Knowledge Management within the National Commission for Nuclear Activities Control and the Related Support Provided by International Co-operation

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Technical Meeting/Workshop on Managing Nuclear Knowledge, Trieste, 22-26 August 2005

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- CNCAN - Main Competence
- CNCAN Organizational Chart
- Staff distribution
- Staff structure
- Knowledge Management
- Conclusions
- National competent authority in the nuclear field
- Responsible for all nuclear safety aspects related to the siting, construction, operation and decommissioning of nuclear installations in Romania
- **Main Attributions**: regulating, licensing, control of nuclear activities
- Led by a *President having the rank of State Secretary* appointed by the Prime Minister
- Financing only from its own *resources* (tariffs from licensing and control of nuclear activities)
Staff distribution

<table>
<thead>
<tr>
<th>Division</th>
<th>Occupied</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRD</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>RP&amp;D</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>QCD</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>SMD</td>
<td>18</td>
<td>14</td>
</tr>
<tr>
<td>IRD</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td>IntRD</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>ED</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>PRD</td>
<td>4</td>
<td>12</td>
</tr>
</tbody>
</table>

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Staff distribution (cont’d)

- Total No. - 171 positions (including residences) out of which 49 vacancies
- Need to fill in the vacancies (commitment assumed within the Plan of Priority Measures for European Accession January - December 2005)
- Need to maintain personnel knowledge at a high level

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### Staff Structure

- **Personnel structure**
  - Junior’s age: 18-40 years
  - Senior’s age: over 40 years

- **Seniority**
  - Beginners: 0-3 years
  - Advanced: 3-10 years
  - Experts: over 10 years

### Age distribution in CNCAN’s Divisions

![Bar chart showing age distribution across different divisions](chart.png)
Taking into account:

- Main priorities in the nuclear field
- Necessity of maintaining knowledge at a high level faced to the main trend of decreasing the experts number

Main priorities

- Cernavoda NPP U2 commissioning process
- Cernavoda NPP U3 construction activities start-up
- Decommissioning of WWER Research Reactor from Bucharest-Magurele
- Repatriation of spent fuel from WWER Research Reactor from Bucharest-Magurele
- Siting of the LILW Repository for Cernavoda NPP
- Regulatory assessment of PSA study for LILW Baita Repository
Personnel dynamics

Main trend - decreasing of the experts number due to:

✓ retiring of experienced staff
✓ time to train young graduates

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lost Employees LE</td>
<td>20</td>
<td>17</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Newcomers NC</td>
<td>8</td>
<td>22</td>
<td>53</td>
<td>3</td>
</tr>
<tr>
<td>Total staff number</td>
<td>73</td>
<td>75</td>
<td>102</td>
<td>122</td>
</tr>
<tr>
<td>Fluctuation Rate</td>
<td>27.4%</td>
<td>22.7%</td>
<td>9.8%</td>
<td>1.6%</td>
</tr>
<tr>
<td>FR = LE/SN x 100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FR variation in the last 4 years shows the increasing of the personnel’s fidelity to the CNCAN

Knowledge Management (cont’d)
According to:

- CNCAN Internal Rules approved by Governmental Decision
- Collective Labor Contract
- posts requirements (internal writing documents defining the experience required by a specific post, studies, competencies, specific skills, etc.)

Actions undertaken:

- Personnel recruitment
- Selection process
- Staff training

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**Recruitment Process**

**Recruitment tools:**

- Announcement in dedicated newspapers
- Announcement at CNCAN Headquarters
- Announcement on CNCAN web site
- Promotion actions undertaken at dedicated universities
- Participating in jobs market
- Recommendations and informal activities
**Recruitment Process (cont’d)**

- General Requirements (examples)
  - Initial education
  - Medical and psychological certification
  - Statement of confidentiality

- Specific Requirements (examples)
  - Professional background
  - Experience in the nuclear field
  - Personal specific skills

**Selection Process**

- Analysis of the candidates Registration File
- Examination session (examples: writing session, oral session, interview)
- Acceptance/rejection of the candidate.
Actions undertaken for the integration of new comers in the organization

- distribution to the dedicated post
- allocation of a Supervisor
- test period (1 month for new employees and 6 months for beginners)
- presentation of a paper (by the new comers) after the test period
- assessment of the paper and of the test period by a special Commission nominated by CNCAN President

Training Need Assessment

The training of the Regulatory Body personnel is carried out according to the Internal Procedure which identifies the training need and applies the Systematic Approach to Training Principle
### Systematic Approach to Training

**SAT**, a methodology that applies quality assurance to training, is a technique that provides the following five steps in a logical progression for identification and achievement of the competencies required to perform a job:

1. **Analysis**
2. **Design**
3. **Development**
4. **Implementation**
5. **Evaluation**

### CNCAN “Internal Procedure for the Identification of the Training Needs and Planning of Training Activities”

- **Questionnaire for the assessment of knowledge required by each post**
- **Questionnaire for the assessment of personnel knowledge & annually interview**
- **Individual training programme for short term (1 year)**
- **Individual training programme for medium term (1 years)**

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Knowledge Management (cont’d)

CNCAN “Internal Procedure for the Identification of the Training Needs and Planning of Training Activities” (cont’d)

- Questionnaire for the assessment of personnel knowledge & annually interview (year 1)
- Evaluation of training efficiency
- Questionnaire for the assessment of personnel knowledge & annually interview (year 2)

Knowledge Management (cont’d)

CNCAN “Internal Procedure for the Identification of the Training Needs and Planning of Training Activities” - samples of evaluation criteria:

- technical background
- dedicated knowledge
- national legislation in the nuclear field
- CNCAN internal documents
- equipment operation (i.e: PC, xerox, scanner, overhead projector, photo camera, etc.)
- foreign languages
Training should ensure that staff is aware of technological development and new safety principles and concepts.

Training Requirements for Regulatory Personnel are taken into account:

- Development of the specific skills and level of knowledge for each employee according to the employee’s training needs and responsibility in the organization, in order to perform specific regulatory tasks.
Overview on CNCAN training

1. Self-study

2. “In-house” training programme

3. Training under international co-operation programmes

Knowledge Management (cont’d)

1. Self-study

Tools for filling in the “gaps”:

✓ writing documents
✓ electronic documents
✓ exchange of information with experienced staff
✓ use of Intranet
✓ use of Internet
1. “In-house” training programme

- lectures performed by CNCAN experienced staff
- on-the-job training
- financial support for dedicated training activities

1. “In-house” training programme (cont’d)

- major fields of training:
  - nuclear safety
  - radiation protection
  - management of radioactive waste
  - radiation safety
  - inspections
  - regulation and licensing
2. International co-operation programmes

- International Atomic Energy Agency Technical Co-operation Programme (IAEA TC Programme)
- Phare Programme
- Bilateral co-operation
- Training opportunities:
  - acquaintance with the best practices in the field
  - refresh and update knowledge

IAEA TC Programme

- Compliance with the main areas of the technical assistance identified within the Country Programme Framework (CPF)
- According to CPF document:
  4 Nuclear Safety field - 37% of the technical assistance granted during 1993 - 2002
  4 IAEA assistance contributed to the establishment of adequate infrastructure for
  - licensing of nuclear activities
  - enhancing national capabilities for safety assessment
IAEA TC Programme (cont’d) - National Programme

Means of training - grants:

✓ Fellowships
✓ Scientific Visits

Number of grants under the IAEA TC Programme

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IAEA TC Programme (cont’d) - Regional Programme

Means of training (cont’d):

P Regional Workshops
P Regional Training Courses

Participation in the IAEA Regional Programme
International Co-operation Support

- CNCAN still needs training support both for the new comers and for updating the knowledge of the existing personnel (According to Type I country recommendation of the EU Council Report on Nuclear Safety in the Context of Enlargement - CONF-RO 28/01)
- Identifies the gaps related to personnel knowledge
- Identifies potential co-operation opportunities with emphasis on training
- Analyzes the priorities
- Submission of project proposal or effective training

International co-operation

- *shall act as the best way for enhancing and maintaining adequate knowledge in the field of regulatory activities*
- *shall continue to play an active role with a view to achieving CNCAN priorities and needs in terms of technical assistance*
In our organization a detailed record of staff training is kept by the Human Resources Section in cooperation with CNCAN dedicated divisions.

There is a knowledge preservation policy based on:

- unlimited access to information provided by Internet
- unlimited access to information provided by Intranet
- access to dedicated publications (by subscription or direct procurement)

Conclusions (cont’d)

- participation in annually training programmes, according both to CNCAN priorities and to the employee priorities
- knowledge dissemination sessions
- increasing of staff motivation
- more appropriate distribution of personnel
- dedicated training plan for each division and each personnel category (beginners, advanced, experienced)
- employees’ career aspirations - compared to CNCAN priorities
- development of computer-based training-form of distance learning