

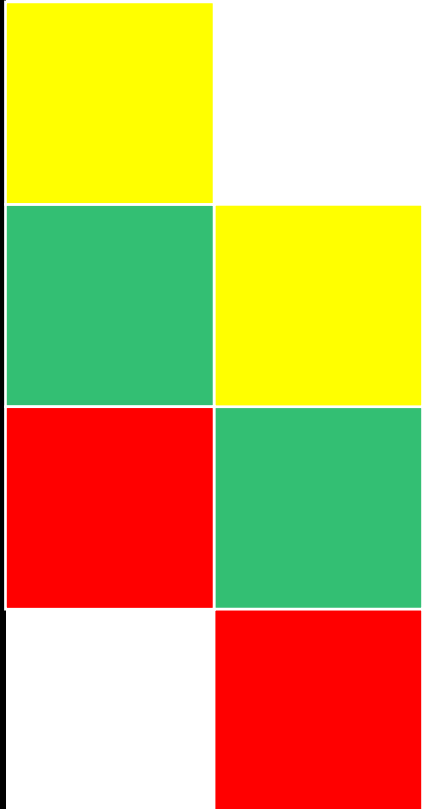


**THE REPUBLIC OF THE UNION
OF MYANMAR**

NATIONAL REPORT

**For the 8th Review Meeting of the
CONVENTION ON NUCLEAR SAFETY**

March/April 2020



This report has been prepared by the Government of the Republic of the Union of Myanmar in accordance with Article 5 of the Convention on Nuclear Safety for submitting to the 8th Review Meeting of Contracting Parties to be held in March/April 2020.

August 2019

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I. INTRODUCTION

Myanmar does not have any national plan of nuclear installations and nuclear policy until now, it though started its ambitions with peaceful applications of nuclear science and technology, by establishing the Union of Burma Atomic Energy Centre (UBAEC) in 1955 that is currently set up again as the Department of Atomic Energy (DAE). In addition, for international cooperation, Myanmar participated in the United Nations Conference on Atoms for Peace (Geneva, 1955) and consequently became a founding Member State of the International Atomic Energy Agency (IAEA) since 1957. Myanmar is aware of the importance of nuclear safety while attempting to achieve social and economic goals of sustainable development with all possible ways including the use of nuclear energy for peaceful purposes. Therefore, Myanmar acceded to the Convention on Nuclear Safety (CNS) on December 6, 2016.

Myanmar is a country with no nuclear installations and, therefore, many requirements of the Convention on Nuclear Safety do not apply to Myanmar. She has a small number of activities related to ionizing radiation, which is why the use of radioactive material and sources of ionizing radiation is limited to Medical, Agricultural, Veterinary, Industry, Education and Scientific-research activities. The total quantity of radioactive waste in Myanmar is very small due to legally controlled import, possession and use of sources of radiation which constitute radioactive waste upon expiry period and it will be returned to the supplier outside Myanmar. Regardless of the relatively low activity and a small quantity of radioactive waste, a central storage facility for management of radioactive waste exists in Myanmar.

Establishment of legislative framework and regulatory framework within Myanmar, nuclear safety, security and adequate radiation protection of the radiation workers and the environment against the harmful effects of ionizing radiation, have already been ensured. Furthermore, the new nuclear law is in the progress of drafting with the aim of possessing legislations strengthening nuclear safety, security and non-proliferation. The current atomic energy law will be replaced by that new comprehensive nuclear law, which will cover safety, security and safeguards aspects.

The second National Report is aimed at demonstrating that Myanmar is fully committed to fulfilling the obligations resulting from the Convention on Nuclear Safety. National Report is organized by following the set format and the structure given in guidelines INFCIRC/572/Rev.4. This Report has been prepared in accordance with Article 5 of the Convention on Nuclear Safety for review at the 7th Review Meeting of the Convention to be held in Vienna during March and April 2017.

II. SUMMARY

Myanmar focuses on improving nuclear safety and radiological protection and responses on emergency preparedness. It is a process of continual improvement and modifications are regularly required to adapt to changing circumstances. The protection of human life and the environment, against harmful effects of ionizing radiation, radioactive waste management, nuclear safety and security are important activities of the Government of the Union of Myanmar.

The DAE is making all-out effort to establish independent nuclear regulatory body so as to move forward as a competent regulatory body by ensuring the highest levels of nuclear safety, nuclear security and safeguards. Myanmar committed to regulatory control activities such as (i) issue licences required to be issued under the Atomic Energy Law and renew, modify, suspend or revoke the same; (ii) formulate an inspection programme to ensure compliance with the requirements imposed, (iii) take appropriate measures to ensure due compliance with the provisions of this Act, proper enforcement of regulations or rules made there under and conditions specified in licences issued; (iv) maintain a national register containing information on all sources available within Myanmar; (v) provide information regarding the regulatory activities to the general public, the media and any other relevant stakeholders; (vi) formulate and review rules, codes and standards relating to radiation protection and the application of ionizing radiation, which reflects best practices enunciated by the IAEA and any other similar International Organizations.

As obligations reported in the section III, Myanmar has shown improvement in transparency as regards nuclear activities; Myanmar fulfilled international and regional commitments and responsibilities by acceding to several international and regional legal instruments in the areas of nuclear safety, security and non-proliferations. For creating a positive public perception of nuclear energy while ensuring safety and security of the people, Myanmar government perceived such situation that public awareness in the nuclear field will be required by direct public communication channel. The DAE has launched a website in which all necessary information is made available. (<http://www.daemyanmar.com>).

III. OBLIGATIONS OF CNS

Article 7: Legislative and Regulatory Framework

7.1 Legislative Framework

The Atomic Energy Law, which was promulgated on 8 June 1998, adopted within Myanmar, delegated two main responsibilities to the Department of Atomic Energy (DAE), namely, **promotion** of the utilization of nuclear technology for the benefit of the people of Myanmar and **regulatory control** for the protection of workers engaged in using radiation and radioisotopes and the public from harmful effects of ionizing radiation. However, the new **Nuclear Law** is in the progress of drafting with the aim of possessing legislations strengthening nuclear safety, security and non-proliferation more than before while some of the legislative and regulatory measures are still under development. The Myanmar legislative framework consists of laws adopted within Myanmar, international conventions and legal instruments, and bilateral agreements with one of the IAEA member state as follows:

7.1.1 Laws of Myanmar

- **The Atomic Energy Law**, Law No.8/98 of 1998 for encouraging the peaceful uses of atomic energy with provisions to prevent the effects of radiation hazard on human beings and the environment; this law came into force on 8 June 1998.
- **Science, Technology and Innovation Law**, Myanmar's new Science, Technology and Innovation Law (No. 22/2018) (the Law) was enacted into law on June 25, 2018. The Law, which repealed

the old Science and Technology Development Law (No. 5/1994), is set to introduce substantial changes to collaborative innovation practices in the country.

- **Environmental Conservation Law**, Law No.9/12, 2012, aimed at development of a healthy and clean environment, conservation of natural and cultural heritage for the benefit of present and future generations, and provision of a system of environmental impact assessment which shall require any proposed project or business or activity or undertaking in Myanmar by any ministry, government department, corporation, board, development committee, local authority, company, cooperative, institution, enterprise, firm or individual; this law came into force on March 30, 2012.
- **Counter Terrorism Law**, Law No.23/14 of 2014, concerning anti-terrorism including also nuclear terrorism, which came into effect on June 4, 2014.

7.1.2 International and Regional Legal Instruments

Myanmar has improved transparency as regards nuclear activities, and fulfilled international and regional commitments and responsibilities by acceding to the following relevant international and regional legal instruments in the areas of nuclear safety, security and safeguards:

- Convention on Nuclear Safety, acceded on December 6, 2016
- Convention on the Physical Protection of Nuclear Material and its amendment acceded on December 6, 2016
- Convention on Early Notification of a Nuclear Accident, acceded on September 26, 1986
- Comprehensive Nuclear Test Ban Treaty, acceded on September 21, 2016
- Partial Nuclear Test Ban Treaty, acceded on November 15, 1963
- Treaty on the Non-Proliferation of Nuclear Weapons, acceded on December 3, 1992
- Comprehensive Safeguards Agreement, entered into force on 20 April 1995
- Additional Protocol, signed on September 17, 2013
- Southeast Asian Nuclear-Weapon-Free Zone Treaty, SEANWFZ ratified on July 17, 1996
- Treaty on the Prohibition of Nuclear Weapons (TPNW), signed on 26th September 2018
- Myanmar has already expressed political commitment to Code of Conduct on the Safety and Security of Radioactive Sources (INFCIRC/663) and (supplementary)

7.1.3 Bilateral Agreement

As both Myanmar and Russia are interested in establishing bilateral cooperation in the field of peaceful use of nuclear energy in medicine, biology, geology, agriculture, industry, environmental and scientific research, and electric power generation, “the memorandum of understanding (MoU) between the Ministry of Science and Technology of the Republic of the Union of Myanmar and the State Atomic Energy Corporation (ROSATOM) of the Russian Federation on Cooperation in the Field of the Use of Nuclear Energy for Peaceful Purposes” had already been signed on June 18, 2015.

7.2 Regulatory Framework

The DAE functions as the national regulatory authority on use of radiation and radioisotopes whereas in fact it works as the national organization responsible for facilitating the use of nuclear technology in medical, agricultural, veterinary, industrial, environmental and education sectors in addition to serving as a focal point of the IAEA in Myanmar.

7.2.1 National Safety Requirements and Regulations

The National Legislative requirement on nuclear and radiological safety for all activities related to the peaceful use of atomic energy in Myanmar stems primarily from the Chapter 7, 8, 12 of the Atomic Energy Law (8/1998) that imposes restrictions on certain activities without having appropriate form of authorization by the Atomic Energy Committee. DAE, by exercising powers under Chapter 6 of the Law, is the competent authority in Myanmar to ensure the compliance of nuclear safety in any radiation practices. Moreover Section 16 of the Chapter 7 gives DAE the power to make regulations on the requirements of nuclear safety. The Chapter 12 of the Law explicitly states Prohibitions on utilize, produce, store, distribute or sell, import or export, possession of nuclear material, radioactive material or irradiation apparatus and those of determined by the Department as being not suitable for further utilization or retention. Atomic Energy Law continue to be in force until comprehensive and detailed **Nuclear Law** are in place which is in the final stage of the development process that is specifically identified to assist the authorization process. Furthermore, a number of regulations namely Nuclear Safety Regulation, Nuclear Security Regulation and Safeguards Regulation will follow.

7.2.2 System of Licensing

The Chapter 7 and 8 of the Atomic Energy Law gives authority to DAE for receiving registration by applicant who intends to utilize, produce, store, distribute or sell nuclear material, radioactive material or irradiation apparatus and others related to nuclear field, and for practicing any of the regulated activities in Myanmar. After registration is complete, there is a process of reviewing and scrutinizing such applications under section 17 of the Atomic Energy Law in accordance with the stipulations to permit or to refuse issuing the licensee. If detailed evidence of safety on registered matter can be approved, issuing licenses and imposing conditions on licenses to be in line with established procedures are performed. The current licensing system does not provide for involvement of the public or interested parties when applications for new licences are being assessed by the DAE, the majority of which are typically X-ray equipment.

Radioactive sources, in Myanmar, are used in medical, agricultural, veterinary, education, industrial and environmental and all radioactive sources are imported. Currently all users of sources of ionising radiation must hold a licence from the DAE and, in addition to adhering to statutory requirements laid down in the Atomic Energy Law, comply with the licence conditions pertaining to the activities for which the licensee is licensed for. At the end of July 2019 there were about 237 active licenses across all sectors, as illustrated in Figure 7.1. The industrial (well logging) sector makes up 90% of the licenses issued, followed by the Healthcare services sectors at 5% respectively. Failure to comply with a licence condition is an offence which could lead to prosecution. In addition, the custody and/or use of a source of ionising radiation in the absence of a licence issued by the DAE is also an offence that can lead to a prosecution.

In 2015, the DAE commenced work on the development of a new online licensing system to manage all its radiological protection licensing and inspection activities. This new system, which was launched in March 2015, allows applicants to apply online, through a secure web portal, for a new licence, and renew or make amendments to an existing licence. The DAE has lunched all necessary information for licensees and radiation workers which are available on its website (<http://www.daemyanmar.com>).

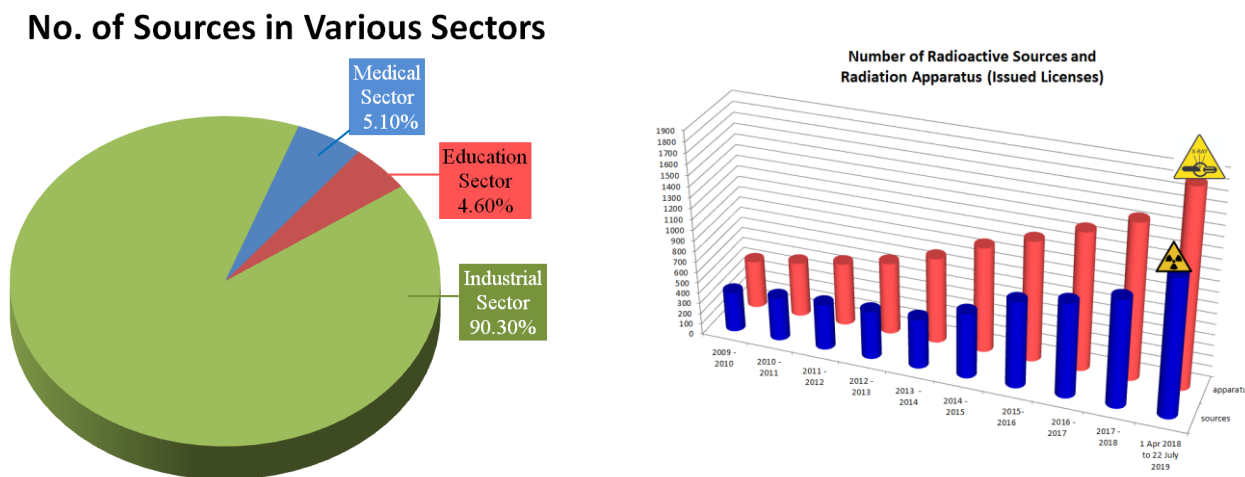


Figure 7.1 – Number of license issues for each fiscal year

7.2.3 System of Regulatory Inspection and Assessment

DAE inspector conducts inspections to make sure that the authorization holder is in compliance with the conditions set out in the authorization and all applicable regulations, codes and standards. In the case of non-compliance with conditions and requirements, DAE carry out inspection includes announced and unannounced inspections to the specific practice. Regulatory Inspection is one of the main responsibilities and functions of the DAE. The Regulatory inspection and assessment process guarantees compliance of the authorization holder/licensee with the safety provisions. Inspectors are engaged in all regulatory activities in addition to inspection, including licensing, drafting guidance documentation, radioactive waste management, management of Radiation Protection officer training courses, and technical advice.

The DAE has the resources to undertake typically 355 radiological inspections per year and the number of inspections undertaken in a given year is based upon a risk analysis. Most inspections are announced in advance but a number of unannounced inspections also take place each year. Inspection is carried out according to international standards. Regarding implementation of corrective actions identified during an inspection, the Inspection Report is issued to licensee within four weeks of the date of the inspection and this includes a response date of four weeks by which the licensee must provide a written response to the report.

7.2.4 Enforcement

There are enforcement actions taken by the DAE such that administrative actions and appeal such as corrective actions, prohibitions, written warnings, revocation of a license and penalties as described in the Atomic Energy Law.

Article 8: Regulatory Body

8.1 Establishment of the Regulatory Body

The Government of Myanmar, exercising the powers conferred by Chapter III of the Atomic Energy Law, formation of the Atomic Energy Council to laying down the policy and giving guidance in respect of having necessary controls in utilizing atomic energy. The mission is to authorize and regulate the sources of ionising radiation and the use of nuclear energy in Myanmar to ensure adequate protection of workers and public health and the environment.

According to the Chapter III, the Atomic Energy Council consists of one Chairman and four fixed Members, extendable independent (reputed scientists) Members and a secretary. The Chairman is the Chief Executive of the Council. The Government may, in forming under sub-section (a), determine the Vice-Chairman and Joint Secretary, if necessary.

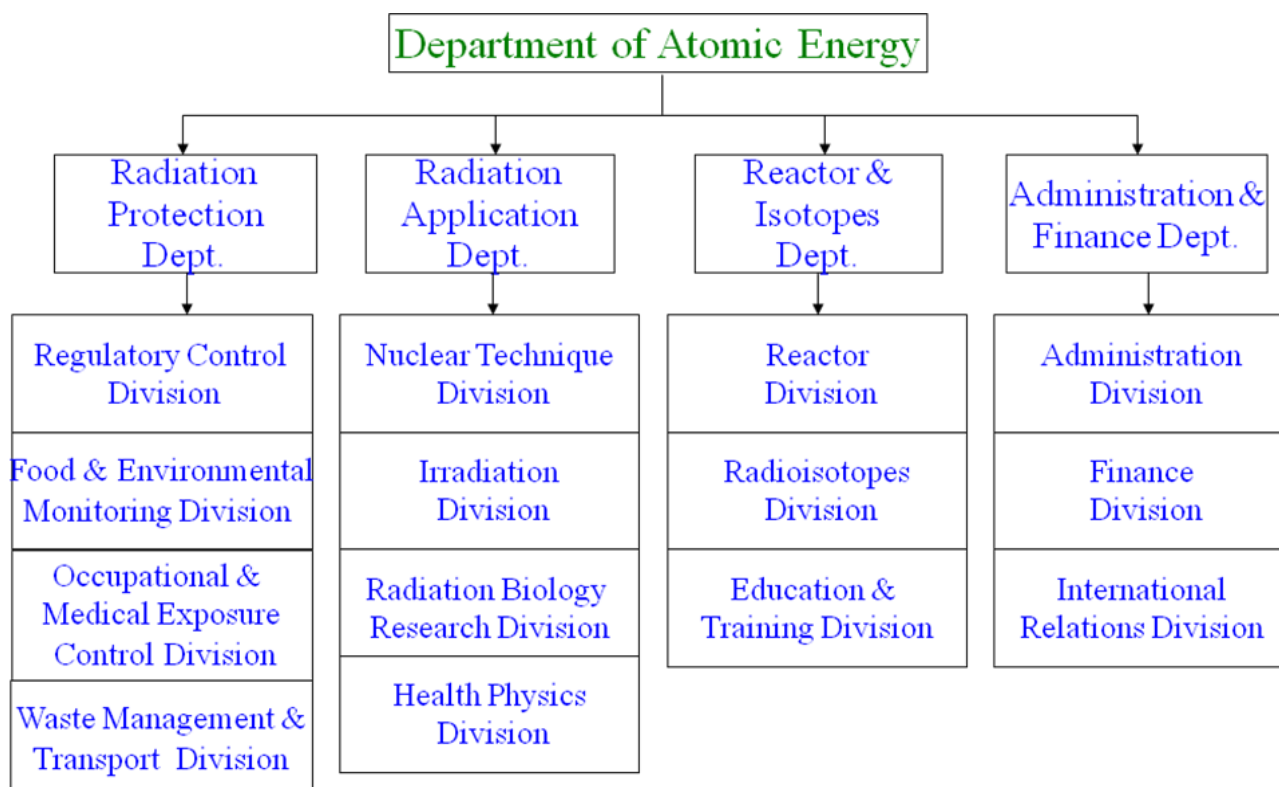


Figure 8.1 Structure of Department of Atomic Energy

8.2 Status of the Regulatory Body

The Department of Atomic Energy, to assist the regulatory functions, comprises of four technical divisions. Among them, there is sub-division mainly for regulatory control which is functioning, namely regulatory control division; its main objectives and activities currently doing are as below;

- To implement the existing Law, regulations and codes
- To issues orders related to Atomic Energy matters
- To register of radiation sources and radiation apparatus
- To issue license for radiation sources and radiation apparatus
- To inspect of radiation sources and radiation apparatus
- To response and make preparedness for emergency involving radioactive material
- To develop regulatory infrastructure

Article 9: Responsibility of the Licensee Holder

This is not relevant as Myanmar does not have nuclear installations. However, It shall be the primary duty of the licensee to establish and implement the technical and organizational measures required for the protection of human and the environment against harmful effects of ionizing radiation and to ensure the safety and security of radioactive sources authorized to be used under the licence.

The main responsibilities of the licensee are the following:

- To carry out only the acts or operations determined in the licenses
- To have, as required by the regulatory body, the number of authorized personnel to work in each practice, laboratory or nuclear equipment.
- To provide the necessary means for temporary storage of the radioactive waste.
- To prepare and maintain emergency plans revised and approved by the regulatory body, for nuclear accidents that could happen in its facilities.
- To prevent the illicit trafficking that could derive from theft, robbery or loss of unclear substances.

Article 10: Priority to Safety

Myanmar has no nuclear installations and therefore nothing to report under this Article.

Article 11 Financial and human resources

Myanmar has no nuclear installations and therefore nothing to report under this Article.

Article 12 Human Factors

Myanmar has no nuclear installations and therefore nothing to report under this Article.

Article 13 Quality Assurance

Myanmar has no nuclear installations and therefore nothing to report under this Article.

Article 14 Assessment and Verification of Safety

Myanmar has no nuclear installations and therefore nothing to report under this Article.

Article 15: Radiation Protection

Ionizing radiation in the workplace is regulated by the Atomic Energy Law. The order applies to all practices which involve a risk of exposure to ionizing radiation. Under this order the DAE has responsibility for licensing and regulating sources of ionizing radiation. DAE practices and follows basic safety standards of IAEA, for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. The DAE licensing system is based upon the legal requirements and the day to day responsibility for implementing the system that has been delegated to the Radiation Protection division within the DAE. Inspections undertaken by the Radiation Protection division are designed to ensure compliance with both the legislative requirements and licence conditions. It is also an objective of the programme to assess the level of radiation protection in place at each licensed practice and to encourage licensees to strive to attain the best practice in relation to radiation protection.

In order that the individual dose limits on effective dose for exposed workers recommended by the International Commission for Radiation Protection (ICRP) are not exceeded, each individual worker at hospitals, departments, companies and clinics has been requested to wear the personal monitoring dosimeter that measures ionizing radiation exposure for 2 months as monitoring period.

Article 16: Emergency Preparedness

Licensee or authorized entity have the primary responsibility for the safe and secure conduct of ionization radiation and shall have submitted Emergency plan and approved by the Department before granting License. DAE established an emergency unit which has responded its service during Fukushima Daiichi and Chernobyl accidents. DAE received notification through EMERCON and participated in international and regional emergency activities. Myanmar also Parties to the Convention on Early Notification of a Nuclear Accident.

Myanmar is also a member of the ASEAN Network of Regulatory Bodies on Atomic Energy (ASEANTOM) established in 2012. The ASEANTOM is a sectoral body under the ASEAN Political-Security Community, which comprises nuclear regulatory bodies from all ten ASEAN member states. It serves as a platform for cooperation amongst nuclear regulatory bodies within ASEAN in order to enhance regional nuclear safety, security and safeguards, based on the implementation of relevant commitments to the International Atomic Energy Agency's (IAEA) standards and guidelines and other multilateral agreements which ASEAN member states are party to. Myanmar also actively participating for the implementation of the four-year regional projects to support the development of a regional environmental radioactivity database and a nuclear emergency preparedness and response framework in Southeast Asia. These two projects are intended to culminate in more harmonized emergency plans and response measures between ASEAN member states, while cooperating with international partners in nuclear issues. Exercises of the radiological emergency plan are held regularly to ensure effective communication and clear understanding of the individual roles and functions of each responding organisation. Such exercises are found to be beneficial especially for the training of new staff.

IV. CONCLUSION

As Myanmar recently acceded to the Convention on Nuclear Safety (CNS) on December 6, 2016, and it does not have any nuclear installations planned or in operation, most of discussion contained in the second National Report intends to show fulfilment of the obligations of the Convention. Despite being a Contracting Party without nuclear installations, the government has already supported the establishment of the necessary legislative, regulatory, and organizational framework to ensure the safety, security and non-proliferation. Moreover, the new nuclear law is in the progress of drafting with the aim of possessing legislations strengthening nuclear safety, security and non-proliferation. The current atomic energy law will be replaced by that **Nuclear Law**. As new legislative and regulatory frameworks are under development, it still requires to take additional measures over years. Nonetheless, the DAE, which is both regulator and promoter of peaceful use of nuclear energy, practices and follows basic safety standards of IAEA, for the protection of the health of workers and the general public against the dangers arising from ionizing radiation. Myanmar has already adopted transparency on any nuclear activities by implementing obligations contained in several international and regional legal instruments.

ANNEX – List of Acronyms

CNS	Convention on Nuclear Safety
DAE	Department of Atomic Energy
DRI	Department of Research and Innovation
HRD	Human Resources Development
ICRP	International Commission for Radiation Protection
IAEA	International Atomic Energy Agency
MSTRD	Myanmar Science and Technology Research Department
SEANWFZ	Southeast Asian Nuclear-Weapon-Free Zone Treaty
UBAEC	Union of Burma Atomic Energy Centre
ASEANTOM	ASEAN Network of Regulatory Bodies on Atomic Energy