

# **Regional and National Radiation Protection Activities in Egypt**

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# Historical Introduction

History of radiation Protection activities in Egypt

follows its program

of Atomic Energy of the peaceful uses

# Sector 1: -pre 1957

Medical and University Staff used Ionizing radiation sources

X-ray machines were in use at the medical centers and

Radioactive sources were in use at Physics Departments of Egyptian Universities .

Radiation Protection activities were carried out by

## Sector 2: 1957-1962

The Egyptian Atomic Energy Commission (EAEC) was established in 1957 aiming to use research reactor for isotope production and accelerator for Fundamental research and developments.

The first Radiation protection department was established within EAEC. Due to the increasing use of ionizing radiation sources for research and applied purposes, the Ionizing Radiation (IR) law no 59 for 1960 was issued and its executive regulation was issued in 1962. This IR law and its regulation regulates the use of ionizing radiation sources as well as protection against its hazard

## Sector 3: 1962- 1989 ( Ministerial orders)

Several Egyptian ministerial orders were issued

1- List of facilities in which IR sources are in use (1972),

2- Health hazard of I R (1984),

3- Use of TLD (1985) and

4- Industrial Radiography requirements (1989).

## Sector 4 : 1990-2000

Environmental law no 4 (1994) as well as its regulation (1995) were issued . In which materials emitting I R are considered as Dangerous materials as well as its wastes.

Several ministerial orders were also issued such as

1- Radioactivity in drinking water (1995)

2- Updating Radiation Protection requirements for industrial Radiography (2000)<sup>7</sup> and others as

well as

3- EAEA Petroleum rule - 1(2000).

# Sector 5: 2001-2005

- 1- Ministry of Health order of medical waste (2001)
- 2- Updated Labor law (2003),  
Ministry of Electricity & Energy order for Air concentration(2004),
- 4- Ministry of Electricity & Energy for Exemption levels for U ,  
Th materials as well as Building material(2004),  
It was updated in 2008.
- 5- EAEA local regulations (2005) based on IAEA Basic Safety Standards.
- 6- Ministry of Health order updated regulations regarding Dangerous Materials and waste ,materials emitting ionizing radiation (2005).

# Sector 6 2006-2007

- 1-Nuclear Material law(2006)14,
- 2- Nuclear material ministerial orders15
- 3- EAEA Updated Petroleum rule(2006)16



## Sector 7 (2008-2010)

As Egypt is planning to build several NPP plants  
in the near future

A draft of a law for regulating nuclear and  
radiation activities

to be issued in 2010

# Egyptian Societies ESNESA and IRPA

## Egypt

Radiation Protection activities were among the interest of the Egyptian Nuclear and Radiation Physicists.

Prof K A Mahmoud was Egypt Pioneer radiation protection specialist.

The Egyptian Society for nuclear Sciences and Applications were established in 1965 and its

Journal was named as Arab Journal for Nuclear Sciences and Applications. Volume 42nd of its Journal was recently issued.

The Society organizes conference every four years. Last conference

ESNESA-9 was held at Feb. 2008 at Sharm El Sheikh.

# RP at ESNESA

Proceedings of the 9th ESNESA Conference was published electronically at [www.esnsa.com](http://www.esnsa.com)

Furthermore, one day seminars were held regularly.

Radiation Protection specialists are participating in ESNESA conferences and Seminars and they published scientific works in ESNESA Journal

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# RPG of ENSNA

Radiation Protection group (RPG) was formed in 1991 within ENSNA as National Radiation Protection Society

RPG of ENSNA joined IRPA international in 1992 as IRPA affiliate society (IRPA EGYPT).

Activities of IRPA Egypt are currently displayed at its website [www.irpa-egypt.com](http://www.irpa-egypt.com)

## 3. Activities within IRPA

3-1) Since IRPA Egypt joined IRPA international Egyptian delegates attended IRPA -9 Congress in Vienna in 1996. Egyptian radiation Protection specialists usually Participates in IRPA-10 congress (2000) and IRPA-11 congress (2004)

3-2) Regional congresses

IRPA Egypt co-organized the first all African IRPA regional radiation Protection congress held in South Africa in 2003 and

IRPA Egypt organized the second all African regional congress with several African IRPA affiliate societies .It was held in Ismailia , Egypt , April 2008.

In the second All African IRPA Congress , several items were completed , these include

- Refresher courses,
- Eights Scientific sessions,
- Three Round Tables ,and

Three General lectures.

The proceedings of the regional IRPA congress is currently displayed on the IRPA Egypt website (2008) [www.irpa-egypt.com](http://www.irpa-egypt.com).

The Round Tables were organized in cooperation with IAEA.

3-5) IRPA-Egypt Supported Argentina to host IRPA-12( 2004). •

3-6) Scotland is organizing (IRPA-13) in 2012 at Glasgow •

South Africa is aiming to organize IRPAS-14 in 2016 . IRPA-Egypt as African society is supporting South Africa in its bid •



# Activities with IAEA

4-1) Radiation Protection Specialists were among IAEA experts in drafting Basic Safety standards

1- Safety series No 9, 1982

2- Safety series No 115 , 1996 ( Arabic Version)

3- Updating International Basic Safety Standards 2007

4-2) Egyptian Radiation Protection Specialists participated in Technical cooperation projects such as

Radiation Dosimetry after accidents (1972) and 4. personnel dosimetry (1994).

#### 4-3) Radiation Safety projects

Egypt participated in the Technical co-operation meeting held in Cairo in 2007 for several projects dealing with RP Infrastructure, occupational exposure as well as public exposure

#### 4-4) Decommissioning Activities

Two Egyptian Specialists were among the decommissioning group formed by IAEA (2001-2005).

# Arab Atomic Energy Authority (AAEA)

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Radiation Protection experts were taking active parts in AAEA program through

- 1- Attending Experts meetings
- 2- Participating as lecturers in regional training programs
- 3- Organize Basic R P training program
- 4- Organize Nuclear and Radiation accident Training Program
- 5- Organize Transport of Radioactive material Training Program
- 6- Organize Radiation Protection in Nuclear Medicine and waste disposal Training Program
- 7- Research Reactors

# MERRCAC

Among the main departments of Middle Eastern Regional Radioisotopes Center for Arab Countries (MERRCAC) Radiation Protection Department.

Several Training Programs are regularly carried out among it

- 1- Basic Radiation Protection
- 2- Medical management of radiation accidents
- 3- Radiation Control
- 4- Radiation Monitoring

# **Egyptian Atomic Energy Authority (EAEA)**

7-1) Although the current structure of radiation Protection Departments (RPD) within EAEA includes four radiation Protection Departments in its four centers .

1-RPD of Nuclear Research center

To take account of Research reactors and accelerators as well as unsealed and sealed sources.

# RPD of other AEA Centers

2-To take account of isotope production and waste managements.

3-RPD of Radiation Research and Technology Center

To take account of the irradiation units , linear accelerator and other sealed sources

4- RPD of Nuclear Safety and radiation control

To cover licensing, inspection and other regulatory body items

The very old RPD of Nuclear Research center with its main units. These units are

- 1- Radiation Control unit of all faculties ,
- 2- External Dosimetry unit,
- 3- Internal Dosimetry Whole body Counter unit,
- 4- Bioassay and internal contamination unit,
- 5- Transport, decontamination and waste unit,
- 6- Environmental Monitoring unit

Medical surveillance of radiation workers are within Medical Directorate

# Radiation protection services

7-3) In general all workers are monitored regularly using Film or TLD .Three whole body counters are in use for monitoring persons working with open sources. Furthermore ,all personnel are regularly examined medically at least once a year . Radiation record keeping are kept electronically. Record keeping includes Safe transport of radioactive materials documents..



# Ministry of Health

As regulatory body and among the responsibility of the ministry of Health is to regulate the use of X-rays , accelerators and Sealed sources

These activities are carried following 1960 I R law through the Executive Bureau for Radiation

Protection ( EPRP) , EBRP duties cover licensing of the sites and inspection.

Personnel license is the duty of the directorate of the medical licensing of the Ministry of Health.

The IR committee is the main Board for all issues related to ionizing radiation

# Ministry of Environment

According to Egyptian Environmental law (1994) and its regulation (1995) and its modification (2005)

Materials and waste emitting ionizing radiations are considered dangerous material with EAEA as the competent authority.

# 10. Other International activities

10-1) Egypt is member of UNSCEAR committee since its foundation

10-2) Egypt is active country in the AFRA Project, where radiation safety program includes

1- R P infrastructure

2- Selection of Personnel and Training

3- Occupational exposure

4- Public Exposure

5- Emergency

10-3) Radiation Protection Specialists are looking forward to play a role with ICRP.

10-4) Radiation Protection Specialists are taking part in Training and awareness programs locally and regionally.

10-5) Health physicists and radiation protection experts are advising users of ionizing radiations in all sectors and they are offering their expertise to Arab countries as well

# Conclusions

History of Radiation Protection activities in Egypt indicates wealth of experience and continuous

updating by training to cover peaceful uses of atomic energy locally and regionally

# Future Activity

Hope to see you soon

At

X Radiation Physics and Protection conference

Cairo

26-30 November 2010

M A GOMAA

[www.rphysp.com](http://www.rphysp.com)