan**

A legal framework governing the provisions relating to the preparation and conduct of emergency interventions is based on the following legal texts:

- Law No. 2017-06 of March 31, 2017, determining the fundamental principles of the organization of civil protection,
- Law No. 2018-21 of April 27, 2018, on safety, security and peaceful use of atomic energy,
- Decree No. 2047-876/PRN/MISP/D/ACR/MAH/GC of November 10, 2017, determining the conditions for developing emergency organization plans (ORSEC plans),
- Decree No. 2022-849/PRN/PM of November 03, 2022 implementing Law 2018-21 of April 27, 2018.

### **16.3. National plan (ORSEC)**

The ORSEC plan is part of the general civil protection planning system. It organizes the mobilization, implementation and coordination of actions of all public or private persons contributing to the general protection of the population and the environment.

Each public or private person listed in the ORSEC plan:

- a) is able to ensure permanently the missions which are devolved to it within this framework by the prefect or the governor;
- b) prepares its own organization for the management of the event and provides a summary description to the representative of the State in the department and in the region;
- c) designates from within its ranks a person in charge of the State's representative;
- d) specifies the internal arrangements enabling it, at any time, to receive or transmit an alert
- e) specifies the resources and information at its disposal that may be useful in the context of the general protection of the population under the responsibility of the State representative and the specific missions assigned to it by the latter.

When several public or private persons carry out the same mission, they may set up a joint event management organization and appoint a joint manager to act as the State representative's

correspondent.

This information is transmitted to the State representative and kept up to date by each public or private person.

The ORSEC plan includes:

- a) an inventory and analysis of the risks and potential effects of threats of all kinds to the safety of persons, property and the environment, identified by all public and private persons;
- b) an operational mechanism that responds to this analysis and that organizes the reaction of the public authorities to the event in a continuous manner;
- c) the methods of preparation and training of all public and private persons in their civil protection mission.

The ORSEC operational system constitutes a global organization for the management of events adapted to the nature, scale and evolution of the event by its progressive and modular nature. It organizes the exchange of information from public and private entities in order to ensure a permanent watch.

The overall organization provides for general provisions dealing with the elements necessary for the management of any type of event, supplemented, if necessary, by specific provisions to deal with the foreseeable consequences of each of the risks and threats identified. -

The Prefect or the Governor may, if the present or foreseeable situation so requires, at any time, use all or part of the elements of the ORSEC operational mechanism, depending on the circumstances.

Exercises allow the general and specific provisions of the operational mechanism to be tested and involve the periodic participation of the population.

The Prefect or the Governor decides on an annual or multi-year calendar of general or partial exercises for the implementation of the ORSEC operational plan. Exercises common to the regional and departmental ORSEC operational arrangements must be included.

The Minister in charge of Civil Protection, in collaboration with the Minister in charge of Humanitarian Action and Disaster Management, ensures the synthesis and dissemination at the national level of the feedback from experiences carried out under the authority of the State's representative after any recourse to the ORSEC mechanism, whether it is a real event or an exercise.

The prefect or the governor shall adopt the various parts of the ORSEC plan as they are developed and revised.

The ORSEC plan is updated by the updating of the databases carried out by each of the designated public and private persons.

### **D. Conclusions**

Major advances have been made, in terms of regulations, with regard to the safety and security of sources. To further improve the legal framework, actions have been planned, including:

- Implementation of the regulation under development;
- Undertake an extensive ongoing education and outreach program with stakeholders;
- Publish a code of practice for the security of radioactive sources and develop specific guidelines for associated practices;
- Formally adopt the national nuclear security strategy;
- Maintain and develop the peer review policy;

Improve infrastructure and services to search for orphan sources.

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