



Pakistan Nuclear Regulatory Authority

Presentation 3.4

Management of training within an Integrated Management System at PNRA

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Outline

- Methodology and implementation of training specified in **PNRA Management System manual**
- Implementation of following phases of Sematic Approach to Training **(SAT) at PNRA:**
 - **Analysis**
 - **Design**
 - **Development**
 - **Implementation** and
 - **Evaluation**



Training Entities as per PNRA Management System Manual



Responsible Training Entities – MSM (1/3)

According to PNRA management system manual, following are the training entities

- **NISAS** – in house
- **HRD** – national level
- **ICD** – international level
- **Line Directors** – Identify trainings in their specific areas
- **Top Management** – Supports the overall competence development program through availability of resources



Responsible Training Entities (2/3)

- **National Institute of Safety And Security (NISAS)** arranges in-house trainings for PNRA staff to develop competence in relevant areas
- **Directorate of Human Resources (HRD)** arranges trainings at national organizations in areas that cannot be conducted internally
- **Directorate of International Cooperation (ICD)** coordinates with international organizations including IAEA for training courses, workshops, meetings, seminars



Responsible Training Entities (3/3)

- **Line directors** have important role in the capacity building of PNRA.
- **Line directors identify** training needs as and when new facilities are to be regulated and coordinate with PNRA Management for ensuring availability of necessary human and financial resources.
- **PNRA Management** assesses the expected future resource requirements and takes appropriate steps to make it available accordingly.



Responsibility of NISAS

- **NISAS designs, develops and conducts trainings** for PNRA staff and other stakeholders, through implementation of ISO 9001:2015 QMS. So, QA / SAT principles are inherent in the training process!
- **NISAS maintains and upgrades laboratories** and the training infrastructure
- It **maintains database** of in-house trainings of PNRA officials



Goals of NISAS

- **NISAS desires to be a world-class national training institute. It promotes regulatory knowledge in areas related to nuclear and radiation safety and nuclear security among regulatory professionals and stakeholders. ...**
- **NISAS achieves its goals through implementation of a quality management system that embodies best international practices and emphasizes collaboration with stakeholders...**



Responsibility of NISAS

The responsibility of **NISAS** is to:

- **Conduct mandatory training courses** for regulatory staff in nuclear, radiation, waste & transport safety, regulations, regulatory practices and interpersonal skills
- **Arrange courses for licensees on radiation safety** to develop or improve understanding of regulatory requirements and courses on nuclear and radiation safety
- **Organizes nuclear security trainings** for regulatory staff, licensees and other stakeholders



Management of the Analysis Phase – Training Needs Identification at PNRA



Responsibilities of HRD

- HRD **conducted TNA** study (using IAEA four-quadrant competence model) in 2005 and 2011, 2019
- This identified a number of training courses for **junior, intermediate and senior regulatory** officials performing different regulatory functions in PNRA.
- **NISAS conducts most of these trainings courses** identified in TNA which becomes part of the annual calendar
- There are some courses that are to be arranged at other national training institutes – **HRD keeps liaison with various institutes for such courses**



Responsibilities of Line Departments (1/2)

- **Line departments** consist of inspection departments, licensing departments, in-house TSO, regulatory framework development department etc.
- Line departments are responsible to **execute on-the-job-training** and identify competence development needs of their officials
- They are **responsible to communicate to HRD / NISAS** if any of their staff has not yet completed a mandatory training course (**courses required for promotion to next scale, position authorization, etc.**)



Line Departments (2/2)

- Line departments **communicate to management / NISAS / HRD** any new area where their staff needs training
- They may identify any **technical specialties that are not available at PNRA or at national Institutes**. Management may authorize relevant entities for arranging training
- Line departments also **monitor the training needs of the licensees and other stakeholders** about the need for CB in regulatory requirements.
- They communicate to NISAS for inclusion of relevant courses in annual training calendar



Responsibilities of Senior Management

- PNRA Management **holds frequent interaction** with **line directors and training departments** to identify competence needs, requiring immediate actions to fill the gaps
- It has **authorized NISAS to include courses on the regulatory requirements for licensees** to enhance their understanding
- It has **authorized the training departments to keep liaison with national and international entities** for training and placement of staff in areas where expertise are needed;



PNRA's Management of the “Training Design and Development Phase”



Development of Training Calendar

- In the last quarter of each calendar year, **NISAS** **collets training requirements** from all Directorates
- Then holds a **Directors meeting** to discuss the list of training courses / workshops to be included in the next annual training calendar
- Output of the meeting is **draft annual training calendar**

NISAS Annual Training Calendar**Ref. #** [File #]/ATC/[Year]/[#]

[Date]

Subject: NISAS Annual Training Calendar for the Year [NNNN]

S/N	Training Title	Proposed by	Contributing PNRA Directorate(s)	Duration	Dates/Quarter of Conduct	Venue	Target Directorates / Organizations
1.			[Name of PNRA Directorate(s) who will support NISAS in this training in the form of resource persons, conduct, etc.]				[names of PNRA directorates, licensees, etc.]
2.							
3.							
...							

New course

Repeat Course

Repeat Course needing total or partial revision based



Approval of Training Calendar

- Director (NISAS) submits the calendar **to the senior Management for finalization** and financial approvals
- **Management approval ensures availability** of resources for implementation of training calendar.
- Director (NISAS) **disseminates** the finalized annual training calendar through out PNRA departments



Design & Development of training Modules (1/2)

- For design & development or revision of a training material, **NISAS constitutes a committee of experienced regulatory professionals along with NISAS official.**
- **The Committee designs and develops lectures, lab demos, test items for the entire module according to the relevant procedure.**
- Prior to implementation, **NISAS reviews the output of the committee as a quality check.**



PNRA's Management of the “Training Implementation Phase”



Conduct of Training Events (1/2)

- Event planning includes **acceptance criteria for resource persons as well as trainees**
- Invitation letters are sent to line departments clearly **mentioning the acceptance criteria** for training participants
- NISAS ensures that **experienced regulatory professionals may deliver training.**
- Training is implemented as per approved specifications.



Conduct of Training Events (2/2)

- **Feedback of the training participants** is obtained and properly documented.
- **Eligibility of the training participants for certification** is duly evaluated (class attendance + test performance)
- **Training Completion Certificates** are accordingly issued.
- Training records are accurately maintained.
- **NISAS enters data about the training participants into PNRA Management Information System** which automatically updates their competence histories.



PNRA's Management of the “Training Evaluation Phase”



Evaluation of Trainings (1/2)

Feed back of the training event contains following:

- **Determine whether trainees are satisfied with respect the contents of training course**
- **Find out whether the trainees are satisfied from the delivery of training by resource persons**
- **Find out whether the trainees are satisfied with the contents of training including its relevance, learning environment, instructors, etc.**
- **Any suggestions proposed by trainees for improvement of the training course**



Evaluation of Trainings (2/2)

Feed back of the training event:

- To verify whether the training course was delivered in accordance with design and development specifications (considered as non-conformance)
- To ensure that the training course with implemented in accordance with the approved training agenda (considered as non-conformance)
- Identify any **deficiency** in training course against criteria mentioned in training design / development documents



Non-conformity Handling (1/2)

Upon noticing any following non-conformity or complaints, Corrective Action Request (CAR) is initiated:

- **Dissatisfaction of participants** with an aspect of training are further investigated through CAR;
- **Direct observation of the trainers** or faculty members;
- **Non-conformity in training records**
- **Feedback / complaints from trainees, trainers, PNRA management or Directors**
- **Recommendations received through internal Audits;**



Non-conformity Handling (2/2)

- Subsequent actions include authorizing concerned officials to determine root cause and ensure that:
 - **remedial action** is taken
 - **root cause analysis** is conducted
 - **corrective action(s)** are identified
 - **authorized officials complete corrective** action
- Usually, complaints are resolved through improvement of training material or specifications, change in process, etc.



Performance Review (1/2)

As a pre-requisite of ISO 9001 QMS, NISAS regularly evaluates **performance and effectiveness of training**:

- Evaluation of performance and effectiveness considers
 - development and implementation process of **training calendar**
 - design and development process of **training courses**
 - conduct of training courses process



Audit of NISAS

- **PNRA's Monitoring and Evaluation Directorate periodically conducts audit of NISAS, which covers different aspects such as:**
 - **performance against assigned tasks** and approved targets
 - **to know whether the training program** covers the training needs of PNRA
 - **whether management recommendations have been implemented**
 - **collaboration with other departments, etc.**
- **Audit identify recommendations for improvement of NISAS**



Training effectiveness

- **Training effectiveness is to determine what is learned during training session significantly contributes to the goals of the organization and**
- **Performance of the departments has considerably improved**



Evaluation of Training Effectiveness (1/2)

- **NISAS Board of Directors** is a good channel to obtain feedback from the trained manpower regarding the usefulness of training courses
- **Communication of NISAS and HRD with training participants** is a useful means for training evaluation
- **Handling process of non-conformity and complaint** ensures that **feedback and complaints is given proper attention and improvements** are incorporated in training



Evaluation of Training Effectiveness (2/2)

- Senior Management attend **the delivery of lectures periodically to observe** the trainers and trainees and check their competence level
- Senior **Management also conduct regular meetings with NISAS** on training-related issues
- **NISAS and HRD receive sufficient feedback** from Senior Management for improvement of training
- **Feedback so received is addressed** through nonconformity handling process



Conclusion

- **PNRA Management System** and the NISAS Management System established thereunder ensure adequate **QA of the PNRA training program in nuclear and radiation safety**
- **Management System ensures systematic performance of the following activities:**
 - **Identification of training needs** in both nuclear and radiation safety;
 - **development and updating of training programmes;**
 - **selection of trainees;**
 - **personnel certification;**
 - **training information tracking; and**
 - **evaluation of training.**