



**Lessons Learned in Performing and  
Implementing the Results of TNA in a Newly  
Developed Regulatory Body with a Mandate to  
Regulate the Country's Expanding Nuclear  
Power Programme: A Case Study of PNRA  
#97**

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# Presentation Layout

- **Introduction**
- **Strategic Approach of PNRA**
- **Lesson Learned concerning TNA**
- **Conclusion**



# Introduction

- A country desiring to embark on a nuclear power programme entails its commitment to the peaceful use of nuclear technology with availability of sufficient qualified and experienced manpower
- One major requirement to ensure nuclear safety is the establishment of a national legal and regulatory framework with a competent and independent regulatory body to oversee the implementation of this framework



# Introduction

- Pakistan's journey towards development of nuclear safety infrastructure began with the creation of Pakistan Nuclear Safety Committee (PNSC) in 1965
- After passing through different evolutionary phases, the GoP established Pakistan Nuclear Regulatory Authority (PNRA) in 2001 as an independent regulatory body



# Introduction

- In accomplishment of its vision to become a world class regulatory body, PNRA focused all its resources on enhancing its capacity and technical capabilities
- To strengthen professional capabilities of its staff, in-house professional trainings, courses in local training institutes, foreign regulatory bodies and technical organizations are organized on routine basis



# Introduction

- In 2004 PNRA launched a project to conduct Training Need Assessment (TNA) which included organizational review, assessment of training needs, determining competency gaps and development of training strategies.
- Assessment consisted of interviews of the senior management and review of documents of PNRA, IAEA and regulatory bodies of other countries.
- IAEA four-quadrant competency model given in TECDOC-1254 for nuclear regulatory bodies was applied for the gap analysis.



# Areas of Improvement

- Establishment of a training centre for in-house professional trainings
- Development of trainers and resource personnel to conduct trainings
- Collaboration with other international organizations for inter-organizational placement
- Establishment of a technical and research support centre
- Need to increase public awareness and develop a positive image of PNRA
- Establishment of a legal department



# Establishment of Training Centre

- Development of national training centre implies local currency expenditures which normally have to be financed by local sources
- The GoP approved a project for establishment of a training centre in PNRA
- This centre was named as National Institute of Safety and Security (NISAS) which imparts trainings, refresher courses as well as arranges trainings for stakeholders who have a role in maintaining nuclear safety and security in the country





# Faculty Development

- For faculty development of NISAS, PNRA ensures participation of its resource personnel in international workshops and fellowship programs in specialized fields, provides on-the-job training, and scientific visits to enhance their technical competencies
- PNRA also awards fellowships to deserving candidates for Masters in Nuclear Engineering, Nuclear Power Engineering , System Engineering and Medical Physics
- NISAS faculty has gained enough teaching experience over the years, and is now capable of imparting knowledge at the international level



# Collaboration with International Institutes

- PNRA acknowledges the importance of bilateral and multilateral cooperation and understands their significance in the enhancement of regulatory effectiveness and human resource development
- PNRA has bilateral agreements with National Nuclear safety Administration (NNSA) of China and its allied institutes and technical support centres



# Establishment of TSO

- PNRA has developed a Centre for Nuclear Safety as Technical Support Organization (TSO) which comprises of fifty-five (55) professionals in various technical disciplines
- TSO is assisting PNRA technical directorates in the review and assessment of submittals from the licensees of nuclear power plants and research reactors
- TSO also regularly provides technical input during review of design modifications and inspection findings



# Public Awareness Programme

- PNRA has initiated efforts with the perspective of public involvement in the regulatory decision making process
- In this regard, various activities are being accomplished which mainly includes public education towards safety aspects of nuclear installations and radiation facilities and the role of PNRA
- Lectures, seminars and workshops are being organized at the licensee's premises and educational institutions to educate the radiation workers and general public



# Establishment of Legal Cell

- A legal cell has been established in PNRA under DG (Inspection and Enforcement) to fill the competency gap in this area
- This cell looks after legal matters related to nuclear and radiation safety



## Re-Conduct of TNA in 2011

- To assess the effectiveness of the measures taken by PNRA and reorganization of regulatory body in last few years, organizational review as well as TNA was performed again in 2011
- This time, TNA was performed on the basis of SARCoN guidelines (Rev.14)



# Lesson Learned concerning TNA

## ➤ **Top Management Commitment**

- Senior management commitment is essential to help get started with a TNA
- PNRA top management reflected its commitment by providing the necessary resources for conducting TNA activity.
- On the basis of TNA result, different strategies were developed and necessary actions were taken to fill the gaps for competency development



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# Lesson Learned concerning TNA

## ➤ **SARCoN must be Tailored before Use**

- SARCoN guidelines provide a systematic approach and step-wise procedure for identifying potential training needs of regulatory bodies through gap analysis
- However, different regulatory bodies have different regulatory cultural and national approaches
- SARCoN must be tailored and adapted to the particular situation of the regulatory body



# Conclusion

- It is essential that regulatory bodies apply a systematic approach to training need assessment
- Education and training requires capital investment, time and effort; it must be planned long in advance to be effective
- It is essential for a country considering a nuclear power programme to establish and implement a corresponding manpower development programme for its regulatory body



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**Thank You**