Capacity Building with Special Emphases on HRD & Nuclear Knowledge Management in BATAN

First Coordination Meeting
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IAEA Concept of Competence Building

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IAEA Concept for Capacity Building

- **E&T (diklat)**
- **HRD (pengembangan SDM)**
- **NKM (Manajemen Pengetahuan)**
- **Knowledge Network (Jejaring Pengetahuan)**
Capacity Building of BATAN: Objectives

- **E&T**
  - Building Competences
  - Preserving nat. comp. on NST
  - Public Outreach

- **HRD**
  - Effective Human Capital Management

- **NKM**
  - Preserving NK
  - Preventing NK loss
  - Harvesting NK

- **Nuclear Network**
  - Building competencies
  - Stakeholders involvement
  - Public outreach
  - Increasing public support
Capacity Building of BATAN: Activities

**E&T External**
- Education
- Training
- Public outreach
- Information sharing

**E&T Internal**
- System Improvement
- Method diversification
- Infrastructure improvement
- Networking

**HRD**
- Talent Management

**NKM**
- Infrastructure development
- Self Assessment

**BHHK, UK**
- TC IAEA
- ANENT
- ANSN
- NSSC
- FNCA
- ICERR
- Stakeholders
- Foreign Univ.
- Domestic Univ.
HRD in BATAN

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HRD issues

- Manpower Requirements
- Recruitment and Training Timeframe
- Training Schemes and Certification
- Nuclear Training Center
- Standard on Personnel Competence and Competence-Based Training
- Training implementation
Target for Competence Building

- Regional/internasional Competence
- National Competence
- BATAN Competence
BATAN contribution

- Policy
- R&D products
- Education
- Training
- Standards
- Certification
- Support

Nuclear Industry
- Commercial
- Non-Commercial

National Welfare

Public
Framework for Nuclear Capacity Building

- Internal of BATAN
- Press
- Government institutions
- Public, Community
- Regulatory Body
- Vendor
- Industry
- Certification Body
- Company
- Training Institutes
- Hospital & Medical Company
- Research Institutes
- Utility/Operator
- University/Secondary School
- Press
- Public, Community
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- Training Institutes
- Research Institutes
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- Hospital & Medical Company
- Utility/Operator
- Government institutions
- Regulatory Body
- Internal of BATAN
Framework for Nuclear Capacity Building

Government Institutions

- Ministry of Research, Technology & Higher Education
- Ministry of Energy and Mineral Resources
- Ministry of Industry
- Ministry of Environment & Forestry
- Ministry of Health
- Ministry of Agriculture
- Agency Mitigation of Disaster
- State-owned enterprises
Training Center Improvement

**LION**

Learning Innovation on Nuclear

- Active participation
- Active methods

**Active Learning**

- Online portal
- Blended Learning
- Full Online Courses

**Online Learning**

- Web-based library
- Learning Material storages
- Link to other sites

**Online Library**

- Smart Room arrangement
- Multi-monitors/medias

**Smart Learning Space**

- Communication forum

**Learner Community**

- Networking
Strategy for HR Training

Personnel Competence Standard

Training Competency Based Standard

Standard Curriculum

Training Material

Instructor

Laboratory

Training Implementation

Based on Systematic Approach to Training
Personnel Competencies Development

Infrastructures:
- National Education System
- Institutional Training Facilities
NPP Case

- Competent Personnel
  - Personnel Certification Body (BAPETEN)
    - Specialized Training on Nuclear Reactor
  - Nuclear Island
  - Basic Training on Nuclear Power
    - New Technical Personnel
  - non Nuclear Island
  - Specialized Training on Electricity Generation
    - Personnel Certification Body (ESDM)

<table>
<thead>
<tr>
<th>Basic (≤ 3 years)</th>
<th>Junior (3 ~ 8 years)</th>
<th>Senior (&gt; 8 years)</th>
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<tbody>
<tr>
<td>Radiation Protection Officer</td>
<td>Radiation Protection Supervisor</td>
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<tr>
<td>Reactor Operator</td>
<td>Reactor Supervisor</td>
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<td>Reactor Maintenance Officer</td>
<td>Reactor Maintenance Supervisor</td>
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<tr>
<td>Nuclear Material Inventory Officer</td>
<td>Nuclear Material Inventory Supervisor</td>
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<td>Nuclear Emergency Preparedness</td>
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<td>Nuclear Waste Management Officer</td>
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<tr>
<td>Radiation Protection Officer</td>
<td>Radiation Protection Supervisor</td>
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<tr>
<td>Operator Radiography</td>
<td>Supervisor Radiography</td>
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<td>Irradiator/Accelerator Operator</td>
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<td>Irradiator/Accelerator Maintenance Officer</td>
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<td>Radiological Emergency Preparedness</td>
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<tr>
<td>Radioisotope Production Officer</td>
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Not Safety Related Competency (Administrative, Quality Assurance, Informatics, instrumentation, etc.)
Clearing House of Nuclear Technology  
(BATAN REGULATION No. 11/2017)

Tasks:
• Review and provide recommendation of nuclear products and technology,
• Perform certification of person, product, process, and management systems
• Provide data / information of expertise, products, and technology in nuclear fields.

CHNT → assure personnel competence
Institutional Workflows of CHNT

- Nuclear S&T from other countries
- Nuclear S&T from national companies
- Nuclear S&T from research institutes

BATAN

CLEARANCE TEST:
- Product
- Technology
- Process
- Management system
- Personnel

R&D, Test and Engineering

Domestic utilizations
NKM in BATAN

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Linkage of NKM and E&T

Knowledge Sharing

Education

Knowledge Management

Training
Background

- NKM is a key factor in:
  - ensuring safe and sustainable operation of nuclear facilities
  - effective application of current knowledge to the design and construction of new nuclear facilities, and
  - development of innovative new technologies.

- NK is developed and maintained to assure operation of nuclear facilities in safe, secure and sustainable manner.

- NK should be developed, shared and transferred between generations.

- BATAN as a knowledge-based learning organization realizes the importance of implementing NKM so that it becomes a resilient and eminent organization.
Objectives

a. Improve organizational capacity in managing intellectual assets, in the form of knowledge and experience, to be a strong organization with excellent performance, and accelerate the achievement of bureaucratic reform objectives;

b. Improve BATAN to be a strong and superior a knowledge-based nuclear technology learning organization;

c. Develop competence and improve human resource performance in the nuclear field;

d. Pass down knowledge and skills in the nuclear field to the next generation to prevent loss of core and specific knowledge.
Scope

a. Implementation of nuclear knowledge management includes all activities in BATAN

b. NKM is focused on core and specific competencies as well as identification of critical knowledge.
Drivers to NKM application

a. Aging of human resources and the threat of loss of knowledge and experience
b. Aging of nuclear facilities
c. Evolution of technology inside and outside the nuclear field
d. New development in nuclear fuel cycle
e. Lack of nuclear-related graduates & technicians
f. Need of higher for nuclear facility safety
g. NKM should be a concern at the national level
Approaches (1)

Top-down approach

- Overall national organizational directions
- KM initiatives
- NKM activities
Approaches (2)

Bottom-up approach

- Overall national organizational directions
- Key needs and issues
- KM activities in key processes
Coverage of NKM Strategy

a. Conservation of existing nuclear knowledge
b. Share of Nuclear Knowledge
c. Development of new nuclear knowledge

Simultaneously!
Steps of Strategy

1. Raise awareness
2. Develop & use effective mechanism
3. Set priority of competence to be handled
4. Encourage sharing of NK
5. Improve R&D capabilities
6. Develop training program
7. Develop collaborative mechanism: training & academic institutions
Steps of Implementation

a. Raise awareness within the organization: NK is the primary resource of the organization
b. Develop and use effective mechanisms to acquire, maintain and transfer explicit knowledge as well as tacit knowledge
c. Identify the main competencies to be gained and prioritized within the existing HR retirement schedule
d. Develop a collaborative mechanism between training institutes and academic institutions to attract future employee and for retention of existing employee
e. Develop training programs as an integral part of organizational commitment to optimize the nuclear knowledge of its employees
f. Improve new R & D capabilities
g. Encourage the knowledge-sharing culture to create new knowledge to ensure the continuity of knowledge
Stages of Implementation

Assessment
Develop Strategy
Proof of Concept
Piloting
Roll-out
Post-implementation
BATAN NKM Program

- Development of regulation and guidance
- Improve NKM portal (nkm.batan.go.id)
- Develop network and strategic alliances (IAEA, universities, etc.)
- Develop infrastructure (BATAN Knowledge Center)
- Knowledge sharing (employee engagement)
- Monitoring & evaluation
Terima Kasih

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