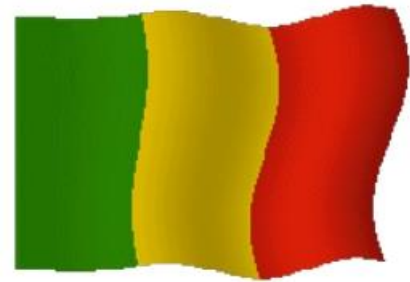

AGENCE MALIENNE DE RADIOPROTECTION (AMARAP)



NATIONAL NUCLEAR PROGRAMME IN MALI

MALIAN RADIATION PROTECTION AGENCY (AMARAP)

Dr. Nagantié KONE

Director General

February 2023

It is important to notify, most of the informations in this report was based on :

- The ordinances and decrees of AMARAP and
- The activities report updated to the date of December 31, 2022.

I. APPLICATIONS OF ATOMIC ENERGY IN MALI

- ❖ Medicine ;
- ❖ Industry ;
- ❖ Mines ;
- ❖ Agriculture and
- ❖ Research

II. INTERNATIONAL CONVENTIONS

Mali is complying with some international Conventions like:

- Convention on the nuclear safety, ratified in 1996 ;
- Convention on the Physical Protection of Substances physics, adopted in Vienna on 26/10/1979 ;
- Amendment to the Convention on the Protection of Nuclear Material, adopted in Vienna on 08 July 2005 ;
- Convention on Early Notification of a Nuclear Accident, adopted in Vienna on 26/09/1986 by the IAEA General Conference ;
- Convention on Assistance in the Event of an Accident or Radiological Emergency ;
- International Convention on Terrorist Attacks to explosive, adopted by the United Nations General Assembly on 12/12/1997 in New-York ;
- International Convention on the Suppression of the Acts of Nuclear Terrorism, adopted in New-York on April 13, 2005 by the United Nations General Assembly ;
- Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (1988 SUA Convention), done at Rome on March 10, 1988 ;
- Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf, done at Rome on March 10, 1988 ;
- Protocol of 2005 on the Fixed Platforms Protocol of 1988.

III. ARTICLE7: LEGISLATIVE AND REGULATORY FRAMEWORK

1. Legal framework:

In Mali, the legal framework of the safety and security of ionizing radiation sources (including nuclear materials) is composed of 2 ordinances and 2 decrees) :

- Ordinance n°02-059/P-RM of June 05, 2002, setup the basis of radiation Protection and safety of radiation sources [this ordinance is on going of modification (in draft) in order to strength the national regulatory in term of ionizing radiation] ;
- Ordinance n°02-060/P-RM of June 05, 2002, created the National ; Regulatory Body called «Agence Malienne de Radioprotection (AMARAP)» [this ordinance is on going of modification (in draft) in order to strength the national regulatory in term of ionizing radiation] ;
- Decree n°02-333/P-RM of June 06, 2002, precised the organizational and Functioning modalities of the AMARAP;
- Decree n°2014-0931/P-RM of December 31, 2014, setup the rules of protection against ionizing radiation, the safety and security of sources of ionizing radiation ;
- The joint-Departmental Order between several Ministries n°2022-2431/MMEE/MTI/MEADD-SG, signed to the date of June 22, 2022, relative to the transport of radioactive materials in Mali ;

And we also have joint-Departmental Order in draft stage between several Ministries (about waste management).

2. Memoranda of Understanding:

AMARAP has memoranda of understanding, with countries:

- ✓ ARSN of Burkina-Faso (signed) and
- ✓ AMSSNuR of Morocco Kingdom (being signed)

AMARAP has also established a memoranda of understanding with the national stakeholders:

- Labor inspectorate (signed),
- Customs office (signed),
- National Inspectorate of Health (signed),
- National directorate for sanitation and pollution and nuisance control,(signed).

Mali is a member of the Forum of Nuclear Safety and Security Authorities (FASSN), also member of the Forum of the Nuclear Regulatory Body of Africa (FNRBA).

3. Authorization or declaration regime:

a. Notification of Intention to Conduct a Practice:

Any Physical or legal person intending to carry on an activity involving ionizing radiation must first inform AMARAP in writing.

Any private or public activity involving exposure to ionizing radiation is subject to an authorization or prior declaration regime. The practices concerned are:

Production, Processing, Handling, Use, Export, Import, Storage, Mining, Design, Manufacturing, Construction, Assembly, Acquisition, distribution, sale, rental, location, commissioning, possession, decommissioning, disassembly, disposal, transport of radioactive material or radioactive sources and design, possession (based on the Decree N °2014-0931).

b. Licensing process:

No person may undertake an activity involving ionizing radiation unless he holds an authorization issued by AMARAP (based on the Decree N °2014-0931).

Activities conducted by our regulatory body as authorization process are:

- Receipt of an application;
- Verifying the completeness of submitted information and documents;
- Review and assessment of the application;
- When necessary, a pre-authorization inspection is conducted;
- Decision making to grant or deny the authorization-Issuing the authorization certificate;
- Renew, amend, suspend, or revoke authorizations.

c. Licensing conditions:

License is issued with conditions and requirements (based on the Decree n °2014-0931). Some of them are:

The licensee must:

- Be assured that the personal who could handle the ionizing radiation emitters possess the required qualifications;
- Comply with the regulations in force;
- Record and inform AMARAP of any incident or accident involving ionizing radiation equipment;
- Comply with the institution's Radiation Protection Program (PRP), in particular, ensure that no one manipulates equipment emitting ionizing radiation unless it has there quired qualifications;
- Provide AMARAP with prior written notice of any intent to sell, move, or dispose of the equipment;
- Regularly train staff likely to work in an ionizing radiation emitting area;
- Send a renewal request to AMARAP three(03) months before the expiry date of the license. Any delay in renewal is subject to a penalty.

IV. ARTICLE 8: REGULATORY BODY:

In Mali the regulatory body is the MALIAN RADIATION PROTECTION AGENCY (AMARAP), created by the **Ordinance n°02-060/P-RM**.

The mission of AMARAP is to elaborate the elements of the national policy in the field of radiation protection and to ensure the control of sources of ionizing radiation and the management of radioactive waste.

For this purpose, it is responsible for :

- Prepared raft laws and regulations on radiation protection and nuclear safety and ensure their application;
- Examine applications for authorization for the acquisition;
- Take the necessary precautionary measures in case of violation of radiation protection regulations;
- Participate in any radiological emergency operation in the event of an incident or accident involving sources of ionizing radiation;
- Regularly monitor the radiological level in the country;
- Coordinate national radiation protection programs for the development of the national radiation protection infrastructure in all its components;
- Represent the Malian Government in matters of international cooperation, in the fields of the regulation of radiation protection and the management of radioactive waste, etc.

V. ARTICLE 9: RESPONSIBILITY OF THE LICENCE HOLDER

According to the Decree N °2014-0931, the authorization holders and employers are responsible for, among other things:

- The declaration and the application for authorization for the acquisition of new equipment with ionizing radiations ;
- The establishment of radiological safety and radioactive source safety objectives in accordance with the requirements defined by this decree;
- The development, implementation and documentation of a radiological safety and radioactive sources security program, etc.

VI. ARTICLE 11: HUMAN RESOURCES

One of our challenges is insufficient qualified human resources.

We have a human resources plan.

VII. ARTICLE 13: QUALITY ASSURANCE

Based on the requirements to obtain the authorization from AMARAP for any practice using ionizing radiation, the license holder must establish an efficient assurance quality programme into his facility. Any workers working in an ionizing environment should have dosimetric monitoring appropriate to the occupied workstation.

The employer is required to provide dosimetric and medical supervision of exposed workers.

A medical file including a workstation card, a dosimetric state and the results of medical examinations must be kept and regularly updated by the occupational health service responsible for the protection of the health of workers exposed to ionizing radiation.

VIII. ARTICLE 15: RADIATION PROTECTION

□ The national register of sources :

The regulatory body is responsible for inventorying, building and maintaining the national register of radioactive sources and devices generating ionizing radiation present in the national territory.

Every operator of an installation containing radioactive sources and/or devices generating ionizing radiation must keep a complete and regularly updated register in the scope of the relevant information.

At this date of decemeber 31, 2023 (based on the activities report of AMARAP in 2023), Mali has inventoried 726 sources of ionizing radiation in witch :

- 247 radioactive sources and,
- 479 devices generating ionizing radiation.

□ Inspections:

The regulator body conducts scheduled inspections. The inspection program is established taking into account the categorization of sources and the classification of establishment.

The regulatory body may at anytime perform unannounced inspections of establishments and facilities containing sources of ionizing radiation.

□ Powers of inspectors:

Regulatory body Inspectors are invested with judicial police powers and may seal the premises inspected:

- ✓ For investigation purposes,
- ✓ In case of emergency,or
- ✓ In case of exposure conditions that could lead to an emergency situation

Any obstacle to the conduct of the inspections is the subject of warning, suspension or cancellation of the authorization not with standing the application of the provisions of the Penal Code in this matter.

□ Appointment of inspectors:

AMARAP has officially some trained and appointed inspectors available any time to handle the inspections of facilities using ionizing radiation in Mali.

IX. ARTICLE 10: PRIORITY TO SAFETY

Authorization holders and employers are responsible for the development, implementation and documentation of a radiation safety and radioactive sources, security program adapted to the nature and extent of the risks associated with the practices and interventions under their responsibility.

Physical Protection of Nuclear and radioactive Material

Mali ratified the Convention of Physical Protection of Nuclear Materials and

X. ARTICLE 16: EMERGENCY PREPAREDNESS EMERGENCY PLANS

Mali has drafted national radiological emergency plan.

AMARAP is part of stakeholders in charge to implement the national emergency plan based on the accidents and incidents involving Nuclear, radiological, biological and chemical (NRBC) materials.

In this framework, Mali received some equipments from the centers of excellence of European Union (projects n°P63 and P70) and 2 weeks training were carried out on these equipments.

AMARAP is participating to the implementation (informations) of the evaluation tool called “*International health regulation*” of WHO (World Health Organization).

This tool permits to the WHO to evaluate the response capacity of its members states to face to any emergency situation involving NRBC materials. It is putted under supervision of Ministry in charge of health and social development.

XI. CHALLENGES

1. Insufficient financial resources ;
2. Insufficient qualified human resources ;
3. Clarification of Mali position regarding integration of nuclear power into its energy mix ;
4. Issues of sensitization of all interested parties ;
5. Concerns with training of users of radioactive sources and/or devices
Generating ionizing radiation.

XII. SUGGESTIONS

1. To organize training for inspectors ;
2. To assist AMARAP to implement a solid legislative texts in the field of ionizing radiation ;
3. To assist the country in strengthening law enforcement mechanism ;
4. To assist the country to equip the radiological emergency plan responders with detection equipments.

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