Knowledge Management Portal - Fukushima Observations and Lessons

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The Fukushima Daiichi Accident Lessons Learned Knowledge Portal

Background
Background

The IAEA Director General’s Report on the Fukushima Daiichi Accident and Five Technical Volumes

• The report provides a comprehensive understanding of what happened during the accident and why.
• The main observations and lessons are highlighted so that they can be acted upon by governments, regulators and nuclear power plant operators throughout the world.

Observations and Lessons

• 104 in the Technical Volumes;
• 45 key observations and lessons in the Report by the Director General.
Background

The Nuclear Safety Action Plan

- Focused on sharing the lessons learned from the accident, identifying relevant best practices and ensuring that both are widely disseminated
- Focused on the need to incorporate them into the Member States capacity building programmes for both the embarking countries as well as for countries with nuclear power programmes
- Over 1300 activities covering 12 key areas of nuclear safety
- 9 International Experts Meetings and related reports capturing lessons learned
- 15 international experts missions to Japan

Observations and Lessons

- ~400 observations and recommendations (at present);
- ~50 source documents (at present).
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<th>Action</th>
<th>Description</th>
<th>Percentage</th>
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<tr>
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<tr>
<td>2</td>
<td>IAEA Peer Reviews</td>
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<td>4</td>
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<tr>
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<td>Operating Organizations</td>
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<td>International Legal Framework</td>
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Background

NSOC Observations and Lessons Learned Database

• IAEA Fukushima Report

• IAEA Nuclear Safety Action Plan Series
  – IEMs 1-9
  – IAEA Report on Capacity Building;
  – IAEA Report on Strengthening Nuclear Regular Effectiveness;
  – IAEA Report on Preparedness and Response for a nuclear or radiological emergency in the light of the accident at the Fukushima Daiichi NPP.

• IAEA International Expert Missions Reports

• IAEA Conferences

• Other possible source documents
  – New outcome documents of completed Action Plan projects;
  – Peer reviews, technical meetings, IAEA workshops, TECDOCs, radiological monitoring, BOG reports, presentations, etc.
The Fukushima Daiichi Accident Lessons Learned Knowledge Portal

Objectives and Rationale
The objective is to turn this database into a **user-friendly web-based** knowledge portal that will be **accessible to all Member States** and hosted **within the GNSSN**.
Project Objectives

The implementation of the IAEA Action Plan and the publication of the IAEA Fukushima Report highlighted many observations and lessons that require further deliberation. In order to build on these observations and lessons:

→ a strong knowledge base needs to be created, as well as a tracking system that will allow following-up on the progress.
Project Objectives

- To **share observations and lessons learned** from the Fukushima Daiichi Accident and **exchange practices** among all participating MS and international organizations;
- To ensure that observations and lessons are **captured**, **retained** and **disseminated** in a **structured and consistent manner**;
- To facilitate access to knowledge that will provide a **framework** for MS to ensure the effectiveness of activities undertaken so far and that recommendations are fully carried out.
The Fukushima Daiichi Accident Lessons Learned Knowledge Portal

Scope and Workplan
Scope of the Portal

- Embedded within **GNSSN (Sharepoint 2013)**

- **Search interface** via different users views:
  - a) Key word search;
  - b) Thematic area;
  - c) Target audience;
  - d) Safety standards;
  - e) Lifetime operation.

- **Software platform**: including a search engine that retrieves information based on the chosen classification system (**Nuclear Accident Taxonomy** and different user views)

- The user will find the observation or lesson sorted by relevance as well as a link to the original source document
DATABASE of Observations and Lessons
Observation and lesson

Tags/metadata

Observation and lesson with tags

Customized views

Database
Phase 1: Pilot Portal

- Make the observations and lessons from the Fukushima Report:
  
  - **available** under GNSSN;
  
  - **accessible in several views** (thematic, audience related etc.);
  
  - **referenceable** in order for the MS to facilitate linking the observations and lessons to national initiatives and reporting.
Phase 2: full implementation

- Add other IAEA documents (IAEA Nuclear Safety Action Plan Series, Fact-finding Mission reports, Conference reports, etc.)
- Link to other sources and create annotations
- Standardize and publish taxonomy (views/language)
- Potential expansion of the database to include TMI and Chernobyl observations and lessons
- Review full portal
  - Adjustments and maintenance
Support by GNSSN

• **Reviewing**
  - Providing advice based on existing GNSSN knowledge networks and portals
  - Feedback on content, categorization, search functions, sustainability etc.

• **Testing**
  - Feedback on the conceptual structure and sustainability of the main features during pilot phase and the migration of all lessons and observations

• **Promotion**
  - Support in promoting this new feature of the GNSSN
The Fukushima Daiichi Accident Lessons Learned Knowledge Portal

Current Status
Current Status

• As part of the analysis stage of the project the Secretariat has finalized:
  
  – compilation of observations and lessons from the implementation of the Fukushima Report and key IAEA Action Plan outcome documents;
  
  – identification of the knowledge domains;
  
  – categorization of the observations and lessons under the relevant knowledge domains;
  
  – 1st Consultancy Meeting was held in December 2016
Achievements of the 1st CS

- Definition of the **basic needs** (content, MS interest)
- Development of **conceptual structure** and the framework of the dynamic web-based portal
- Development of a **taxonomy** for categorizations of observations and lessons
- Identification of **semantic search software** to ensure user-friendly search functions (Pool Party)
- Development of detailed **work plan** for Phase 1 (maintenance, managing access, promotion etc.)
- Identification of **means of implementation**
- Development of the excel file and discussion of the metadata (framework, design, etc.)
- Development of **governance** (sustainability, GNSSN support)
Conceptual Structure

- **Thematic Areas** (general thematic areas e.g. “safety assessment”, “radiological consequences”)
- **IAEA Safety Standards**
- **Target audience** (e.g. government, operators, technical and scientific organizations)
- **Lifetime operation** (e.g. design, construction, decommissioning)
Standardized Taxonomy

• **Nuclear Accident Knowledge Taxonomy** (IAEA Nuclear Energy Series No. NG-T-6.8)
  – Was developed by NE to create a specialized taxonomy on nuclear accidents
  – For a variety of users: Governments, Regulatory bodies, Emergency response organisations, Designers, Operators, Technical support organisations.

• Source documents will be tagged automatically using the standardized taxonomy (in addition to tags based on thematic areas, relevant safety standards, target audience etc.)

• This allows efficient text searches and the presentation of results according to relevance.
Standardized Taxonomy

• Nuclear Accident Knowledge Taxonomy (NG-T-6.8)
  – Legal and governmental framework
  – Nuclear installation status
  – Accident management
  – Emergency preparedness and response
  – Scientific and technical support
  – Accident consequences
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Next steps
Next Steps

- Knowledge Management Portal Development within GNSSN Framework (SharePoint 2013/Pool Party)
  - Prototyping of portal layout
    - Pilot portal: use the Fukushima observations and lessons during the test phase
    - Migration of observations and lesson to GNSSN
    - Defining search criteria based on taxonomy
    - Defining user interface based on taxonomy
    - Defining views for search results
    - Designing the necessary metadata and document libraries

- Sharing of knowledge portal with MS (beta version)
  - Promotion
  - Population (e.g. managing access requests)
  - Maintenance (e.g. regular updates).
Next Steps

• Quality Assurance
  – Publishing the portal to selected key stakeholders for feedback
  – Incorporating feedback

• Outreach
  – Training material (video, handouts etc.)
  – IAEA Website (icon, banner)
  – GNSSN highlights
  – Search optimization for portal (Google)
  – 61st IAEA GC (e.g. info booklet, information advert at GNSSN plenary, exhibit)
NSOC Contact Points

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Thank you!