FNCA 2009 WORKSHOP ON HUMAN RESOURCE DEVELOPMENT

COUNTRY REPORT – MALAYSIA

22 – 25 JUNE 2009, FUKUI, JAPAN

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INTRODUCTION

- The government has identified HRD in S&T is a critical factor in achieving a developed nation by 2020
- The Ninth Malaysia Plan Strategy - enhancing S&T HR as a principle source of innovation and competitive advantage
- Set target – 50 RSEs per 10,000 labour force by 2010 in 6 priority areas: biotechnology, advanced materials, advanced manufacturing, ICT, nanotechnology and renewable energy
- Government initiatives – to increase no. of higher learning institutions and introduce the concept of long life learning

PRESENT STATUS OF NATIONAL HRD IN SCIENCE &TECHNOLOGY PROGRAM

- Ministry of Science, Technology and Innovation (MOSTI) was given RM500 million (approx. USD143 millions) for HRD fund to upgrade skills and capabilities of S&T manpower for a 2006 – 2010 through 7 schemes
- Out of which about more than USD5 million was allocated for human capital development in the areas of Nuclear Science and Technology

PRESENT STATUS OF NATIONAL HRD IN S&T PROGRAM (cont)

7 schemes for implementation HRD

- Post Graduate Applied Research Fellowship for in Serving Personnel
- National Science Fund Fellowship
- Post Doctoral Fellowship
- Invitation of Training Expert in R&D
- Overseas Advanced Research Fellowship
- Overseas R&D Management Training
- University Post Graduate Research Scholarship

HRD IN NUCLEAR S&T:
NUCLEAR MALAYSIA

- fully government funded research institute - established in 1972
- authorized agency responsible to develop and promote peaceful applications of nuclear science and technology in various sectors namely industry, agriculture, manufacturing, health, radiation safety and the environment
- Undertakes R&D and provide technical services and training
- Current Staff - 815

  - 313 ROs
  - PhD (64), MSc (90), BSc (159)
  - Recruitment exercise will be continuously undertaken until the target 350 researchers is achieved by 2010

HRD IN NUCLEAR S&T:
NUCLEAR MALAYSIA (cont.)

HRD Program emphasizes on:

- Competency & skill development & enhancement
- Development of Training Roadmap
- MSc as a minimum qualification for researchers with opportunity to pursue for PhD in areas of emerging nuclear S&T.
- 55 researchers pursuing postgraduate (28 PhD + 27 MSc)
- Continuous learning & skill upgrading in specialize area
- Mechanism - on-the-job training (OJT), training courses/workshops, seminars and conferences, expert assistance, fellowship and in-house training.
- Training of 181 researchers in 2008 under National HRD program, FNCA/MEXT, IAEA, RCA and bilateral cooperation

HRD IN NUCLEAR S&T:
NUCLEAR MALAYSIA (cont.)

- Provision of training in Nuclear S&T in 6 sectors:
  - Radiation Protection Course
  - Non Destructive Testing
  - Radiation Safety and Health
  - Environmental Safety and Health
  - Medical X-ray
  - Nuclear Instrumentation

  In 2008 - 113 courses was conducted involving a total of 2295 participants

- Assist local universities in designing curricula in NS&T

- Hosting Regional Training Center for IAEA Post Graduate Education Course (PGEC) in Radiation Protection and Safety since 2002 involving 150 participants

- Provides facilities and supervisions for industrial & practical training of university & college students, undergraduate and post-graduate research projects – 150 students annually

HRD IN NUCLEAR S&T
ATOMIC ENERGY LICENSING BOARD (AELB)

- Established in 1985
- The independent regulatory body – responsible for regulatory aspects of nuclear technology
- Current staff: 138 – 26 officers and 102 supporting staffs
- HRD program based on IAEA –TECDOC 1254 & AELB Act 304
- Applied SAT and TNA has been carried out
- Adoption of the AELB Assessor & Inspector Certification Program
- Target 50 AELB assessors obtain certification by 2010

HRD IN NUCLEAR S&T
HIGHER LEARNING INSTITUTIONS

- Nuclear Science Department at UKM was established since 1978
- The only university offer nuclear science degrees at both undergraduate and post graduate
- Three universities (UM,USM&UPM) offer postgraduate in medical physics
- One university (UTM) offer undergraduate course in health physics
- Others offer nuclear S&T subjects as subjects in S&T and medical courses

HRD IN NUCLEAR S&T

HIGHER LEARNING INSTITUTIONS (cont.)

Programs Related to Nuclear S&T conducted by Universities in Malaysia.

University	Degree Level	Program Conducted
UKM	undergraduate and postgraduate postgraduate	Nuclear Science Program Diagnostic Imaging and Radiotherapy Master of medicine (radiology)
UM	undergraduate postgraduate	Bachelor of Biomedical (BBMedSc) course module include Nuclear Medicine Technology Medical Physics
USM	undergraduate postgraduate undergraduate postgraduate	Medical physic - Bachelor of applied science Medical Physic – Master of Science (coursework) Medical radiation program Master of medical (Radiology)
UPM	postgraduate	Research area – applied radiation (radiation synthesis, medical physics)
UTM	undergraduate	Basic Nuclear Technology and Application of Radioisotope and Radiation – Major subject in 3th year Health Physics
UiTM	undergraduate	Basic Nuclear Technology and Application of Radioisotope and Radiation – Major subject in 3th year

PROGRESS AND IMPLEMENTATION PLAN OF ANTEP

The progress and implementation plan of ANTEP are shown in Annex 1.

INTRODUCTION OF NUCLEAR POWER

- The Malaysian government has announced to consider NPP
- A policy decision for having NPP has not been made
- Study carried out by local utility company (TNB) on national energy need showed that Malaysia will have 1st NPP by 2030
- Education and training of nuclear engineers with MSc and PhD is an important priority beside public information
- 3 officers from Nuclear Malaysia and 2 engineers from TNB are pursuing MS in Nuclear Engineering
- Major Familiarization Activities conducted in 2009
  - 2 Inter-Agency Familiarization Workshop on NP policy and program,
  - 1 International Conference on NPP
  - Public Talks on NP awareness

INTRODUCTION OF NUCLEAR POWER (cont.)

- 3 MoUs has been established
  - TNB-KEPCO – Pre-feasibility Study for 1st NPP including training
  - TNB-TEPCO - Preparation for 1st NPP
  - AELB – BAPETEN – regulatory aspects
  - UKM – KAIST – education on nuclear power science and engineering
- 5 MoUs in the planning stage
  - UKM-TU Delft University - education on nuclear power science and engineering
  - Nuclear Malaysia – Japan (JMTR) – reactor engineering
  - Nuclear Malaysia – BATAN – nuclear R&D
- Development of Education and Training Program
  - a team of experts under the IAEA expert assist Malaysia to review national education and training program for non power and power
  - Establishment of Nuclear Technology Engineering Program at UTM and UniTEN

INTRODUCTION OF NUCLEAR POWER (cont.)

Activity under MoU between UKM-KAIST

1st International Summer School on NP science & engineering was held in UKM, 25 May – 5 June 2009

Objectives:

to provide better understanding of the latest knowledge on nuclear power science and engineering including

- nuclear reactor engineering;
- foundation of nuclear reactor theory related to neutron reaction, nuclear fission and chain reaction;
- concepts and principle of mass transport phenomena and system control in NP Plant.

Lecturers: 4 experts from KAIST

Participants: 50 (universities, AELB, Nuclear Malaysia, TNB)

CONCLUSION

- Malaysia is continuously seeking opportunities to develop competent and skilled manpower through international and bilateral cooperation

- International cooperation eg FNCA, IAEA and countries with established nuclear power programs eg Japan, Korea and China have important roles in providing assistance

- Malaysia is allocating special fund to sponsor education and training locally and internationally.

- Experts assistance from FNCA countries are required for conducting courses in Malaysia on NPP under the special funding.

THANK YOU