Case Study

Develop and maintain a Nuclear Safety Knowledge Management (NSKM) Programme in a Regulatory Body

Group A

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Working Process

- SWOT Analysis
- Risk Analysis (Treat & Weakness)
- Set Priorities
- Set Communication Plan

Action Plan
Organizational Background

Type:
• National Regulatory Body, 40 years experience

Existing Functions:
• regulatory responsibilities and functions over the existing nuclear facilities and activities (e.g. radiation safety activities and one NPP unit).

Country Situation:
– expand its nuclear power programme and build new units to fulfill emission reduction goals,
– decommission several coal power plants which produce a large proportion of its electricity
– Existence of new medical application
SWOT Analysis

**Strength**
- Long experience
- Good reputation
- Good relationship with media
- Availability of some elements of KM
- Educated & well trained senior employees

**External Factors**
- Government decision
- Higher public support
- New medical practices
- IAEA cooperation

**Opportunity**
- HR issues on nuclear engineering field
- New medical practices, complex and equipment are in place
- Less time for knowledge transfer

**Weakness**
- Regulation is not up-to-date
- No people to handle new practices of nuclear medicine
- Depletion of personnel for media communication
- No NKM program
- Aging of workforce

**Internal Factors**
- **Opportunity**
  - New medical practices
Case Study Activity

SWOT Analysis

• Strengths:
  – The RB has long experiences (40 years) in fulfilling its regulatory responsibilities and functions over the existing nuclear facilities and activities (e.g. radiation safety activities and one NPP unit).
  – Existence of a revised nuclear law and regulations to control the use of the radiation and nuclear activities in the country.
  – The RB has a good reputation, public acceptance record and maintains a good relationship with the media.
  – Some elements of a KM programme exist and are effective (e.g. training, document management, portal)
  – The current Head of the RB is a well-educated nuclear expert with several years of teaching experience at the university, was a training manager of the Blue River NPP and has a broad understanding of knowledge management issues.
Case Study Activity

Weakness:

– the *regulations* on nuclear medicine is not *updated*  
– Based on ISO 9001 Certification, the *management processes* of the RB *was not updated* in order to fulfill the latest IAEA and ISO requirements.  
– The RB doesn’t have a KM programme and employees from HR and the training department have limited knowledge of KM tools and techniques and they are not concern about its necessity.  
– The communication officer has recently left for retirement and the young expert, who just graduated from university, has no relevant experiences with the media.  
– Many of the 185 staff of the regulatory body will be retiring in the next 1-2 years and only 30 new staff will be recruited prior to 3-5 months of their retirements. Overlapping period is very limited to disseminate the knowledge  
– Aging of workforce  
– No program to avoid the knowledge loss of the retiring personnel  
– No staff-retaining program
Case Study Activity

Opportunities:

– The Government decision:
  • to expand its nuclear power programme and build new units to fulfil emission reduction goals,
  • to decommission several coal power plants which produce a large proportion of its electricity.

– Availability of experienced and reputable university which has faculties in mechanical, electrical and civil engineering, as well as Instrumentation and Control (I&C) and a new faculty of nuclear engineering.

– The public acceptance of the nuclear power programme is at about 56 % in the country.

– A medical institution has introduced innovative medical practices and associated new and complex equipment that are using radio-isotopes for treatments.

– The RB is planning to have an IRRS mission in 2018.

– The order from the Government to review the current national legislation and update it according to international safety standards and requirements.

– The government has supported the recruitment of 30 young staff (maximum) to replace those who will be retiring.

– The country is a member of the IAEA and has signed all necessary agreements with the international community.
Case Study Activity

Threats:

– the number of applicants into faculty of nuclear engineering is very limited.
– All nuclear engineers were educated abroad at the supplier country’s educational institutions.
– The medical institution that has introduced innovative medical practices and associated new and complex equipment using radio-isotopes for treatments informed the regulator after their introduction.
– Delay the implementation of these new medical practices.
– Recruiting regulatory staff with the relevant knowledge for these practices is a difficult task.
– There will be an overlap of the experienced and new staff of about 3-5 months according to the government instructions. The RB wants to have a one-year overlap.
– Leadership deficiencies in the NPP’s (Blue River)
Challenges / Issues

Both threats and weaknesses are the challenges
Requirements / Standards

Identified requirements/standards (both national and international) which the Regulatory Body should follow

Safety standards GSR Part 1 & 2
Safety Guide GSG-3.1
IAEA TECDOC-1510
Risk Assessment

Conduct a high-level knowledge management risk assessment

Refer to the EXCEL Sheet
KM Policy

NSKM is important for all regulatory functions of review and assessment, authorization, inspection, enforcement and development of regulations and guides.

The RB is committed to implement NSKM systematically, consistently and continuously and in order to become a strong organization with excellent organizational performance through:

1. active participation of all leaders and employees,
2. use of information technology, and
3. culture of sharing knowledge
KM Strategy

Organizational Background: Needs for Improvement

1. Handle issues with immediate action
   - Regulation is not up-to-date
   - No people to handle new practices of nuclear medicine
   - Aging of workforce

2. Develop & Maintain NSKM program

- Improve HRM
- Protect critical knowledge
- Modernize IT to handle KM

Short-term

Medium-/long-term

Design KM Program

Evaluate risk of loosing knowledge/critical knowledge

Implement KM Program

Evaluate KM Program
Develop a KM strategy including the main milestones of implementation (consider the approval process, stakeholders, communication, change management, etc.).

Refer to the communication plan in Excel Sheet
Lessons Learned

Identify post-feedback elements you would add, update or change to your original policy and/or strategy (to be completed after the presentation of your recommendations)
Thank you!