National Report related to the Convention of Nuclear Safety

August 2016

Member State: LEBANON

The use of radiation sources and radioactive materials in Lebanon is strictly involves its peaceful applications mainly in the fields of medicine, agriculture, environment, academic research and industry. There are no nuclear installations in the country. Thus, the absence of nuclear materials over the Lebanese territory can be strongly asserted (no nuclear fuel storage or nuclear fuel reprocessing cycle). By contrast, small quantity of DU used as radiation shielding, is present in specific medical applications.

The country has no plan for adding nuclear energy to its electricity grid mix.
Lebanon conducted, under an IAEA TC project (during 2012-2014) a feasibility study for the establishment of nuclear research reactor for education and training, using among others, neutron activation and neutron diffraction techniques. The establishment of the RR will not be a national priority in the coming two years.

1. Legislative and regulatory framework

a) A complete set of safety regulations was prepared, revised and issued by the Lebanese Atomic Energy Commission. These regulations will be submitted to the presidency of council of ministers for endorsement by issuing them under a decree form.

b) A draft nuclear law that covers safety, security and safeguards is prepared and reviewed by the office of legal affairs at the IAEA. The final version of the draft law is ready (since 2014) and will be submitted to the Lebanese Parliament for consideration, as soon as it is possible. The draft law reflects clear functions and responsibilities of the regulatory authority in line with IAEA safety standards.

c) Significant progress was made for the strengthening of the regulatory control legal infrastructure. A regulatory decree (15512/2005) pertaining to decree-law number 105/1983, regulating the use and protection against ionizing radiations, was issued in October 2005. The Department of licensing, authorization and inspection of the Lebanese Atomic Energy Commission issued in compliance with the regulatory decree 15512/2005 and in accordance to the IAEA BSS standard (115) the conditions and terms that should be fulfilled for any demand

of licensing in the field of the use, storage, import, export, decommissioning and transport of radiation sources.

d) Lebanon was made a political commitment to the implementation of i) the code of conduct on safety and security of radioactive sources (2004) and ii) the IAEA guidance on transport of radioactive materials (2007).

e) Lebanon is involved since 2013 in the EU-CBRN risk mitigation program. A national coordinator for CBRN risk mitigation was appointed by the Prime Minister in February 2013 and a CBRN National Committee, involving all concerned national bodies, was established by a decision by the Prime Minister. This inter agency cooperation committee is working directly under the Prime Minister supervision and is headed by the Secretary General of the Higher Council of Defense. The RN part is represented and managed by the Lebanese Atomic Energy Commission.

2. Regulatory Body

The mandates of the regulatory body in accordance with the decree-law 105/1983 and with the regulatory decree 15512/2005 and with the decision of the Minister of Public Health 705/1-2005 are:

a) Preparing safety regulations and conducting regular updating in line with the applicable international standards and norms.
b) Conducting regular inspection in the facilities using radiation sources for verification of radiation protection measures pertaining to the authorized practices.
c) Conducting Mandatory and regular individual control of workers directly or indirectly exposed to ionizing radiations in all licensed or under license procedure facilities.
d) Issuing and implementing radiation safety regulations.
e) Establishing a practical mechanism for safe disposal of radioactive waste.
f) Taking all adequate measures to ensure all rules and authorization requirements are duly fulfilled.
g) Doing the necessary safety studies for practices dealing with ionizing radiation in virtue of licensing demand.
h) Issuing authorization for all practices dealing with ionizing radiations.
i) Establishing the national register for of radiation sources and their movement.
j) Collaborating with the ministries, public and private institutions as well as relevant international organizations for human and environmental protection against ionizing radiations.
k) Providing assistance in case of radiological or nuclear emergencies.
l) Environmental radiation monitoring
m) Controlling all radiation devices (detectors, generators, etc..) by checking calibration and QA/QC procedures.

n) Reporting to relevant international organizations in the framework of ratified binding international legal instruments.

The Lebanese Atomic Energy Commission is designated by decree-law as the national control authority and it ensures all tasks mentioned above. However, the Minister of Public Health signs the authorizations for all practices dealing with radiation sources upon written clearance from the Lebanese Atomic Energy Commission. In the same way, the Minister of Public Health takes the necessary measures, upon binding suggestion from the Lebanese Atomic Energy Commission; against facilities if there is any relevant violation of rules and authorization requirements.

In 2009 the regulatory authority started the implementation of the radiation sources national register by using RAIS software. In 2014 a comprehensive national register for radiation sources was ready and monthly updated.

The licensing, inspection and regulation department of the Lebanese Atomic Energy Commission started in 2010 preparing procedures, quality manuals and forms under the framework of the ISO9100 and ISO 17020 and accreditation schemes.

The Lebanese Atomic Energy Commission is related to the Lebanese National Council for Scientific Research which is directly related to the Prime Minister. The number of experts and technical staff is in continual progress. This is directly related to the progress of the legal framework. The National Council for Scientific Research allows a part of its annual budget for the Lebanese Atomic Energy Commission. This part figures in different budget lines in the annual budget of the commission.
The LAEC conducts regulatory research and it is active in different research axis where no radioactive sources are used.
The draft nuclear law that was prepared takes into account the establishment of an independent regulatory authority that will be linked directly to the Prime Minister.

3. Responsibility of the license holder, assesment and verification of safety

The regulatory body gives licenses for a given period depending on the kind of the practice. The regulatory body makes two inspections per year in the licensed facilities in order to ensure that the license holder meets its primary responsibility of safety.

4. Human resource development and safety culture

The regulatory body organizes practical and educational training sessions for workers of the licensed facilities. Furthermore, it offers to them, throughout its technical cooperation program with the IAEA and the Arab Atomic Energy Agency (AAEA) special on job training, scientific visit and involves them in relevant regional projects related to the field of protection against ionizing radiations.
The regulatory body issued already some code of practices and it is working to cover all peaceful use of radiation sources in hospitals, industries and academic institutions.

The Lebanese Atomic Energy Commission established in 2010, in cooperation with Beirut Arab University, a one-year diploma in radiation protection and safety of radioactive sources. This diploma is dedicated to physicists, chemists and biologists radiologist, holding a BSc and to pharmacists and medical doctors. The syllabus of this diploma is the same as the IAEA – PGEC educational program.
A MoU of cooperation in radiation safety was signed between the two institutions in October 2010 and renewed in October 2013. The diploma transformed to an MSc degree since 2013.

In addition, a MoU was recently signed with the Faculty of Sciences-The Lebanese University (the Biggest and the sole public university in the country) for establishing a Radiation Safety Diploma. This diploma started its first year in October 2015.

The Lebanese Atomic Energy Commission, in the framework of this diploma, organizes cooperation with universities, awareness seminars in radiation safety and the use of radiation sources in Lebanon.

Different training courses in RN emergency response were organized from 2013 until 2016. More than 80 trainees from first responder agencies were trained via EU and IAEA projects. CBRN emergency response class A and B suits, decontamination stations, and portable detectors were delivered also to first responder agencies.

5. Radioactive waste management

The Lebanese Atomic Energy Commission established in its premises a temporary storage for orphan and out of regulatory sources. Lebanon is working closely with IAEA to increase the safety and security of the temporary radioactive waste storage. This temporary storage is the only one existing at the national level.
Different industrial and medical facilities have radioactive waste stores within their premises. These stores are licensed by the regulatory authority and regularly inspected.

In cooperation with IAEA, several repatriation missions of disused category I and II sources were conducted:
i)36 60-Co sources (irradiation facility for research) were repatriated in 2009.
ii)One 60-Co teletherapy head was repatriated in 2011 (from American University Hospital – Beirut).
iii)One 60-Co teletherapy head was repatriated in 2015 (from Notre Dame de Secour Hospital – North Lebanon).
iv)One 60-Co teletherapy head was repatriated in 2016 (from Hotel Dieu de France Hospital – Achrafieh-Beirut).

A close cooperation between the Lebanese Customs and the regulatory body established a safe temporary store at Beirut and Tripoli seaports used for radioactive contaminated items seized during the import/export trade.

6. Emergency preparedness

The regulatory body works closely with different national institutions dealing with the national emergency and the national emergency planning in order to include the radiological emergency in the already exist mechanism.
A national committee was designated, via a decision of the Prime Minister, to prepare a national CBRN emergency response plan in 2010. The draft of the national plan is submitted to the government in March 2011 for consideration. In 2016 the CBRN national response plan was considered as a part of the national disaster management plan.

Lebanon installed in 2014 a radiation early warning system that consists in the installation of 20 stations covering more than 80% of the country. An ongoing TC project will be used to add 5 additional stations for covering the whole country. The LAEC is managing the radiation EWS and has a direct connection with the national emergency room.