THE ARAB ATOMIC ENERGY AGENCY ROLE IN PROMOTING NUCLEAR ENERGY IN ARAB COUNTRIES

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FIFTH DIALOGUE FORUM ON “LONG-TERM PROSPECTS FOR NUCLEAR ENERGY IN THE POST-FUKUSHIMA ERA” SEOUL, KOREA, 27-31/8/2012
GEOGRAPHICAL DISTRIBUTION OF MEMBER STATES

22 member states in LAS

African Countries:
- Egypt
- Libya
- Sudan
- Mauritania
- Morocco
- Tunisia
- Algeria
- Comoros
- Djibouti
- Somalia

Asian Arab Countries:
- Iraq
- Jordan
- Lebanon
- Palestine
- Syria
- Yemen

Gulf Countries:
- Bahrain
- KSA
- Kuwait
- Oman
- Qatar
- UAE
A technical organization working under the auspices of the League of Arab States,

Established in 1989.

Deals with the peaceful uses of atomic energy and the development of nuclear sciences and their technological applications in the Arab world.

15 Arab member states
To help the Arab countries meet the challenge of establishing nuclear power plants

- Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
- Seoul, Korea, 27-31/8/2012
AAEA GOALS AND ROLE

To coordinate nuclear activities among member states in the field of peaceful applications of atomic energy,

- Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
  - Seoul, Korea, 27-31/8/2012
To provide assistance in research activities, manpower development, and technical and scientific information,

- Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
- Seoul, Korea, 27-31/8/2012
To assist in setting up harmonized regulations for the safety and security of radioactive materials,

- Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
- Seoul, Korea, 27-31/8/2012
To coordinate scientific and technical activities with the concerned regional and international organizations for the benefit of the socio-economic development in the Arab nation,

- Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
- Seoul, Korea, 27-31/8/2012
To encourage and assist the Arab scientists in the field of nuclear sciences and technologies to attend relevant Arab and International conferences.

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The nuclear power renaissance? around the world led many Arab countries to declare their intention to adopt nuclear energy for electricity generation and sea water desalination and have expressed interest in embarking for the first time on nuclear power programmes.

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Global energy demand expected to double by 2050.

*World Energy Council*

Global oil demand is expected to rise to about 115 million barrels a day by 2030.

*New York Times*

By 2030, greenhouse gas emissions will rise to 42 billion tons from 27 billion in 2005.

*International Energy Agency*

□ Fifth Dialogue Forum on “Long-term prospects for nuclear energy in the post-Fukushima era”
□ Seoul, Korea, 27-31/8/2012
Arab countries are at different stages of development and capabilities, in general;

Facilities:
- Have nuclear and irradiation facilities for different purposes:
  - Equipments for radiotherapy & nuclear medicine,
  - Ion and electron beam accelerators for fundamental research, elemental analysis, radioisotope production, applications,
  - Gamma irradiators, neutron sources,
  - Radioactive waste management facilities (storage and disposal),
  - Research reactors.

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<table>
<thead>
<tr>
<th>Country</th>
<th>Facility Name</th>
<th>Thermal Power (kW)</th>
<th>Type</th>
<th>Status</th>
<th>Criticality Date</th>
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<td>Libya</td>
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Most of the research reactor facilities are not being fully utilized,

Arab Technical Cooperation RRs Programmes should be of long-term.

Countries not having a RR can benefit from AAEA activities on RRs.

RRs are used as a tool for experience gaining toward NPP infrastructure development
AAEA AACTIVITIES

AAEA undertook activities using RRs for the development of manpower needed for nuclear power programmes such as; Group training courses, on –the -job training, scientific visits, scientific and expert meetings. The topics were:

- Research reactors: design, operation and applications
- Reactor safety and security systems
- Radiation protection, regulations and legislations
- Emergency planning, waste management, monitoring, early warning.
- Modeling of nuclear accidents and their effects in the environment and public health
- Workshops and conferences about nuclear reactors for public and decision makers.

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The front runners in Arab countries are: UAE, Egypt and Jordan.

Contracts signed, legal and regulatory infrastructure developed, and construction started: UAE

Committed Government, legal and regulatory infrastructure developed: Jordan.

Well-developed plans and regulatory infrastructure but no Government commitment yet: Egypt, Saudi Arabia.

Developing plans: Morocco, Tunisia and (Kuwait).

Energy consumption share in Arab countries

Why should nuclear included?
Key drivers of ACs interest in nuclear power

- Growing energy demand – to double by 2030
- Domestic security of energy supply concerns
- Volatility of fossile fuel prices and low operational costs of NPPs
- Global climate change
- Nuclear industry’s increasing experience and improved safety and security record
- Ability to apply nuclear power to desalination (Potable water shortage)
- Desire to sell hydrocarbons profitably in international markets
Recently AAEA developed with member states “The Arab Strategy for Peaceful use of Atomic Energy up to 2020” Approved by the Arab summit,

A ten year programme up to 2020 has been developed by Arab experts touching all fields of nuclear applications including nuclear power,

AAEA is contributing to the development Arab states’ nuclear infrastructure and act as coordinator between member states to foster exchange of experiences.

Many Arab countries have expressed their interest in adopting nuclear energy for electricity generation and sea water desalination and sought IAEA assistance.
As part of implementing “Arab Strategy for Peaceful use of Atomic Energy up to 2020”, AAEA experts proposed for 2010-2012 action plan the following:

- Strengthening the regulatory and legislative frameworks for nuclear and radiation activities in Arab countries
- Strengthening the Arab and national capabilities for response to nuclear and radiation emergency
- Building capacity of radioactive waste management in Arab countries
- Enhancement of infrastructure for NPP building in Arab countries; energy planning and feasibility study as a first stage
- Introduction of nuclear sciences and technologies in Arab education systems

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Sharing knowledge, best practices and lessons learned related to NPP matters

Establishing, developing and sustaining a national regulatory bodies in relation to nuclear safety, and security framework based on the international instruments and the IAEA Nuclear Safety & Security Standards and Guidelines.

In light of the above, a network was established under the auspices of AAEA. It is the Arab Network for Nuclear Regulators (ANNuR)

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ANNuR OBJECTIVES (1)

- To enhance, strengthen and harmonize the regulatory infrastructure among ACs;
- To provide mechanisms for ANNuR to be an effective and efficient internationally recognized network for exchange of regulatory experiences and practices among the nuclear regulatory bodies in Arab states.
- To Interact positively with other international & regional networks as well as GNSSR

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Six Thematic groups were established:

1. Strengthening infrastructure and capacity building for regulatory bodies
2. Legislation and Regulation frameworks
3. Emergency preparedness and response
4. Radioactive waste management and disposal of spent fuel
5. Safety, Security and safeguards
6. Information technology

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“The Agency has supported the Forum of Nuclear Regulatory Bodies in Africa and also supported the Arab Knowledge network ‘ANNuR’ created early this year. ”

Speech of Yukia Amano, IAEA DG, in Madrid, the 30th anniversary of establishing CNS, June 2010.

IAEA is assisting establishing ANNuR with expert support and joint organisation of training courses.

Prof. Choul Ho YUN President of KINS fully supports AAEA/ANNuR activities under the framework of Extra budgetary contribution of the Republic of Korea to IAEA.

- MOU has been signed between KINS and AAEA
- Co-sponsoring meeting with AAEA
- MsC grants in ISNS for AAEA member states.
- Organization of a training courses for Arab young nuclear professionals.

MOU signed in August 2010.

Cooperation agreement contract between AAEA and LLNL, has been established for the organization of workshops on nuclear safety and security.

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Cooperation with the European Union

- Consultations are ongoing and activities are planned to be carried out with the EU: ENSTTI and ITER during 2012-2013

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AAEA Through its different activities is helping the Arab states develop their Human resources capabilities to use nuclear technology.

Nuclear power is an inevitable step to bridge the transition from fossil fuel to renewable sources.

AAEA is contributing to international security and peace by helping AS develop their nuclear power programmes in order to save fuel consumption until a viable alternative energy source is adopted.

Life conditions improvement and higher industry demand with expected shortage of reliable and abundant source of energy will put fossil fuel producers under great international pressure and even threat by those who do not possess adequate supply of energy for electricity generation, sea water desalination and transportation vehicle utilization.

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Major challenges are ahead, collaboration and coordination between parties concerned with peaceful use of nuclear energy are essential at:

- National level
- Regional level
- International level
THANK YOU

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