

Nuclear Law in Morocco: National and International Aspects

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I. Introduction

“Nuclear law”, the term preferred these days to “atomic law”, covers all specific legal rules governing the social consequences of the physical phenomena of the release of energy by the fission, fusion or other transformations of atomic nuclei, including the energy from ionising radiation from whatever source.¹

The peaceful applications of nuclear energy, together with all their potential benefits for mankind, are often associated in the public mind with the problems of the proliferation of nuclear weapons and nuclear war. This association is due to the fact that the materials, know-how and skills required to manufacture nuclear weapons are not always distinct from those used to produce electricity or undertake research. Another reason is that, from a historical perspective, military applications preceded the peaceful use of nuclear energy.

This explains the permanent concern of the international community to ensure that nuclear energy is used for peaceful purposes, without risk. The approach taken results from a complex set of measures at both the national and international level. While it is true that it is national authorities who are primarily responsible for regulating the use of nuclear energy, it is just as true that other countries can suffer the effects of such use. Like many other activities the effects of which can cross frontiers, regulating nuclear energy therefore requires residual responsibility to be invested in the international community – sometimes even a co-responsibility – in order to ensure, *inter alia*, uniform standards, co-ordination, the sharing of resources and services, and compliance with the rules.²

The IAEA (International Atomic Energy Agency), among other international and regional organisations, has played a central role in this respect. Article 2 of its Statute provides that it “shall seek to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity

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1. *Encyclopédie Universalis* France.
2. *Le droit nucléaire et l'énergie nucléaire : aperçu du cadre juridique*. Mohamed El Baradei, Edwin Nwogugu and John Rames.

throughout the world” and “shall ensure, so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose”.

Over the last 30 years, international co-operation relating to nuclear energy has produced a set of binding legal rules, standards and recommendations. The nuclear law contained therein covers diverse aspects such as protection against ionising radiation, nuclear safety and the prevention of accidents, preparation for radiological emergencies, the management of spent fuel and radioactive waste, the transport of nuclear materials and fuel, physical protection, non-proliferation, liability for, and compensation of nuclear damage including insurance matters, and international trade in nuclear equipment and materials.

What is the position in Morocco?

In Morocco, nuclear law does not, strictly speaking, constitute a branch of the law, like civil law. Its provisions are adopted pursuant to existing codes and legislation. But it may be said that it constitutes a branch of the law, as broadly defined.

It may be described, first, from a national viewpoint (Part 1 *infra*) and then from the standpoint of international undertakings (Part 2 *infra*).

An analysis and critical examination of Moroccan legislation, the first example of which dates from 12 October 1971 (Act on Protection against Ionising Radiation – see *Nuclear Law Bulletin* No. 61), shows that Morocco has created the institutions and adopted the regulations necessary for its development in this sphere.

II. National Aspects

Morocco has various nuclear-related institutions. We shall first describe them (A) before making a critical presentation of national regulations (B).

A. National Institutions in Morocco

These are of both a technical and a legal nature, and include:

- a) *National Centre for Nuclear Energy, Science and Technology (Centre national de l'énergie, des sciences et des techniques nucléaires – CNESTEN)*

Created by Dahir No. 1-85-98 of 14 November 1986, the Centre is governed by Decrees No. 2-68-195 of 19 January 1987 and No. 2-92-964 of 29 April 1993.

Its tasks are to:

- carry out research on nuclear energy, science and technology, and to promote their development with a view to implementing a national nuclear power programme and to using nuclear technology in Morocco's various social and economic sectors;

- carry out, at the request and on behalf of the state, all work and studies necessary for the administration to exercise control over the construction and use of nuclear installations and over the management of nuclear materials;
- import, store and distribute nuclear fuel (the Centre holds a monopoly over the exercise of these activities);
- collect and store, for the users of radioactive materials, the waste resulting from such use, in co-operation with the competent government services; and
- undertake all activities relating to the production and marketing of all processes, equipment and materials used for nuclear activities, directly by its own means or through the intermediary of subsidiaries created for this purpose.

It was under this provision that the Maâmora Nuclear Research Centre was created.

b) Maâmora Nuclear Research Centre (Centre d'études nucléaires de la Maâmora – CENM)

This Centre is governed by Decree No. 2-94-666 of 7 December 1994.

Its main tasks are to:

- promote nuclear technology in Morocco's social and economic sectors, including the development of applications, assistance to users and the training of experts;
- contribute towards the implementation of a national nuclear energy programme including the organisation and performance of various support activities; and
- assist the State in exercising control over nuclear activities and protecting the public and the environment from the hazards of ionising radiation.

c) National Nuclear Energy Council (Conseil national de l'énergie nucléaire – CNEN)

The Council was set up under the Prime Minister by Decree No. 2-90-352 of 5 May 1993, and is responsible for:

- proposing to the government the orientations and objectives of national policy on the peaceful use of nuclear energy for economic, scientific and technological development purposes, and for proposing measures to co-ordinate the implementation thereof;
- co-ordinating the nuclear scientific and technical programmes of the different departments and public bodies concerned;
- giving an opinion on all questions of nuclear regulation; and
- proposing priorities for international co-operation in the field of nuclear energy.

Various Commissions have been set up under the Council, including the Commission for the Co-ordination of Nuclear Activities (*Commission de coordination des activités nucléaires – CCAN*), a Nuclear Regulation Commission (*Commission de la réglementation nucléaire – CRN*) and a Commission responsible for International Co-operation Programmes (*Commission chargée des programmes de coopération internationale – CPCI*).

The task of the CCAN is to prepare and monitor enforcement of the Council's recommendations concerning nuclear policy and orientation.

The task of the CRN is to prepare and monitor enforcement of the Council's recommendations concerning the monitoring of national and international nuclear regulations.³

The task of the CPCI is to prepare and monitor enforcement of the Council's recommendations in relation to international nuclear co-operation.

d) *National Nuclear Safety Commission (Commission nationale de sûreté nucléaire – CNSN)*

This Commission was set up by Decree No. 2-94-666 of 7 December 1993, and is composed of:

- an independent scientific or technical expert⁴ appointed by the Prime Minister on the proposal of the Minister for Energy, to preside the Commission for a period of four years, which may be renewed;
- representatives of the Ministers for the Interior, Public Health, Higher Education, Public Works, Transport, Agriculture, Employment, Energy, Environmental Protection and National Defence;
- the Director of the National Centre for Nuclear Energy, Science and Technology, or his representative; and
- two scientific or technical experts appointed by the Prime Minister on the proposal, respectively, of the Minister for Energy and the Minister for Public Health, for a period of four years, which may be renewed.

The Commission is convened by its chairperson. It may invite any person whose qualifications are judged useful for its work, to sit on the Commission in an advisory capacity. Its proceedings are valid only if at least half its members are present. The secretariat of the Commission is provided by the Minister for Energy.

The Commission gives its opinion on licensing applications and on the conditions attaching thereto as well as on any modification affecting the safety of a nuclear installation.

e) *National Centre for Radiation Protection (Centre national de radioprotection – CNRP)*

In the context of the policy conducted by the Minister for Health with regard to the prevention of and protection against ionising radiation, compliance with the provisions (Act of 12 October 1971) relating to protection against ionising radiation and to safety standards is of particular importance. Thus, it was decided to create the National Centre for Radiation Protection (CNRP), which has been entrusted to:

- control the import, export, transport, storage and use of sources of ionising radiation;

3. This aspect will be studied in Part B – National Regulations in Morocco.

4. This independence remains nevertheless subject to the exclusive choice of the Minister for Energy and acceptance by the Prime Minister. Would it not be better to provide for voting by the scientific community?

- carry out prior checks of any technical installation using sources of ionising radiation;
- monitor the security arrangements and radiation protection measures in public and private installations using sources of ionising radiation;
- carry out the research and analysis needed to determine the presence of ionising radiation in various environments in which it might present a danger to the health of workers, the public and the environment;
- ensure application of radiation protection regulations;
- centralise all statistical data relating to protection against ionising radiation;
- help provide initial and advanced training to staff, and help in reskilling;
- in collaboration with the services and bodies concerned, help promote and develop health education programmes and radiation protection information;
- help inform the public about radiation protection aspects; and
- prepare and implement sectoral, bilateral and international co-operation programmes in the field of radiation protection.

f) Association of Moroccan Nuclear Engineers (Association des ingénieurs en génie atomique du Maroc – AIGAM)

This cultural association, created in 1985, is regulated by the Dahir of 15 November 1958. It is very active in Morocco, at both scientific and legal levels. Its chairperson plays a leading role in nuclear development in Morocco, in co-operation with the CEA (*Commissariat à l'énergie atomique* – Atomic Energy Commission, France), INLA (International Nuclear Law Association) and other international bodies. All of these bodies monitor compliance with, and the development of, national regulations.

B. National regulations in Morocco

As part of the effort made by Morocco to consolidate and strengthen its legal infrastructures, basic legislation has been drafted with the assistance of IAEA experts and in conformity with Morocco's international undertakings. The examination and finalisation of these texts is being carried out by the Nuclear Regulation Commission which is answerable to the National Nuclear Energy Council.

The legislation in force, sent to the government's Secretariat-General or in course of preparation, includes the following:

a) Basic text

This is Act No. 005-71 of 12 October 1971 on Protection against Ionising Radiation. This Act introduces the principles of the use of radioactive materials and of licensing for activities involving them. It states that the conditions for declarations and licences will be laid down by decree. It contains a mixed bag of provisions including a ban on the use of radioactive substances in toys, the punishments applicable to offences in this field, etc.

It is far from being a specific and structured piece of legislation on nuclear energy.⁵

b) *Act establishing the CNESTEN*

This is the Act promulgated by Dahir No. 1-85-08 of 14 November 1986, which established the National Centre for Nuclear Energy, Science and Technology (CNESTEN).

It defines the tasks of the Centre in the context of the peaceful use of nuclear energy (see I-A-a), and describes its directing and managing bodies and its resources and financial organisation.

The Decree of 29 April 1993 amends that of 19 January 1987 adopted in implementation of the Act. It provides that the minister responsible is the Minister for Higher Education and Scientific Research, and specifies the composition of its Managing Board and Technical Committee.

c) *Decree establishing the CNEN*

The National Nuclear Energy Council (CNEN) was set up by Decree No. 2-90-352 of 5 May 1993.

This Decree lays down the tasks of the National Nuclear Energy Council, and its composition, organisation and main commissions (see I-A-c).

d) *Nuclear safety*

Three decrees regulate this field:

- Decree No. 2-94-666 of 7 November 1994 on the licensing and control of nuclear installations.
- Decree No. 2-95-708 of 9 November 1995 on the appointment of the chairperson and two members of the National Nuclear Safety Commission.
- Decree No. 2-99-111 of 26 February 1999 on the construction licence for the Maâmora Nuclear Research Centre.

The Decree on the licensing and control of nuclear installations establishes a prior licensing procedure aimed at enabling effective control and continued supervision of all aspects of nuclear safety. The National Nuclear Safety Commission, provided for by this Decree, was set up in April 1996. The Commission has an advisory role which, together with its high degree of dependence on the executive, does not seem to be in harmony either with the objectives this body is aiming to achieve, or with the recommendations of the IAEA.

As regards bringing Morocco's regulations into line with the Nuclear Safety Convention of September 1994, the sub-committee responsible for the legal framework is of the opinion that the power each ministerial department has at present to legislate, license and control the fields concerning

5. See page 17 of the *Handbook on Nuclear Law* published by the IAEA, giving an example of a structure for a comprehensive nuclear law.

it, must be reviewed so that those concerned are not in the position of being both judge and jury, and also in order to introduce more effective controls.⁶

e) *Protection against ionising radiation*

Two decrees deal with this matter:

- Decree No. 2-97-30 of 28 October 1997 on protection against ionising radiation (see *Nuclear Law Bulletin* No. 61); and
- Decree No. 2-97-132 of 28 October 1987 on the use of ionising radiation for medical or dental purposes (see *Nuclear Law Bulletin* No. 61).

These Decrees regulate the radiation protection aspects of the various uses of radioactive sources and substances, particularly in industry (industrial radiography) and medicine (radiotherapy).

Moroccan legislation is based on the IAEA Basic Safety Standards. The main instruments are Act No. 005-71 of 12 October 1971 on protection against ionising radiation and the two implementing Decrees, mentioned above, one of which is of general scope⁷ and the other relates to the use of ionising radiation for medical or dental purposes.

The Act prohibits certain practices which could endanger public health, namely:

- the addition of radioactive substances in the manufacture of foodstuffs, cosmetic products and products for domestic or private use; and
- the use of radioactive substances in the manufacture of toys.

Establishments in which radioactive sources are held or used are classified in accordance with the activity and radiotoxic group of the radioelements involved (group A: very high, group B: high, group C: moderate and group D: low) and on whether the sources are sealed or not (Categories I and II).

The import, export, acquisition, manufacture, transformation, possession, use and sale of radioactive substances or sources of ionising radiation leading to the classification of the establishment concerned in one of the two above-mentioned categories, are subject to licensing, except for establishments in the second category, class 3.

When the said substances or sources, in transit in Morocco, are to be unloaded or transferred within the country, this must be notified to the National Centre for Radiation Protection, answerable to the Minister for Health, specifying the nature and quantity of the radioactive materials transported by land, air, sea or inland waterway. They are stored and handled in accordance with the directives of the Centre, and moved only with its authorisation.

Category 1 establishments are subject to the licensing system laid down by Decree No. 2-94-666 of 7 December 1994 on the licensing and control of nuclear installations.

6. A general nuclear Bill is being drafted at present.

7. This is a fundamental piece of legislation in Morocco.

Licences for category 2, classes 1 and 2 establishments are issued by the Minister for Health. The application made to the Minister must be accompanied by a file containing detailed technical and legal information.

Licences are granted to establishments meeting the conditions required with regard to radiation protection relating to:

- the expertise of the users responsible;
- the premises which are to serve for the storage and use of radioactive sources;
- the equipment for detecting ionising radiation;
- the safety of workers;
- dosimetric and medical surveillance;
- means of transport.

Licences specify the nature, quantity, and physical form (sealed or not) of the radioactive sources, the conditions for use and the country of origin and the supplier. They may be valid for a limited period only and can be renewed on the same conditions and in accordance with the same procedure as the initial licence.

The import, export, transformation, sale, transport, storage, assignment and disposal of radioactive substances by a category 2, class 3 establishment must be notified to the Minister for Health. This notification must specify in particular the nature and geographical location of the establishment, the premises available, the characteristics of the radioactive substances and their compatibility, the specifications of the equipment used and details about the staff using them. It must be accompanied by all relevant documentation.

In addition to these basic texts which we have just analysed, other planned legislation is to be drafted:

- Joint Order of the Ministers for Health and Employment providing for the medical supervision of exposed workers;
- Decree on radiation protection in mines;
- Decree defining the health and safety conditions which industrial radiological equipment using gamma radiation must meet;
- Order laying down the content of the rules for using the monitoring documents required for the implementation of the provisions of the Decree on industrial radiography;
- Decree on the prohibition of the use of radioelements in the manufacture of lightning conductors and the marketing and import of such conductors;
- Decree or Order on the Aptitude Certificate for handling industrial radioscopic or radiographic apparatus;
- Decree on harmonising measures concerning environmental radioactivity and foodstuffs;
- Work Health Code.

f) *Planned legislation*

1) Third party liability

A Bill on third party liability with regard to nuclear damage has been submitted to the Secretariat-General of the government.

This Bill was drafted on the basis of the 1963 Vienna Convention on Civil Liability for Nuclear Damage, signed in November 1984.

2) Radioactive waste management

A draft Decree on radioactive waste management was submitted in February 2001 to the Secretariat-General of the government.

3) Transport of radioactive materials

A draft Decree on the transport of radioactive materials is being prepared. A first draft, prepared by the Minister for Energy and Mines, has been submitted to the members of the Nuclear Regulation Commission for examination and opinion.

4) Radiological emergency assistance

A plan of action in the event of a radiological emergency is being prepared. A first draft has been prepared by the Minister for Energy and Mines, with the assistance of the IAEA and in collaboration with the Civil Protection Directorate.

5) Physical protection

A draft Order regulating the physical protection of nuclear materials is being prepared. A first draft has been prepared by the Minister for Energy and Mines with the technical support of the IAEA.

6) Processing of foodstuffs

A draft Decree on the processing of foodstuffs by ionisation has been prepared by the Minister responsible for Agriculture.

III. International Aspects

Before examining Morocco's commitments in the nuclear field (B), we shall briefly present its position with regard to international law, the IAEA (International Atomic Energy Agency) and its statute (A). For the Agency, of which Morocco is a member, plays a central role in relation to international nuclear law.

A. *International law in Morocco and the IAEA*

a) *The Moroccan Constitution*

Morocco's Constitution adopts the classic approach of the direct application of international law and its primacy over national legislation. The revised Constitution of 9 October 1992 (which reformulates, on this point, the wording of previous constitutions) provides, in Article 31, that the King "shall sign and ratify treaties". However, treaties committing public funds cannot be ratified without the prior approval of the Chamber of Representatives. Lastly, treaties which "might call into question the provisions of the Constitution shall be approved in accordance with the procedures laid down for reforming the Constitution."

It therefore clearly results from the Moroccan Constitution that ratified treaties are directly incorporated into the domestic legal system.

Lastly, the Preamble of the Constitution contains a declaration which is of importance from an international viewpoint: "Aware of the need to act in the framework of the international bodies of which it has become an active and dynamic member, the Kingdom of Morocco subscribes to the principles, rights and obligations resulting from the charters of the said bodies". Freely interpreted by the jurisprudence, this declaration consecrates the principle of the primacy of international law.

Before reviewing Morocco's international agreements and undertakings, we feel it is useful to describe the International Atomic Energy Agency (IAEA), which plays a key role in this sphere.

b) *The International Atomic Energy Agency (IAEA), developing countries and Morocco*

The objective of the International Atomic Energy Agency is to accelerate and enlarge the contribution of atomic energy to peace, health and prosperity throughout the world (Article II of the IAEA Statute). The Statute of the Agency refers on several occasions to the need to take account of the particular requirements of developing countries (Articles 3 and 4).

Article 3 provides that the Agency shall bear in mind the under-developed areas of the world, in particular with regard to the allocation of its resources. Under Article XI, before approving a project, the Board of Governors shall give "due consideration" to the needs of under-developed areas. The Agency must ensure that general scientific levels in developing countries are raised in order to prepare the way for nuclear technology and science, introduce nuclear science applications (the use of radioisotopes in medicine, agriculture and hydrology) and help to train managers. It is obviously impossible to report on all the services supplied but it is certain that almost all the Agency's activities in the field of food supply and agriculture are exercised in the interest of developing countries. The Agency has also made it possible for a number of developing countries to accelerate the introduction of nuclear energy by developing small and medium-sized reactors. Other so-called public interest activities also concern developing countries: the work of international marine radioactivity laboratories which are studying the behaviour of radionuclides in the sea are aimed at developing countries, which derive much of their wealth from the oceans. Of all the countries which have received special fissile products and raw materials for reactors, more than 70% are classified among developing countries.

In spite of such highly positive support, the IAEA remains criticised by a large number of countries. Developing countries have often violently criticised the way in which the Agency is organised since this is designed to ensure the preponderance of nuclear states on the Governing Board,

and the primacy of the Board over the other bodies. For some of these countries, the Board thus perpetuates the preponderance of the large nuclear states and the policy of producer countries.

Thus, developing countries wonder about the real objectives of the Agency, asking themselves whether the security aspect has not definitively won out over assistance, inasmuch as the role of the Agency tends to be limited to ensuring that the aid supplied by it or at its request or under its supervision or control, is not used to further military purposes. It has become a “nuclear policeman”.⁸

Morocco, a moderate country, was one of the first four African states to join the IAEA. It ratified its accession by Dahir No. 1-57-173 of 8 June 1957, accepted the amendment of Article IV of the Agency’s statute by letter of 6 December 1999, and ratified the agreement on the privileges and immunities of the IAEA by Dahir No. 4-76-11 of 17 December 1976. It has adopted a positive partnership relationship with the Agency, and has acceded to almost all of its agreements.

B. Morocco’s international obligations and agreements

Morocco has signed a co-operation agreement with the United States of America, the African Regional Co-operative Agreement for Research, Development and Training related to Nuclear Energy (AFRA), as well as numerous treaties and conventions.

a) Co-operation with the United States of America

Morocco and the United States of America signed an agreement for co-operation concerning peaceful uses of nuclear energy on 30 May 1980. This agreement was renewed on 20 September 2001 for 20 years, and subsequently for renewable periods of five years.⁹ It reaffirms the objectives of the Treaty on the non-proliferation of nuclear weapons and those of the IAEA Statute, and states that the peaceful use of nuclear energy must take into account the protection of the international environment against radioactive, thermal and chemical contamination. It provides that this co-operation is dependent on the application of the IAEA safeguards system to all nuclear activities in Moroccan territory. It provides for an amendment for each transfer of sensitive technology, of sensitive nuclear equipment or important critical component. The Agreement envisages the transfer of non-enriched uranium (less than 20% of isotope 235) for research reactors and of small quantities of special nuclear materials.

Article 5 states that the premises for storing plutonium, uranium 235 or enriched uranium must be approved by both parties. This applies also to the transfer, reprocessing and alteration of the form or content, and the enrichment of nuclear materials.

It excludes all military uses (Article 8) and refers (Article 9) to the Agreement signed on 30 January 1973 between the Kingdom of Morocco and the IAEA concerning the application of the safeguards provided for in the Non-Proliferation Treaty (NPT).

8. Jean Marie Rainaud, “*Le droit nucléaire, que sais-je ?*” PUF.

9. The amendment provides for five-year tacit renewals unless expressly terminated six months in advance.

b) *Treaty on the Non-Proliferation of Nuclear Weapons (NPT)*

This Treaty, adopted in New York on 12 June 1968, entered into force, at international level, on 5 March 1970 and in Morocco on 27 November 1970 following its ratification on 30 July 1970 by Dahir No. 1-70-78. Morocco continues to comply with its undertakings under this Treaty.

c) *Agreement on the Privileges and Immunities of the IAEA*

The text of this Agreement was approved by the Board of Governors on 1 July 1959, and an addendum was added on 22 September 2000.

Morocco ratified it by Dahir No. 4-76-11 of 17 December 1976. The instruments of ratification were deposited on 30 March 1977 with the following reservation:

- The IAEA shall take into account national legislation and regulations concerning the acquisition and possession of real estate in Morocco;
- The privileges and immunities provided for by this Agreement do not apply to IAEA officials of Moroccan nationality working in Morocco.

In the event of a disagreement, any recourse to the International Court of Justice will be based on the agreement of all the parties concerned.

d) *Convention on the Physical Protection of Nuclear Material*

This Convention was adopted in Vienna on 26 October 1979, and entered into force at international level on 8 February 1987.

Morocco signed it on 25 July 1980 and deposited its instruments of ratification, without reservations, on 23 August 2002. It has applied to Morocco since 22 September 2002.

e) *Vienna Convention on Civil Liability for Nuclear Damage*

Adopted in Vienna on 21 May 1963, this Convention entered into force at international level on 12 November 1977. It was signed by Morocco on 30 November 1984 but has not yet been ratified.

This is a shortcoming which Morocco will have to rectify quickly, the more so in that its neighbour, Spain, has several nuclear installations. There is a nuclear power plant in the south of Spain, close to Morocco's borders, and should there be a nuclear accident, this Convention would protect Morocco's interests.

It may be noted also that Spain, too, has signed this Convention (on 6 September 1963) but has never ratified it.

However, Spain has signed and ratified the Paris Convention on Third Party Liability in the Field of Nuclear Energy, on 30 October 1961, and the two countries (Spain and Morocco) both signed, on 21 September 1988, the Joint Protocol on the application of the Vienna Convention and the Paris Convention on Third Party Liability but have not ratified it.

It is in Morocco's interests, and those of its neighbour Spain, to ratify this Protocol so as to protect property and persons on both sides of the Straits in the event of a nuclear accident occurring in one or other of the two countries.

f) *Convention on Early Notification of a Nuclear Accident*

Adopted in Vienna on 26 September 1986, this Convention entered into force on 27 October 1986. Morocco signed it on 26 September 1986 and ratified it on 28 May 1993 by Dahir No. 4-88-33. The Convention has applied to Morocco since 7 November 1993.

It may be noted that Morocco's neighbour, Spain, also ratified it and that the Convention has applied to it since 14 October 1989.

g) *Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency*

Adopted on 26 September 1986 in Vienna, this Convention entered into force on 26 February 1987. Morocco signed it on 26 September 1986 and ratified it by Dahir No. 4-88-32 of 28 May 1993. The Convention has applied to Morocco since 7 October 1993. The Convention has also been ratified by Spain, where it entered into force on 14 October 1989. France, a country with close ties to Morocco, and with which there is a strong tradition of technical assistance, has also been bound by this Convention since 6 April 1989.

h) *Convention on Nuclear Safety*

This important Convention, adopted in Vienna on 17 June 1994, entered into force on 24 October 1996. Morocco signed it on 1 December 1994 but has not yet ratified it. It is true that there is still no operating nuclear installation in Morocco (the Maâmora research reactor has not yet been installed and commissioned). It is also true that this Convention only applies to the safety of nuclear installations.

However, Morocco's peaceful nuclear ambitions are such that more attention should be paid to safety aspects. The application of this Convention's provisions by Morocco would undeniably have an impact on the development of a national safety culture.

Morocco's neighbour, Spain, ratified this Convention in 1995.

i) *Other Conventions*

Morocco has signed and ratified:

- The Moscow Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water of 5 August 1963;
- The Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Sub-soil Thereof, of 11 February 1971;
- The African Regional Co-operative Agreement for Research, Development and Training related to Nuclear Science and Technology (AFRA) of 21 February 1990;

- The Protocol amending the Vienna Convention on Civil Liability for Nuclear Damage of 12 September 1997;
- The Vienna Convention on Supplementary Compensation for Nuclear Damage of 12 September 1997;
- The Joint Convention on the Safety of Spent Fuel Management and the Safety of Radioactive Waste Management of 5 September 1997.

Conclusion

The use of nuclear technology in medicine, agriculture and industry is very advanced in Morocco. This technological progress has been accompanied by fairly detailed legislation and significant involvement on the part of Morocco in international conventions and agreements. The desire to progress further with regard to research and the use of nuclear energy for peaceful purposes requires a twofold effort:

- the various pieces of national legislation on nuclear law need to be reformulated to bring them into line with the most recent rules in this sphere;¹⁰
- Morocco's international undertakings need to be revised in light of its immediate interests, certainly, but also of foreseeable developments, particularly with regard to safety and third party liability.

10. *Handbook on Nuclear Law*, IAEA, July 2003.