Building capacity and capability United Arab Emirates
Nuclear Regulator’s Perspective
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Presentation Outline:

• Introductory Facts
• FANR’s Capacity Building & Emiratization Strategy
• Capacity Building Goal
• Career Development Framework
• Young Professional Development Programme
• Inspector Qualification Programme
• Specialized Development Programme
• Leadership Development Programme
• Competency Framework
• Knowledge Management
• Research and Development
Introductory Facts:

• The UAE Government’s Policy on the Evaluation and Potential Development of Peaceful Nuclear Energy adopted in 2008, establishes following basic principles;

  - Transparency
  - Highest standards of nuclear non-proliferation, safety and security
  - Working with the IAEA
  - Partnership with other nations and expert organizations.
  - Ensure long-term sustainability

• Federal Law Concerning Peaceful Uses of Nuclear Energy (UAE Nuclear Law) was issued in 2009 (based on the above Policy document).

• The Federal Authority for Nuclear Regulation, FANR, was established in 2009 based on the above Law, and is the competent and independent federal nuclear regulator for nuclear and radiation safety, security and nuclear non-proliferation (safeguards).
Introductory Facts (continued)

OUR VISION

“To be globally recognised as a leading Nuclear Regulator”

OUR MISSION

To protect the public and the environment from the harmful effects of ionising radiation and to ensure the exclusively peaceful use of nuclear energy in an integrated manner with the concerned authorities and according to international best practices, as well as capacity building of Emiratis in the nuclear field and various technical fields.

CORE VALUES

- Safety Culture
- Independence
- Transparency
- Excellence
- Collaboration
Currently FANR holds a strong cadre of senior and experienced professionals in nuclear safety and radiation protection through:

- staffing by senior expatriate staff to deal with short-medium term needs;
- capacity building and development of Emiratis to ensure long-term sustainability.

Development of young Emiratis are provided through:

- Formal education such as undergraduate and post graduate scholarships at national and international academic institutions;
- Competency-based training programmes;
- Mentoring by experienced staff.
Capacity Building Goal

To ensure that all FANR employees are skilled and competent by continuously providing training and development solutions and career development programs.

Train & develop UAE nationals to acquire the knowledge, skills and attitudes to effectively contribute to FANR core functions.
Career Development Framework

- **Experienced Professional Program**
  - Development Tools:
    - Disc. Competency framework
    - Attachment with Regulatory Bodies & TSOs
    - Graduate programs
    - Training Programs
  - 3+ years of experience

- **Young Professional Development Program**
  - Development Tools:
    - Induction
    - EP Onboarding
    - GERNI Intermediate
    - Entry Point Competency Development
  - (Fresh UAE 0 to 3 years)

- **Discipline Competency Steering Committee** (A team consists of leaders responsible for approving the Discipline Competency Framework & individuals Development Plans)

- **Discipline Competency Workgroup** (A team consists of subject matter experts responsible for developing, updating the Disciplines Competency Framework, and assessing employees' skills levels)

- **Assessment & Development Center**

- **Specialists Development Framework**

- **Promotion Chain**
  - Sr. Specialist
  - Expert
  - Deputy Director General
  - Director
  - Manager
Career Development Activities & Programs

Scholarship Program:
- KUST (MSc & PhD)
- KINS – KAIST
- Other international Universities

Secondment Program:
- US NRC
- IAEA
- Other International Regulatory Bodies

Competency Framework:
- Based on IAEA Tec Doc 1254.
- Reflects Job (Knowledge, Skills and Attitude)

In-house technical training against competency framework
- Inspector Training and formal qualification- 94 qualified inspectors
- Safety Assessor Training
- Safeguards training
- Nuclear fundamentals courses
- Nuclear energy courses for non-technical UAE staff
- Physical security awareness sessions for all staff
- FANR Emergency Preparedness & Response Training

Developee Programme
- 13 months rotation in Op’s Division and other learning activities.

Leadership and Management Program.
- PMO
- ADNOC
- Coaching and Mentoring
- Knowledge Management
- Internship and collaboration with universities and stakeholders.
- Annual Training Plan
Young Professional Development Programme (Developee Programme)

This programme is designed to provide fresh engineering and physics graduates with the fundamental knowledge necessary to understand technical concepts applicable to nuclear engineering, radiation protection and safeguards.

The specific goal of the programme focuses on assisting the individual to understand the day-to-day duties of the four Operations Departments including their assigned department.
Developpee Programme

- Induction Program
- Technical Training
- Job Rotation for 13 months
- Study Tour
- Graduation
- Soft Skills Training

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Specialized Educational & Discipline Specific Training Programmes

- Research & Development
- Secondments
- Transition to Operations
- Inspector Qualification
- Internships
- Scholarships
- FANR Emergency Response Organization (FERO) Training
Inspector Qualification Programme

• The purpose of the programme is to qualify FANR inspectors to perform activities related to inspection in compliance to the UAE Nuclear Law.
• This 12-month programme consists of 3 mandatory qualification phases and recorded on an individual Inspector Qualification Card.
Career Development Framework

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Experienced Professional Program
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(Fresh UAE 0 to 3 years)
Leadership Programmes

Managerial Talent Leadership Programme

UAE Government Leadership Programme

Management SRO Certification

FANR is currently developing its own customized Leadership Development Programme that we envisage launching in 2020.
Competency Framework (CF)

Competency-based approach forms a significant input into the process of developing an effective regulatory body that responds to external and internal environments and associated challenges.

The CF in FANR provides a solid platform for the main HR processes including employee development.
Competency Framework Implementation

**Phase 1: Developing Competence Profiles**
1. Identify Job Families
2. Identify Competency Matrix
3. Define Five Proficiency Levels
4. Describe Competency Level Indicators
5. Develop Competency Profiles

**Phase 2: Competence Gap Analysis**
6. Identify Training & Development Requirements
7. Assess employee profile and Conduct Gap Analysis

**Phase 3: Periodic Review**
8. Evaluate the profile against industry, nuclear project phases, IMS changes

IAEA TECDOC 1757

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Knowledge Management

- Critical knowledge Identification
  - Identify the gaps through analysis and identify the risks

- Knowledge Collaboration
  - Search for the required knowledge source internally or externally
  - Capture the required knowledge

- Knowledge Maintaining
  - Business continuity
  - Business Sustainability
  - Knowledge economy

- Knowledge Capturing
  - Capture the required knowledge

- K Sharing & Applying
  - Understand shared Knowledge
  - Apply Transferred knowledge

- K Storing/Preserving
  - Save the captured knowledge and make it accessible and retrievable
Knowledge Management activities

- Knowledge capturing (Mission Reports, Recording)
- Sharing Knowledge (KM Portal, awareness sessions)
- Knowledge Management Exit interview
- Conducting Knowledge Loss Risk Assessment
- Integrating Knowledge Management with Quality Management through Knowledge Resource Matrix in all processes
- FANR Library and Learning Center
- Contribute to Stakeholders engagement through Knowledge Day
- Story telling
Federal Law by Decree No 6 of 2009

- Article 4 (2) establishes FANR to regulate and develop the Nuclear Sector in the State toward the peaceful purposes only and to ensure Safety, Nuclear Safety, Nuclear Security and Radiation Protection”.

- According to Article 5 (1), in order for FANR to execute its regulatory mandate, it shall “carry out and support research and development studies relevant to the scope of work of the Authority”.

- Article 5 (30) empowers FANR to “initiate, coordinate and follow up with other authorities Safety related research and development works”.
FANR Research Main Objective

The main objective of the FANR R&D Policy is to establish, strengthen and advance FANR’s research programme in the development of national knowledge, skills and institutional capabilities in the field of nuclear technology and regulation.
R&D Strategy Development Process

• In November 2016, an IAEA Workshop on Research Infrastructure Development was held at FANR HQ.

• The purpose of the workshop was to support the development of a R&D programme in the UAE that will meet the IAEA requirements and ensure the long-term sustainability of the UAE nuclear power programme.

• Experts from Finland, Slovakia, Switzerland and Korea shared their country’s research programmes and provided guidance on how the UAE could build its R&D Programme.

• A National R&D Working Group, lead by FANR with participation of ENEC, Khalifa University and Ministry of Energy was established to develop the national strategy for Nuclear R&D.
FANR’s Current R&D Projects

**International Research Developments**

- **Acquisition of USNRC safety analysis codes** (RELAP 5, TRACE, FRAPCON, MELCOR, DANDD and MACCS, RASCL, VARSKIN, RADTRAD, PIMAL) and participation in CAMP/CSARP/RAMP programmes.

- **Membership in OECD-NEA Halden research project (2018-2021)**
  - nuclear fuel reliability, integrity of reactor internals, plant control/monitoring and human factors

- **Participation in OECD-NEA ATLAS Phase 2 project (2018-2021)**
  - Thermal-hydraulic safety issues and accident management issues relevant for water reactors

- **Implementing Agreement with IRSN**
  - Development and implementation of a research programme on modelling of radionuclide dispersion in the UAE environment

**National Research Developments**

- Establishment of the Emirates Nuclear Technology Center
UAE Nuclear R&D Objectives

Establishment of a government-funded nuclear R&D center to provide the necessary conditions for the safe and reliable implementation of peaceful nuclear activities in the UAE.

Develop know-how, expertise and institutional capabilities in the country to allow for excellence and innovation, through meaningful participation in international research and development.
Emirates Nuclear Technology Center

• In November 2018, the UAE Nuclear Stakeholders were requested by the Ministry of Energy to establish the Emirates Nuclear Technology Center (ENTC), an applied research center.

• The ENTC is a Joint Venture between Emirates Nuclear Energy Corporation (ENEC), the Federal Authority for Nuclear Regulation (FANR), Khalifa University (KU) and External International Stakeholders.

• The launch of the ENTC is planned before the end of 2019.
“A country’s greatest investment lies in building generations of educated and knowledgeable youth.”
THANK YOU