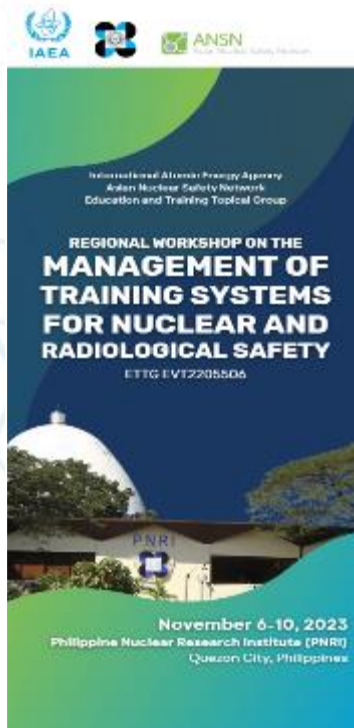


2.2 Philippines' National Strategy in Capacity Building for Nuclear and Radiation Safety

Presented by:

Roel Loteriña | Supervising Science Research
Specialist
Head, Nuclear Training Center
Technology Diffusion Division
DOST-Philippine Nuclear Research Institute



OUTLINE

- **The Philippine Nuclear Research Institute (Regulatory Body of the Philippines)**
- **Human Capacity Building**
 - Education and Training (E&T)
 - Human Resources Development (HRD) -> Competency Management
 - Knowledge Management (KM)
 - Knowledge Networking, any other.
- **Competence Management System**
- **Philippine Nuclear Power Program: Current Situation**



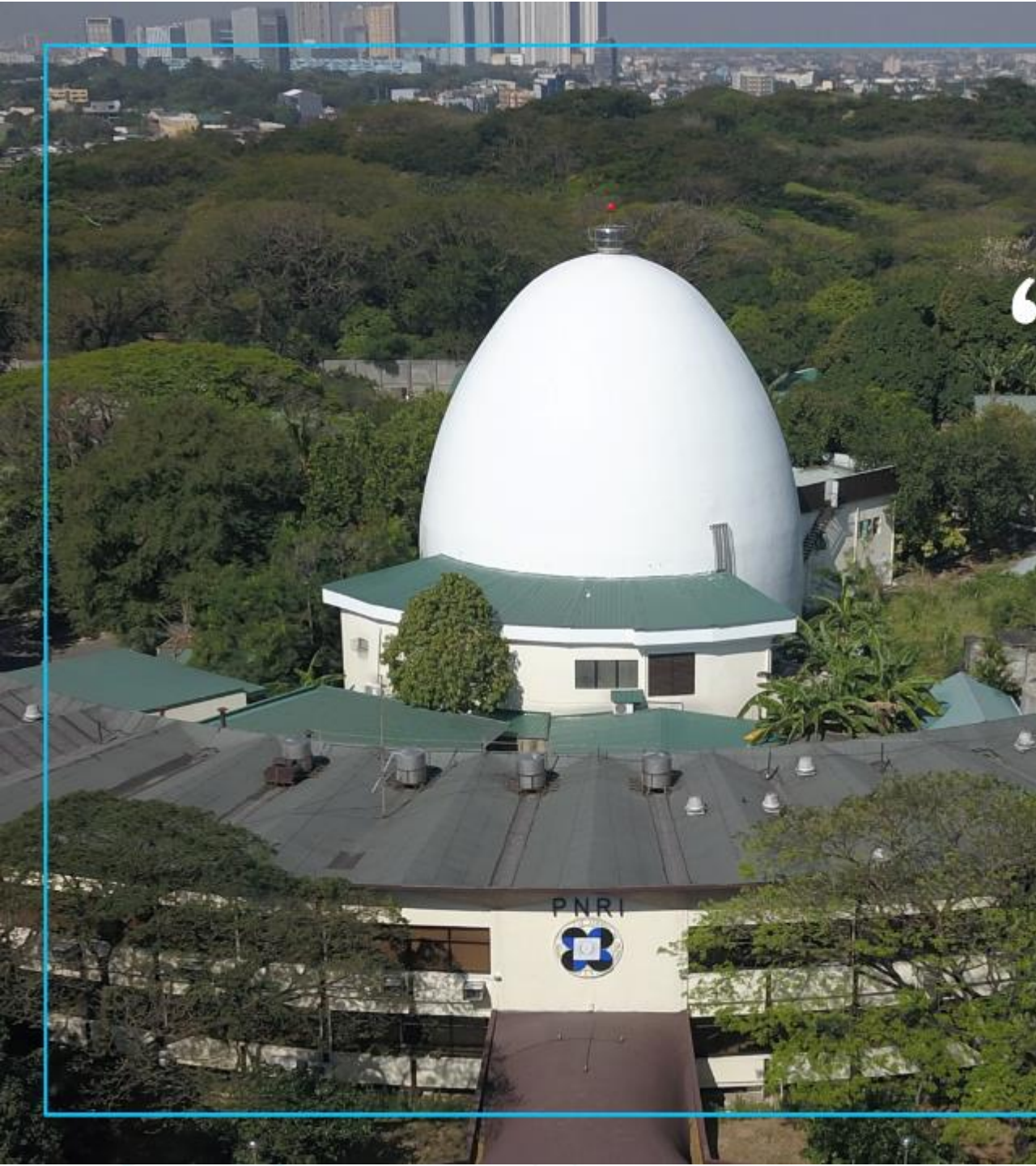
MANDATE

Under Executive Order № 128 Series of 1987

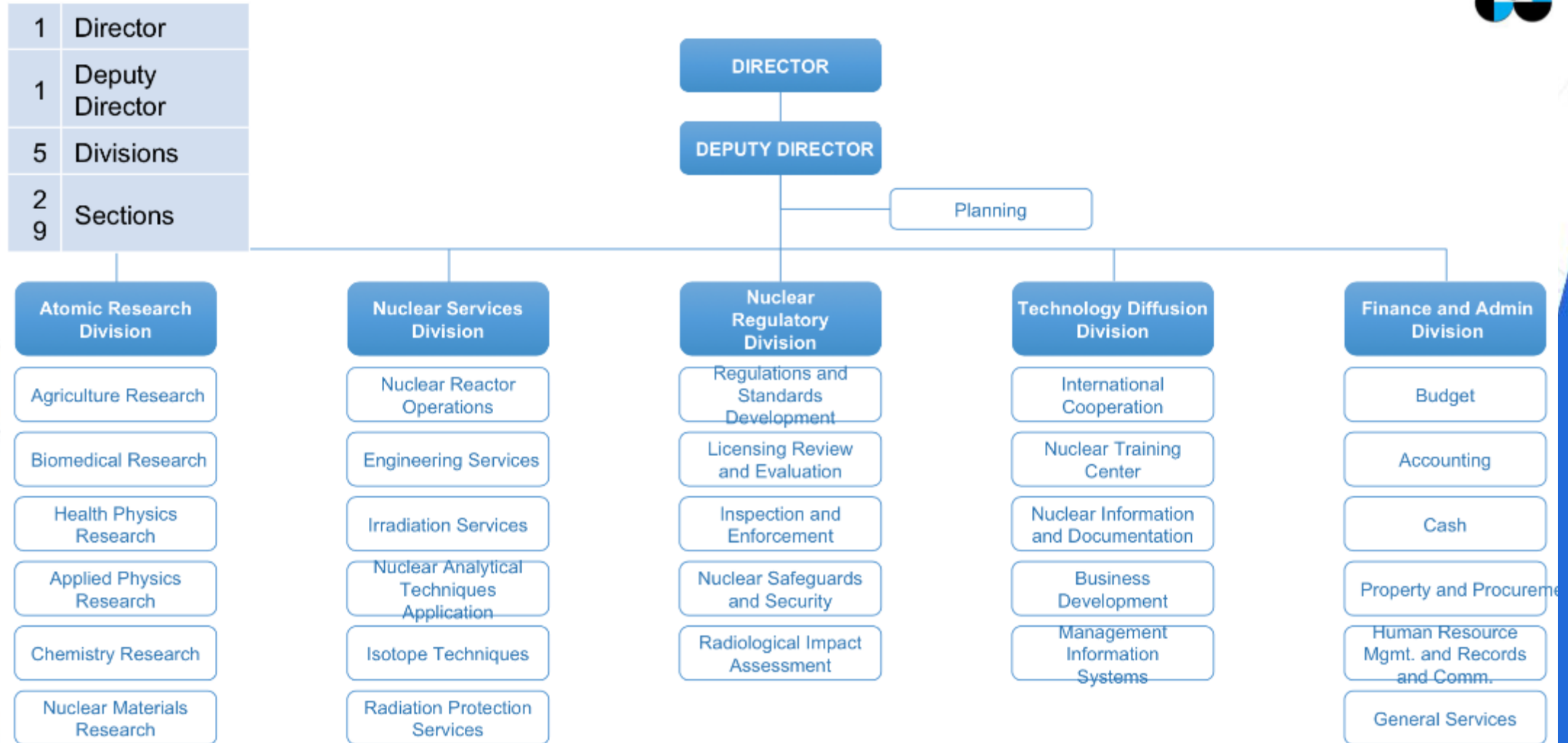
“

- [a] Conduct research and development on the application of radiation and nuclear techniques, materials and processes;
- [b] **Undertake the transfer of research results to end-users, including technical extension and training services;**
- [c] Operate and maintain nuclear research reactors and other radiation facilities; and
- [d] **License and regulate activities relative to production, transfer and utilization of nuclear radioactive substances development**

”

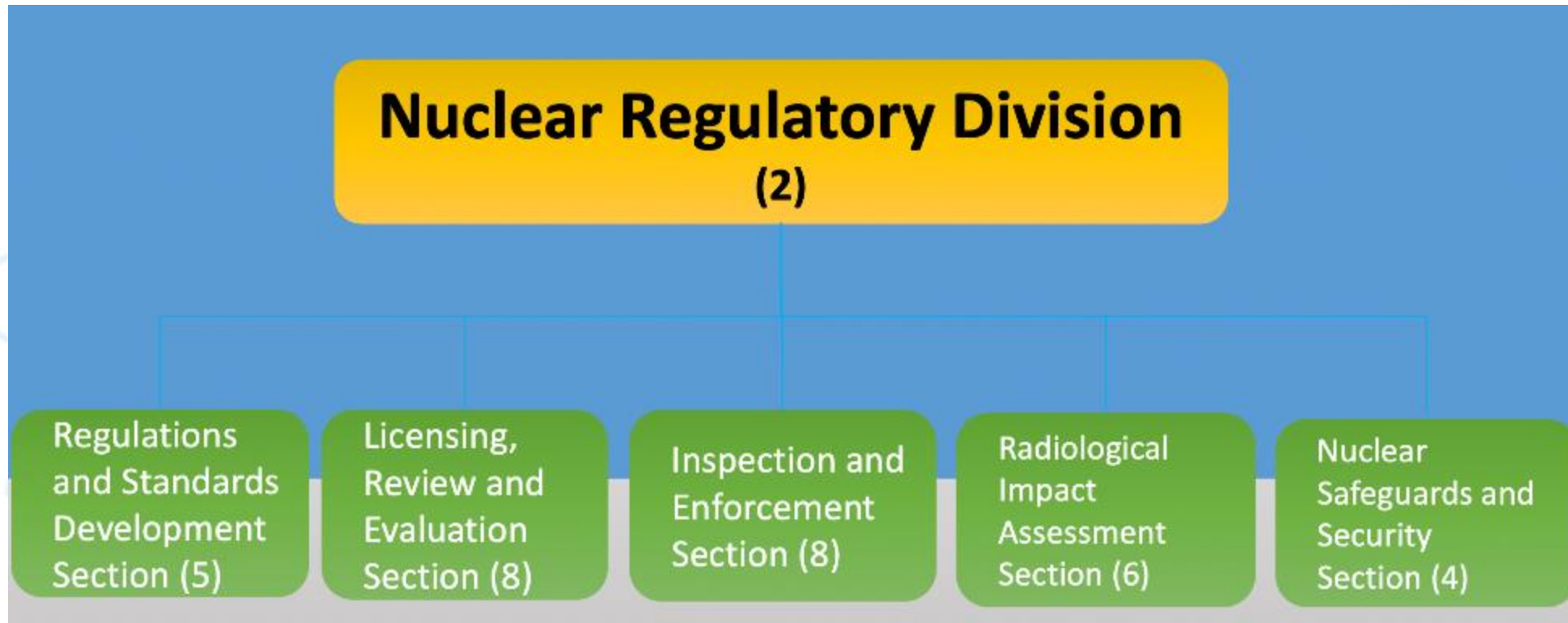


The Philippine Nuclear Research Institute



- ISO 9001:2015 – Quality Management System
- ISO 17025 - **General requirements for the competence of testing and calibration laboratories**

The PNRI Nuclear Regulatory Division



Total No. of Staff = 33



The PNRI Nuclear Regulatory Division

CURRENT CORE FUNCTIONS

- Development of standards, regulations, and guides
- Licensing, review, and evaluation of license applications
- Regulatory inspections and enforcement
- Planning and implementation of research activities in support of regulatory activities including planning of response to radiological emergencies
- Nuclear security and safeguards

FUTURE

- Siting criteria and review of siting applications
- Waste management and waste repositories
- Environmental assessment for repositories
- NPP regulations relevant for design review



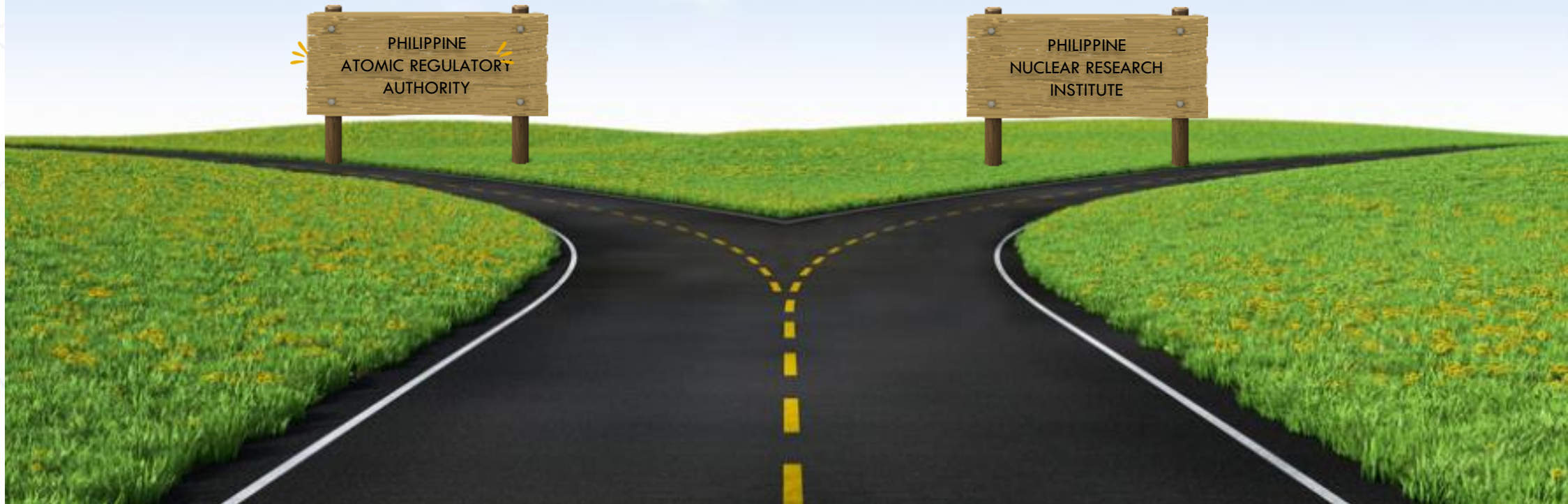
PNRI Internal Regulatory Control

- Establishes the rules for authorization of PNRI radiation facilities and laboratories.
- Authorization is given through the NRD Division Chief
 - PNRI Research laboratories
 - PRR-I facility including SATER
 - Multi-purpose Irradiation Facility
 - PNRI SSDL Facility



PUSH FOR THE ESTABLISHMENT OF AN

INDEPENDENT NUCLEAR REGULATORY BODY



- **UPDATE:** The Bill creating the PHILIPPINE NATIONAL NUCLEAR ENERGY SAFETY ACT creating the Philippine Atomic Regulatory Authority (PhilAtom) has passed through the Appropriations Committee at the Lower House

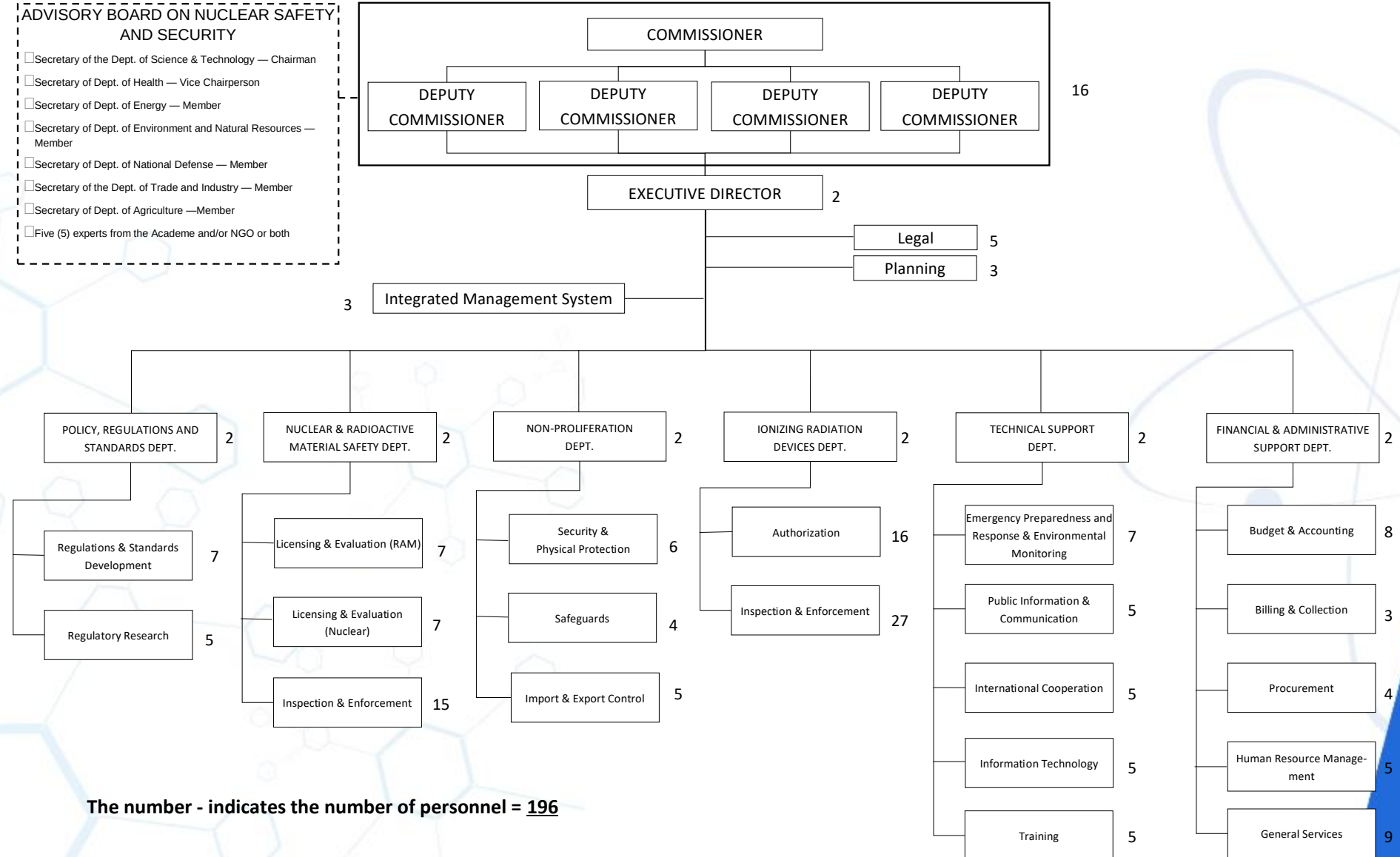


INDEPENDENT NUCLEAR REGULATORY BODY

PROPOSED PARC ORGANIZATIONAL STRUCTURE

ADVISORY BOARD ON NUCLEAR SAFETY AND SECURITY

- ☐ Secretary of the Dept. of Science & Technology — Chairman
- ☐ Secretary of Dept. of Health — Vice Chairperson
- ☐ Secretary of Dept. of Energy — Member
- ☐ Secretary of Dept. of Environment and Natural Resources — Member
- ☐ Secretary of Dept. of National Defense — Member
- ☐ Secretary of the Dept. of Trade and Industry — Member
- ☐ Secretary of Dept. of Agriculture — Member
- ☐ Five (5) experts from the Academe and/or NGO or both



Competency Management





2015



- Identified the section's functions
- Defined job competences / position
- Developed the PNRI's Competence Model
- Designed / developed the assessment tool – CAAT
- Pilot implementation

2019



- Second PNRI-wide self-assessment
- Tool enhancement



2021

- PNRI-wide staff self-assessment conducted
- Gap analysis
- Preparation of Individual Development Plan
- Two training courses conducted to address the top 2 gaps

2014



2015 - 2018



Developing a competency-based PNRI



COMPETENT & SUSTAINABLE WORKFORCE

Human Resource
Development

Education
and
Training

Knowledge
Management

Knowledge
Networking

COMPETENCE MANAGEMENT

Define - Assess - Analyze - Plan

Basic Nuclear Training (with safety)

RECRUITMENT

HUMAN RESOURCE MERIT PROMOTION AND SELECTION CRITERIA

Job Competency, Education, Training, Experience, Performance, Commendable
Accomplishments



Competency Policy Statement

- ❑ *“The PNRI recognizes the importance of a competent workforce as essential to its organization’s success, as such, all of its employees shall be assessed regularly for competency on the tasks as defined in their job’s duties and responsibilities.”*



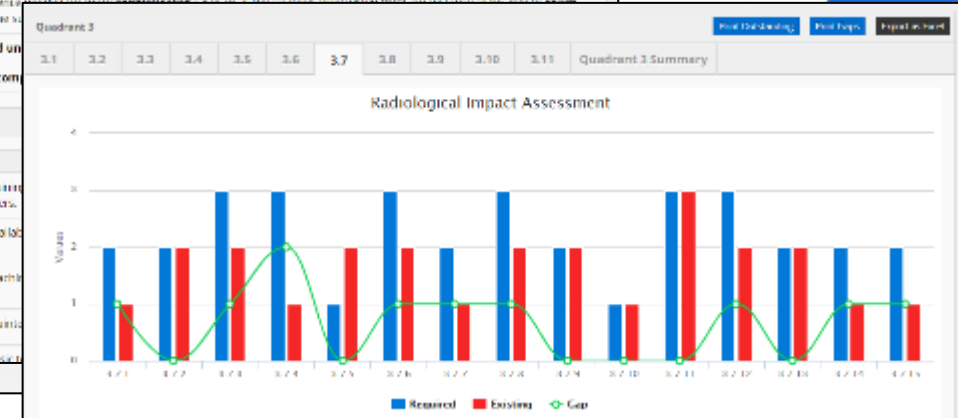
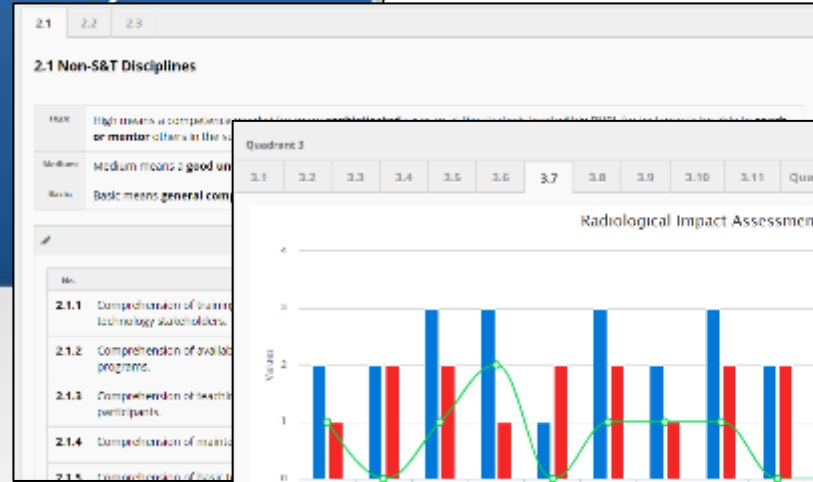


Competency Assessment Application Tool (CAAT)

Login

Username:

Password:



- ❑ A Web-based application tool used in the assessment of PNRI staff's capabilities against the required competencies of his/her job as defined in the PNRI's Competency Model.
- ❑ Adopted from the International Atomic Energy Agency's (IAEA) MSeExcel-based Systematic Assessment of Regulatory Competence Needs (SARCoN)
- ❑ Results serve as basis for Staff's Individual Development Plan (IDP)



4. Personal and Behavioral Competences

- 4.1 Analytical thinking and problem solving
- 4.2 Personal effectiveness and self-management
- 4.3 Communication
- 4.4 Team work
- 4.5 Managerial and leadership competences
- 4.6 Safety culture competence

1. Competences related to legal, regulatory and organizational basis

- 1.1 Legal Basis
- 1.2 Regulatory policies and approaches
- 1.3 Regulations and Regulatory Guides
- 1.4 Quality Management System
- 1.5 **Civil Service Rules and regulations**

3. Competences relevant to Core Functions

- 3.1 Review and Assessment
- 3.2 Authorization
- 3.3 Inspection
- 3.4 Enforcement
- 3.5 Development of Regulations and Guides
- 3.6 **Nuclear Safeguards**
- 3.7 **Radiological Impact Assessment**
- 3.8 **Technical Work Procedure and Techniques**
- 3.9 **Nuclear, Isotopic Related Equipment/Facilities**
- 3.10 **Non-Nuclear Equipment and Facilities**
- 3.11 **Finance/Administrative Functions**

2. Technical Discipline Competences

- 2.1 Non-S&T Disciplines
- 2.2 Science and Technology Disciplines
- 2.3 Specialized Science and Technology Disciplines



COMPETENCE LEVELS

- ❑ **HIGH** means a competence needed for more sophisticated cases or at the strategic level within PNRI, for instance to be able to coach or mentor others in the subject matter
- ❑ **MEDIUM** means a good understanding of the subject matter sufficient in routine cases
- ❑ **BASIC** means general competence in the area concerned



CAAT (SARCON) CORE FEATURES

- Connected to PNRI's Enterprise Database
- Four Quadrant Competence Areas with a set of specific competences referred to Knowledge, Skill and Attitudes (KSAs)
- Assignment of required competence level for each KSA for each position
- Generate Gap Analysis Report



Knowledge, Skills and Attitudes

Quadrant 1	Quadrant 2	Quadrant 3	Quadrant 4
Technical Discipline Competences			
2.1	Non-S&T Disciplines		
2.2	Science and Technology Disciplines		
2.3	Specialized Science and Technology Disciplines		

No.	KSA
2.3.1	Comprehension of engineering and science concepts in the specific area of Nuclear Power Plant Technology
2.3.2	Comprehension of engineering and science concepts in the specific area of Research Reactor Technology
2.3.3	Comprehension of engineering and science concepts in the specific area of Nuclear Fuel Cycle
2.3.4	Comprehension of engineering and science concepts in the specific area of Nuclear and Radiation Safety Technology
2.3.5	Comprehension of engineering and science concepts in the specific area of Radiation Physics
2.3.6	Comprehension of engineering and science concepts in the specific area of Radiation Protection

- Competencies are group of related **knowledge, skills and attitudes** (KSAs) needed to perform a particular job. CAAT contains all the identified KSAs needed by PNRI staff to perform their duties and responsibilities. The KSA are clustered into the four quadrants.



Select Competency Position:

Science Research Specialist I (SysDev Group)

Science Research Specialist I (SysDev Group)
Science Research Specialist I (Network Group)
Science Research Analyst (Technical Support)
Science Research Analyst (Administrative and Clerical)
SRAS1 - Science Research Specialist I - Sunrise
SRAS1 - Science Research Specialist I - Raven
SRAS1 - Science Research Specialist I - EJ

Go to Quadrant 2 →

+ Add Competency Position

2.2 Science and Technology Disciplines

knowledge and skills needed to comprehend and apply science and/or engineering fundamentals in a particular field.

High:	High means a competence needed for more sophisticated cases or at the strategic level within PNRI, for instance to be able to coach or mentor others in the subject matter
Medium:	Medium means a good understanding of the subject matter sufficient in routine cases
Basic:	Basic means general competence in the area concerned

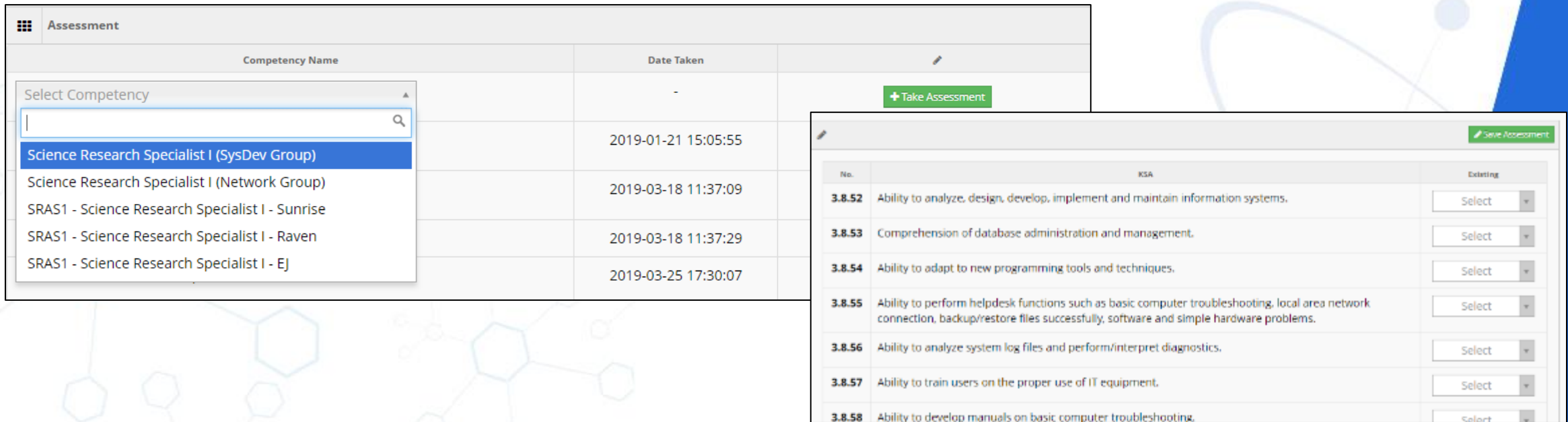
Save Criteria

No.	KSA	Required
2.2.1	Comprehension of science and engineering fundamentals in the field of mathematics	High
2.2.2	Comprehension of science and engineering fundamentals in the field of physics	Medium
2.2.3	Comprehension of science and engineering fundamentals in the field of Chemistry	High
2.2.4	Comprehension of science and engineering fundamentals in the field of Biology	High

- Supervisors/Head creates a competency criteria for each of the positions in the section by assigning the required KSAs and and competency levels for each.
- Supervisors could also make a criteria for higher position to staff that is being considered for a promotion



Self-Assessment by Staff



Assessment

Competency Name	Date Taken	
Select Competency	-	+ Take Assessment
Science Research Specialist I (SysDev Group)	2019-01-21 15:05:55	
Science Research Specialist I (Network Group)	2019-03-18 11:37:09	
SRAS1 - Science Research Specialist I - Sunrise	2019-03-18 11:37:29	
SRAS1 - Science Research Specialist I - Raven	2019-03-25 17:30:07	
SRAS1 - Science Research Specialist I - EJ		

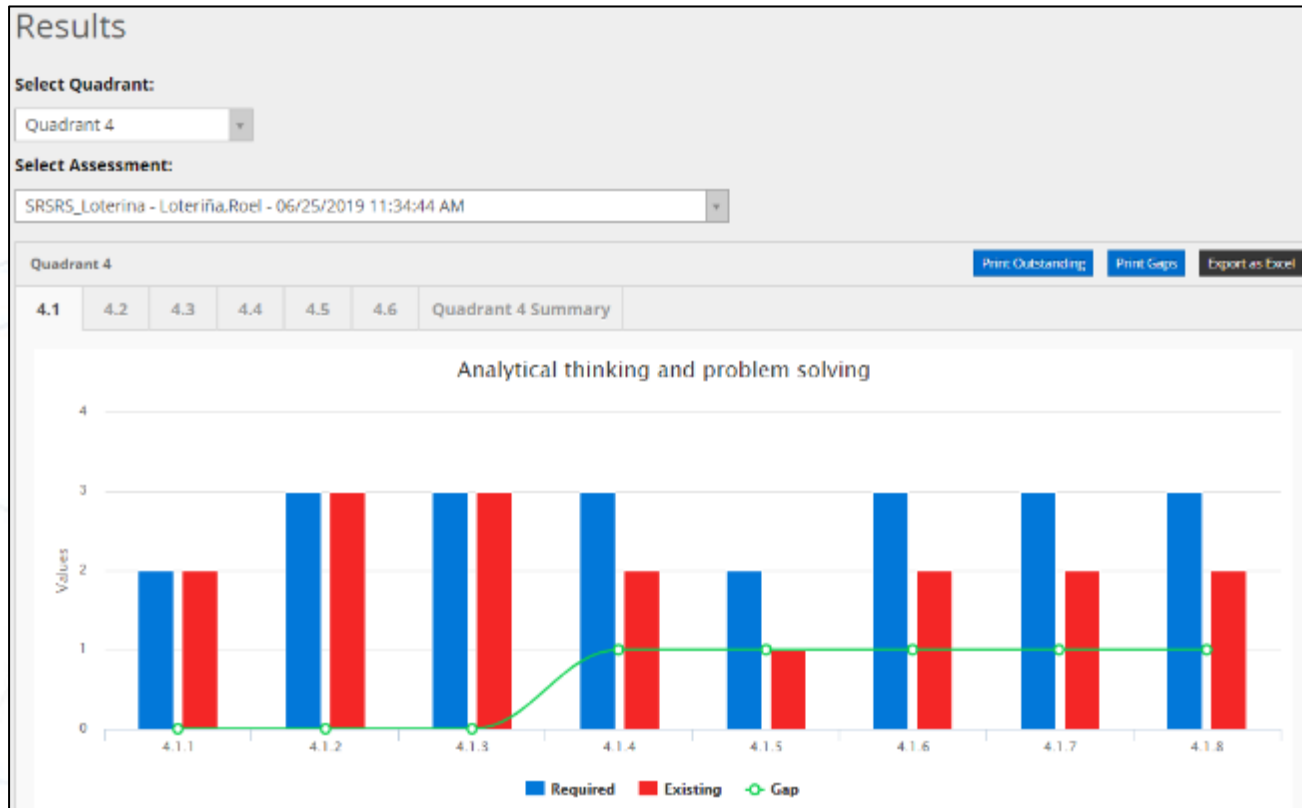
Save Assessment

No.	RSA	Existing
3.8.52	Ability to analyze, design, develop, implement and maintain information systems.	Select
3.8.53	Comprehension of database administration and management.	Select
3.8.54	Ability to adapt to new programming tools and techniques.	Select
3.8.55	Ability to perform helpdesk functions such as basic computer troubleshooting, local area network connection, backup/restore files successfully, software and simple hardware problems.	Select
3.8.56	Ability to analyze system log files and perform/interpret diagnostics.	Select
3.8.57	Ability to train users on the proper use of IT equipment.	Select
3.8.58	Ability to develop manuals on basic computer troubleshooting.	Select

- For Personnel/Staff, they can conduct a self-assessment by answering the competency assessment created by their respective supervisor/head.



Competence Gap Analysis



- Self-assessment generates a gap analysis report. It shows the existing competencies of the staff against the required competencies of the position as defined by the supervisor.

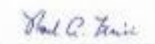


Validated Gap Analysis report

- CAAT prints a consolidated list of gaps for each assessment done.
- Assessment results are validated by the supervisor.
- The validated and agreed gap analysis report is used to prepare the staff's **Individual Development Plan (IDP)**.
- An example of submitted Gap Analysis signed by the Personnel/Staff and Supervisor/Head

PHILIPPINE NUCLEAR RESEARCH INSTITUTE
List of KSA With Gaps(Quadrant A)
Reel Loteriña
Senior Science Research Specialist
NTC
Jun 25 2019 11:34:06

KSA No.	KSA	Required	Assessed	Gap
4.1.4	Ability to arrive at sound conclusions and making sound judgments	3	2	1
4.1.5	Ability to recommend operational policies and strategies to the PHRI management	2	1	1
4.1.6	Ability to switch from one type of situation to another quickly and easily, distinguishing between essential and non-essential details	3	2	1
4.1.7	Ability to select systems or processes to problem solving including identifying and specifying the nature and extent of the problem, identifying of possible causes and making a decision	3	2	1
4.1.8	Ability to deliver quality work that is timely, complete and accurate	3	2	1
4.2.14	Ability to recognize one's own strengths and weaknesses and to plan accordingly for personal and professional development and training	3	2	1
4.2.17	Ability to make use of time management techniques	3	2	1
4.3.7	A. Ability to respond appropriately to on-the-spot questions, using own knowledge where prepared; otherwise seek out available	3	2	1
4.3.15	Ability to present research results in a formal format e.g. poster	3	2	1
4.4.8	Comprehension on the role of Project Staff	3	2	1
4.5.1	Appreciation of organizational environment and social issues	3	2	1
4.5.12	Ability to resolve differences by exchanging information, proceeds, taking into account the positions of all concerned parties, and facilitating open discussion	3	2	1
4.5.13	Ability to analyze the immediate environmental factors affecting the organization	3	2	1
4.5.14	Ability to conduct effective meetings; meeting in mind program project	3	2	1
4.5.15	Ability to identify potential problems, to monitor and allocate resources and to define alternate strategies for their resolution	3	2	1
4.6.1	Comprehension of the key aspects of entity culture within the organization	3	2	1
4.6.5	Comprehension of the strategic planning process to achieve the goals where efforts are aimed at and where resources are allocated for	2	2	0


 Reel Loteriña
 Senior Science Research Specialist


 Section Head
 NTC

Individual Development Plan

IDP Form 01
Rev.0/10-01-2019

INDIVIDUAL DEVELOPMENT PLAN (IDP)

1. Name (Last, First, MI):	Loterito, Roel, A.	6. Two-Year Period:	2020-2021
2. Current Position:	Senior Science Research Specialist	7. Division:	Technology Diffusion Division
3. Salary Grade:	19	8. Office:	Philippine Nuclear Research Institute
4. Years in the Position:	18	9. No further development is desired or required for two years. (Please check the box here.)	
5. Years in the Agency:	36	☐ Year 1 ☐ Year 2 ☒ Both years	
		10. Supervisor's Name (Last, First, MI): CONRANES, ANN ELENA, L.	

PURPOSE: ☒ To meet the competencies of current position. ☒ To increase the level of competencies of current position.
☒ To meet the competencies of the next higher position. ☐ Others, pls. indicate: _____

COMPETENCY ASSESSMENT AND DEVELOPMENT PLAN

Assessment Dept. (rated according to priorities for intervention starting from the highest priority) (1)	Human Resource Development Activity (2)	Support Needed (3)	Trained/ Provider (4)	Schedule or Completion Date (5)	Follow-Up/Action/ Remarks (6)
Comprehension of engineering and science concepts in the specific area of industrial and workplace safety	External Training on Basic Occupational Safety and Health Training for Safety Officers Commitment assignment to the development of training on Basic Occupational Safety	Permission to avail of the training on official time and Training fee	Occupational Safety and Health Center	2020	

IDP Form 01
Rev.0/10-01-2019

Assessment Dept. (rated according to priorities for intervention starting from the highest priority) (1)	Human Resource Development Activity (2)	Support Needed (3)	Trained/ Provider (4)	Schedule or Completion Date (5)	Follow-Up/Action/ Remarks (6)
Comprehension of engineering and science concepts in the specific area of Nuclear and Radiation Safety Technology	Internal Training on Environmental Radioactivity Monitoring	Permission to avail of the training on official time	INTEC-PRRI	2020	
Ability to coordinate and report on occupational and workplace safety to the PNH Management	Report to PNH on Nuclear Training, radiation for benchmarking purposes	Permission to avail of the training on official time	INTEC	2020-2021	
Comprehension of the key aspects of safety culture within the organization	Internal Training on safety culture within the organization Specialized project on safety culture	Permission to avail of training on official time	Local or team internal	2020	
Ability to follow a systematic approach to problem solving including defining and specifying the nature and extent of the problem, identifying all possible causes and making a decision	External Training on Project planning and development Self study on project planning and development	Permission to avail of training on official time	Local	2021	

11. Employee's Signature: Date: _____	12. Supervisor's Signature: Date: _____	13. HRD/Training Division Head's Signature: Date: _____	14. HRD/Training Division Head's Stamp: Date: _____
--	--	--	--

15. Check appropriate copy distribution as follows:
☐ Employee's Copy ☐ Supervisor's Copy ☒ HRD/Training Division's Copy

Page 2 of 2

- Example of an Individual Development Plan (IDP) of an employee based on the gaps generated by CAAT.



No. of Gaps on KSA (NTC - Nuclear Training Center)

Select Year:

2019

Quadrant 1

Export to Excel

Print as PDF

Show 10 entries

Search:

No. KSA No. of Gaps

No data available in table

First Previous Next Last

Quadrant 2

Export to Excel

Print as PDF

Show 10 entries

Search:

No. KSA No. of Personnel with Gaps

2.1.1	Comprehension of training needs and requirements of various nuclear and radiation science and technology stakeholders.	4
2.1.2	Comprehension of available infrastructure, facilities and expertise in the Institute to support training programs.	4
2.1.3	Comprehension of teaching-learning styles, methodologies and strategies applicable to specific training	3

KSA No.	KSA	No. of Personnel with Gaps
2.1.1	Comprehension of training needs and requirements of various nuclear and radiation science and technology stakeholders.	4
2.1.2	Comprehension of available infrastructure, facilities and expertise in the Institute to support training programs.	4
2.1.3	Comprehension of teaching-learning styles, methodologies and strategies applicable to specific training participants.	3
2.1.4	Comprehension of maintenance and operating procedures of equipment used in training facilities.	4
2.1.5	Comprehension of basic technical information on nuclear science and technology and on the Institute's projects and services.	2
2.1.8	Comprehension of concepts and best practices from marketing and business management principles	1
2.2.2	Comprehension of science and engineering fundamentals in the field of physics	2
2.2.3	Comprehension of science and engineering fundamentals in the field of Chemistry	4
2.2.4	Comprehension of science and engineering fundamentals in the field of Biology	1
2.2.6	Comprehension of science and engineering fundamentals in the field of Environmental Science and Engineering	1
2.2.7	Comprehension of science and engineering fundamentals in the field of Electrical Engineering	1
2.3.2	Comprehension of engineering and science concepts in the specific area of Research Reactor Technology	2
2.3.4	Comprehension of engineering and science concepts in the specific area of Nuclear and Radiation Safety Technology	3
2.3.5	Comprehension of engineering and science concepts in the specific area of Radiation Physics	2
2.3.6	Comprehension of engineering and science concepts in the specific area of Radiation Protection	3
2.3.7	Comprehension of engineering and science concepts in the specific area of Industrial and Workplace Safety	4
2.3.8	Comprehension of engineering and science concepts in the specific area of Radioecology	1
2.3.15	Comprehension of science and/or engineering fundamentals in the field of Radiation Biology	1
2.3.19	Comprehension of science and/or engineering fundamentals in the field of Environmental Radioactivity	2
2.3.20	Comprehension of science and/or engineering fundamentals in the field of Isotope Hydrology	1
2.3.21	Comprehension of science and/or engineering fundamentals in the field of Radionuclide Geochemistry	1
2.3.25	Comprehension of science and/or engineering fundamentals in the field of Radiochemistry	2
2.3.26	Comprehension of science and/or engineering fundamentals in the field of Radiation Chemistry	2

- Gap Analysis Report per section/organizational unit



 Trainings Attended Print			
Show 10 entries		Search:	
TITLE	START DATE	END DATE	
Participation in the 2016 PSNT Convention	Nov 18, 2016	Nov 18, 2016	Local
Annual Meeting of the Topical Group on Education and Training (ETTG) and the Regional Workshop on Talent Management	Oct 17, 2016	Oct 21, 2016	Abroad
Annual Meeting of the Topical Group on Education and Training (ETTG) and the Regional Workshop on Talent Management	Oct 17, 2016	Oct 21, 2016	Abroad
IAEA/RCA Regional Training Course on X-ray and Gamma Ray Based DIR for Specialized NDT Requirement in Industry	Sep 19, 2016	Sep 23, 2016	Abroad
2016 Forum for Nuclear Cooperation in Asia (FNCA) Workshop on Human Resource Development Project	Aug 01, 2016	Aug 03, 2016	Abroad
consultancy assignment as trainer on "Radiation Protection Training" in cooperation with ISO-Q Consulting (Pty) Ltd	Mar 13, 2016	Mar 19, 2016	Local

- CAAT extracts from the PNRI KM-Training Database the list of trainings by the staff after self-assessment.

PHILIPPINE NUCLEAR RESEARCH INSTITUTE List of Trainings				
Roel Loteriña				
TITLE	START DATE	END DATE	TYPE	
Participation in the 2016 PSNT Convention	Nov 18, 2016	Nov 18, 2016	Local	
Annual Meeting of the Topical Group on Education and Training (ETTG) and the Regional Workshop on Talent Management	Oct 17, 2016	Oct 21, 2016	Abroad	
Annual Meeting of the Topical Group on Education and Training (ETTG) and the Regional Workshop on Talent Management	Oct 17, 2016	Oct 21, 2016	Abroad	
IAEA/RCA Regional Training Course on X-ray and Gamma Ray Based DIR for Specialized NDT Requirement in Industry	Sep 19, 2016	Sep 23, 2016	Abroad	
2016 Forum for Nuclear Cooperation in Asia (FNCA) Workshop on Human Resource Development Project	Aug 01, 2016	Aug 03, 2016	Abroad	
consultancy assignment as trainer on "Radiation Protection Training" in cooperation with ISO-Q Consulting (Pty) Ltd	Mar 13, 2016	Mar 19, 2016	Local	
Workshop on Introducing Nuclear Sciences & Technology to Secondary Schools: Results of the Pilot Phase & the Way Forward	Dec 14, 2015	Dec 18, 2015	Abroad	
Regional Workshop on Knowledge Management and Annual Meeting of the Topical Group on Education and Training	Nov 09, 2015	Nov 13, 2015	Abroad	
Supervisory Development Course (SDC) Track 1	Aug 04, 2015	Aug 07, 2015	Local	
Train the Trainer Course on Radiation Detection Techniques and Procedure	Jun 15, 2015	Jun 19, 2015	Abroad	
Participation to the Seminar Workshop on "Interdisciplinary Approach to Teaching Science in the K+12 Science Curriculum"	Apr 13, 2015	Apr 16, 2015	Local	
Annual Meeting of the Topical Group on Education and Training (ETTG) and Seminar on the Strategic Approach to Education and Training in Nuclear Safety 2013-2020	Oct 20, 2014	Oct 24, 2014	Abroad	
Meeting to support pilot countries launch an outreach programme on Nuclear Science and Technology for Secondary Schools	Oct 14, 2014	Oct 17, 2014	Abroad	
Regional Workshop on Using the Education and Training Review Service (ETRES) for Self-assessment and Filling the Gaps	Jul 07, 2014	Jul 11, 2014	Abroad	
Regional Workshop on Using the Education and Training Review Service (ETRES) for Self-assessment and Filling the Gaps	Jul 07, 2014	Jul 11, 2014	Abroad	
Technical Meeting on Networking Educational Networks	Jun 30, 2014	Jul 04, 2014	Abroad	
Seminar Workshop on Interdisciplinary Approach to Teaching Science in the K+12 Science Curriculum	Apr 13, 2014	Apr 16, 2014	Local	
Regional Workshop on Systematic Approach to Training (SAT) and on Developing a Training Action Plan to fill the Gaps Identified Using the Guidelines for Systematic Assessment of Regulatory Competence Needs (SARCoN)	Mar 24, 2014	Mar 28, 2014	Abroad	
Annual Meeting of the Topical Group on Education and Training (ETTG) and	Nov 04, 2013	Nov 08, 2013	Abroad	



National Human Resource Capacity Building



Education and Training Infrastructures

- ❑ **PNRI – Nuclear Training Center**
- ❑ **PNRI – Sub-Critical Assembly for Training, Education and Research (SATER) Facility**
- ❑ **Tertiary Nuclear Education – Radiology, Medical Physics**
- ❑ **PNRI Nuclear Education Initiatives – core and elective subjects in undergraduate and graduate Engineering Programs**



PNRI Nuclear Training Center

1959

Philippine Atomic Energy Commission (PAEC), now the Philippine Nuclear Research Institute (PNRI) **Nuclear Training Institute** conducted the **1st Radioisotope Techniques Training Course (RTTC)** with 18 participants.

**April 30
2004**

Nuclear Training Unit (NTI) was renamed and designated as **Nuclear Training Center (NTC)**, by virtue of PNRI Office Order No. 004.

Technical Training

- Conduct of nuclear training courses and seminars for non-power and power applications, as well as NDT
- participants come from government and private institutions nationwide, including PNRI staffs

On-the-Job Training

- Graduate and undergraduate thesis/dissertation
- Radiation and nuclear related studies
- Under the mentorship of PNRI scientists, researchers and/or personnel

Research/Thesis Advisorship

- Graduate and undergraduate thesis/dissertation
- Radiation and nuclear related studies
- Under the mentorship of PNRI scientists, researchers and/or personnel

Workshop/Seminars

- These include specialized subjects such as the safe transport of radioactive materials and emergency planning and preparedness.



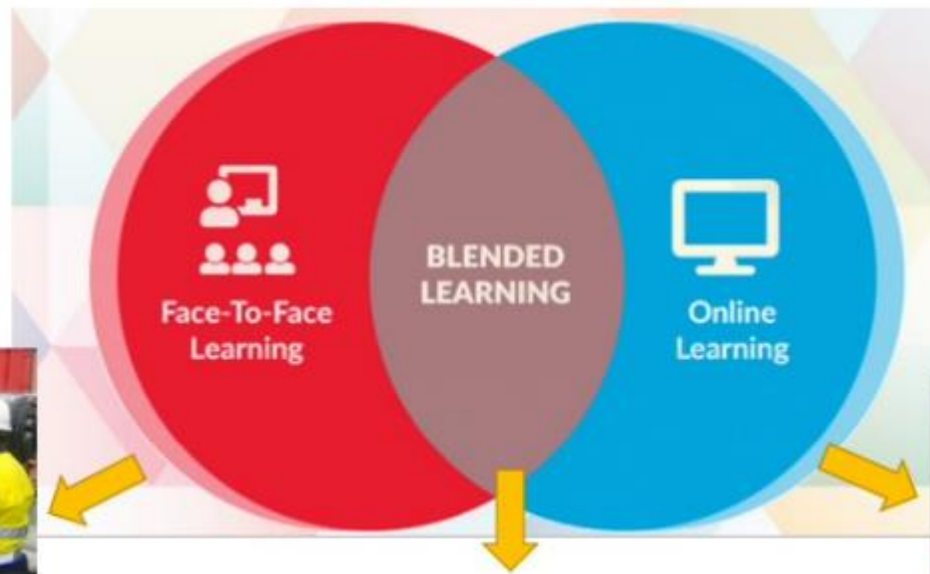
PNRI Nuclear Training Center

Training course syllabi are based on:

- IAEA standards
- Code of PNRI Regulations



PNRI Nuclear Training Center



PNRI Nuclear Training Center

Learning Management System



Zoom

Video Conferencing, Webinars,
and more



Canvas

NTC
Learning
Management System



MS Teams

The hub for team collaboration in
Microsoft 365

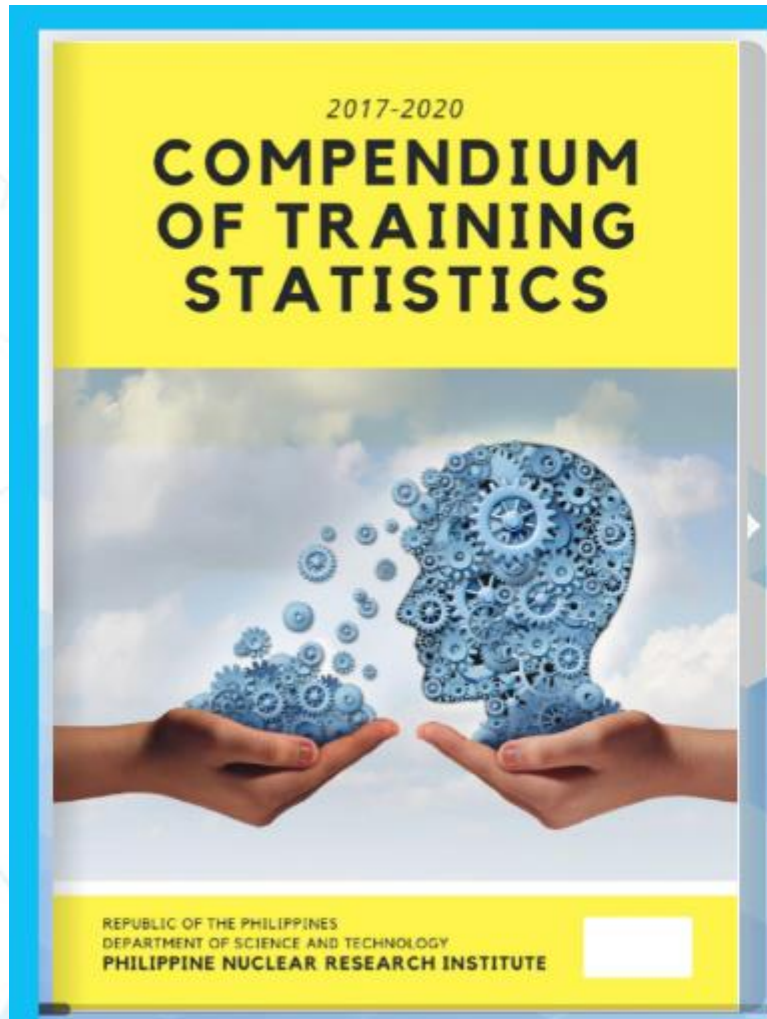


PNRI Nuclear Training Center

New Courses ...



PNRI Nuclear Training Center



No of training Courses / No of Participants
(2017-2021)



PNRI Nuclear Training Center

PNRINTC Form
PNRINTC Form 08
Rev. 01/16 October 2013
Page 1 of 18

TRAINING COURSE REPORT

I. TITLE OF TRAINING COURSE/SEMINAR (Session No.):			
Radiation Safety Course - Sealed Sources in Industrial Devices (22 nd Session)			
II. DATE OF TRAINING:			
6 - 10 March 2016			
III. VENUE:			
NTC Lecture Room, PNRI			
IV. COURSE COORDINATOR:			
Ramondito F. Suli, SRS III, NTC, TDD			
V. SUMMARY OF PARTICIPANTS			
Total No. of Participants:	29	No. of Gov't Institutions Served:	0
No. of Males:	26	No. of Private Institutions Served:	17
No. of Females:	3	Others: (e.g., Personal Participation, etc.)	0
No. of PNRI Employees:	0		
VI. EVALUATION			
Average Course Evaluation: (Numerical and Verbal Interpretation)	4.01 (Very Satisfactory)		
Average Lecturer Evaluation: (Numerical and Verbal Interpretation)	4.46 (Very Satisfactory)		
VII. OUTPUTS			
Radiation Safety Programs were presented by the participants.			
VIII. IMPROVEMENTS			
The course was conducted based on the participants' pre test results.			
IX. PROBLEMS ENCOUNTERED (HOW THEY WERE ADDRESSED)			
One of the participants was not able to get his certificate due to misnomer. The participant was given a certification which he can use in place of the original one until the OIC-Director comes back.			
X. INCOME GENERATED			
Php 5,000.00 (Training Fee)	x	29 (No. of Paying Participants)	Php 145,000.00 (Total Income)
Items		Cost	
Honoraria of Lecturers:	Php 11,875.00		
Food and Drinks for Closing Ceremony:	Php 4,321.00		
Others Expenses:	Php -----		
Total Expenses:	Php 16,196.00		
XI. ATTACHMENTS			
Attachment A: Participants' Directory			
Attachment B: Grading Sheet			
Attachment C: Summary of Course Evaluation			
Attachment D: Summary of Lecturer Evaluation			
Attachment E: Output of the Training Course/ Seminar			

Attachment C: Summary of Course Evaluation

TITLE OF THE TRAINING COURSE:	Radiation Safety Course - Sealed Sources in Industrial Devices (22 nd Session)					
PERIOD COVERED:	6-10 March 2016					
Overall Average (A-E):	4.01 (Very Satisfactory)					
A. Program of Activities	Poor	Fair	Good	Very Good	Excellent	Average
1. Scheduling (adequacy of time allotted for each activity)	3.4%	6.9%	27.6%	48.3%	13.8%	3.62
2. Sequencing of topics/ activities (topics sequenced according to importance or other criteria)			24.1%	34.5%	41.4%	4.17
3. Implementation		6.9%	17.2%	31.1%	24.1%	3.93
4. Relevance of topics/ activities to objectives			13.8%	48.3%	37.9%	4.24
5. Adequacy of treatment			25.0%	48.4%	26.6%	4.04
B. Materials						
1. Quality		3.4%	27.6%	51.1%	17.2%	3.83
2. Content		3.4%	20.7%	48.3%	27.6%	4.00
3. Packaging		3.8%	21.4%	37.1%	17.9%	3.89
4. Adequacy			25.0%	57.0%	25.0%	4.00
5. Relevance to needs of participants			24.1%	48.3%	27.6%	4.03
6. Up-to-date-ness		3.4%	24.1%	55.2%	17.2%	3.86
C. Program Objectives	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	Average
1. Objectives were understood well			3.4%	85.5%	11.0%	4.28
2. Objectives were attained			3.4%	85.5%	11.0%	4.28
D. Venue	Poor	Fair	Good	Very Good	Excellent	Average
1. Services			14.8%	55.6%	29.6%	4.15
2. Facilities (light, water, ventilation, noise, restrooms)			17.2%	48.3%	34.5%	4.17
E. Content and Performance	Not at all Satisfied	Quite Satisfied	Satisfied	Very Satisfied	Extremely Satisfied	Average
1. How satisfied are you with the training course?			31.0%	62.1%	6.9%	3.76
2. Professionally, do you regard your participation in the training course as	Useless	Of little Use	Quite Relevant & Informative	Relevant and Informative	Highly Relevant & Very Informative	Average
			7.1%	50.0%	42.9%	4.36
3. Do you regard the coverage of the training course as	Not balanced	Balanced	Sufficiently Balanced	Very balanced but needs more time	Well programmed	Average
			20.7%	6.9%	62.1%	3.62
4. How do you find the practical laboratory exercises as an application of the principles learned in the lecture?	Useless	Of little Use	Quite Relevant & Informative	Relevant and Informative	Highly Relevant & Very Informative	Average
			6.9%	55.6%	34.5%	4.28
5. How do you find examinations as a way of evaluating the performance of participants?						
	Unrealistic and stressful					7.1%
	Although not a reliable standard, exams force one to study and perhaps learn.					89.3%
	Still the most effective measure of how much one has learned.					3.6%
	Others: Please specify:					
6. How was the entire training course supervised?						
	There is evident lack of supervision					
	Fairly supervised, but the schedule of activities is enough guidance.					62.1%
	Well supervised, but there is lack of time for some activities or lectures.					37.9%
	Very well supervised					
	Others: Please specify:					



PNRI PRR-1 Sub-Critical Assembly for Training, Education and Research (SATER)



SUPPORT

nuclear
manpower
development

ACCOMMODATE

local access to an
operating nuclear
facility

TRAIN

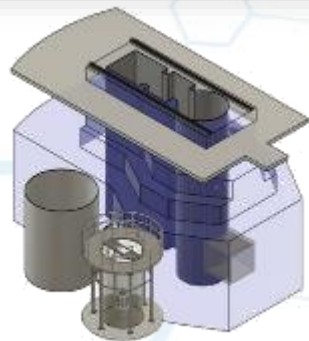
reactor operators,
user, and
regulators

ENGAGE

stakeholders in nucle-
ar and reactor engi-
neering

REPURPOSE

resources of
historical PRR-1
facility



Dr Alvie Asuncion-Astronomo, Scientist I
SATER Project Leader



Nuclear Education

- **University of Sto. Tomas**
 - MSc in Applied Physics, major in Medical Physics
 - Master in Medical Physics
- **Dela Salle University**
 - BSc Pre-Med Physics (applications of physics in Medicine)
 - Nuclear Technology Applications Track in its MSc in Physics
- **University of the Philippines - Manila Campus**
 - MSc in Medical Physics
- **OTHER SCHOOLS**
 - Undergraduate programs in Radiation Technology



PNRI Nuclear Education Initiatives

❑ Partnerships forged (MOUs)

- **University of the Philippines (UP) Diliman** (2018, renewed in 2021)
 - Two PNRI staff granted Professional Lecturer posts in UPD, others are adjunct
- **Mapua University** (2020)
 - Five PNRI staff with lecturer posts in MAPUA

❑ Integration of nuclear education

- UP Diliman – **MSc / Ph.D. Energy Engineering**
 - Core subject, 3 units: Nuclear Energy (since 2019)
 - Elective subject, 3 units: Introduction to Nuclear Engineering (started 2022)
- Mapua University – BSc Chemical Engineering
 - Elective subject, 9 units: Nuclear Engineering Track (since 2020)
- Mapua University – MSc/PhD in Environmental Engineering
 - Elective, 3 units: Introductory Nuclear Environmental Engineering (started 2022)

❑ Students thesis/dissertation research studies focused on NST

- University of Santo Tomas (MSc); UP Diliman (MSc); Mapua (BSc)



PNRI Nuclear Education Initiatives

Curriculum in MSc Nuclear Science and Engineering (2020)

- Developed with IAEA Expert: Wahlid Metwally, Sharjah University, UAE
- Core courses
 - Nuclear Engineering Fundamentals
 - Nuclear Fuel Cycle
 - Nuclear Reactor Analysis
 - Radiation Detection and Measurement
 - Nuclear Seminar (1 credit), minimum of two
- Specialization tracks
 - Radiation Applications track
 - Nuclear and Radiation Safety
 - Nuclear Security



PNRI Nuclear Education Initiatives

University of the Philippines College of Engineering

- Framework in Nuclear Engineering (2021)
- University Inter-Department Committee started developing the curriculum for MSc in Nuclear Science and Engineering (Target: SY 2023)

MAPUA University

- Minor Track on Nuclear Technology for Engineers under the B.Sc. Chemical Engineering (Specialization, 18 Units), target SY 2023)



PNRI Nuclear and other Allied Facilities (Supporting Nuclear Education, Training and Research)

Multipurpose Gamma Irradiation Facility



Electron Beam Irradiation Facility



Self-shielded Gamma Irradiator



- ☐ *Radioactive Waste Management Facility*
- ☐ *Nuclear Analytical Techniques Laboratory*
- ☐ *Isotope Techniques Laboratory*
- ☐ *Radiation Protection Facilities*
- ☐ *Applied Physics Laboratory*
- ☐ *Health Physics Laboratory*

- ☐ *Health Physics Laboratory*
- ☐ *Chemistry Research Laboratory*
- ☐ *Biomedical Research Facility*
- ☐ *Agricultural Research Facility*
- ☐ *Nuclear Materials Research Facility*



Knowledge Management

- **KM Policy Statement of PNRI Policy Instruction No. 001, 22 August 2013, Series of 2013)**

“Nuclear Knowledge Management (NKM) as an Integral part of the Management System will foster Innovation in nuclear research and development, nuclear services, and technology diffusion through knowledge sharing, and enable appropriate and well-informed nuclear regulatory decision-making within the framework of the Philippine Nuclear Research Institute’s (PNRI) objectives and goals. NKM will focus on identifying, creating, accessing, capturing, sharing, integrating and preserving knowledge assets and turn PNRI into a knowledge-based organization.”



Knowledge Management

- Knowledge Preservation and sharing components integrated into the PNRI's Quality Management System and Strategic Performance Management System (SPMS)
- PNRI QMS ISO9001:2015 contains all **documented procedures of PNRI processes** and **work instructions** which are stored in the PNRI Intranet accessible by all employees (continuously updated when improvements are done after every audit)
- The SPMS contains guidelines for mentoring and other forms of capturing tacit knowledge
- Knowledge sharing activities are part of the rating criteria in the yearly performance evaluation



Knowledge Management

- Creation of a PNRI Knowledge Database containing knowledge capacity Topic Experts
- Inventory of Critical Knowledge Resources
- Knowledge Management Survey for retiring/resigning employees
- Conduct of individual technical study groups
- Digitization of the BNPP FSAR and PSAR and other critical documents
- ARD (research Outputs) Lecture Series
- Knowledge Sharing Series



INVENTORY OF CRITICAL KNOWLEDGE RESOURCES AT PNRI

(as of 28 June 2013)

Legend:

- Strategic relevance and utility of the knowledge (global, regional, national, organizational, departmental relevance)
- Rare and difficult to get
- Technical relevance (quality, volume, complexity, highly specialized or important)
- Relevance to the operations of the Unit/Division

Type of Knowledge, Documents or Database	Strategic Relevance & Utility of the Knowledge (Scale from 1 to 5)	Rare and Difficult to Get (Scale from 1 to 5)	Technical Relevance (Scale from 1 to 5)	Relevance to the Operations of the Unit/Div. (Scale from 1 to 5)	Location	Retention Period
Project files (national, regional-RCA/nonRCA, FNCA), interregional, local (PNRI GIA)	4	4	4	5		
Fellows – PNRI/Non PNRI, type II	4	4	4	5		
Reports – official travel, technical, EOM, project progress	3	4	4	5		
Experts	3	4	4	5		
Equipment	3	4	3	3		
Bilateral/regional agreements	4	4	5	5		
International hostings – IAEA, FNCA, CTBTO, locals	4	4	5	5		
5 Year HRD Plan	4	3	4	4		
5-year Nuclear S & T	5	5	5	5		
Medium Term Phil. Investment Plan	4	5	4	4		
Annual Resource Plan	5	5	4	4		
Project Profile	5	5	4	4		
Performance Indicators Framework	5	5	4	5		



Peer-review of nuclear / radiation safety infrastructures

- ❑ **2018: Integrated Nuclear Infrastructure Review (INIR) Mission**
- ❑ **Q4-2022: Occupational Radiation Protection Assessment Service (ORPAS Mission)**
- ❑ **Q2-2023: Knowledge Management Assist Visit (KMAV Mission)**
- ❑ **2024: INSERV (Nuclear Security)**
- ❑ **Q4-2023: Integrated Regulatory Review Service (IRRS Mission)**



Knowledge Networking

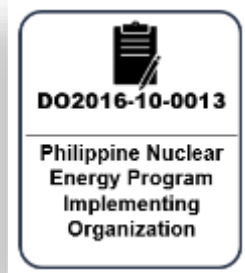
- International Regulatory Network
- Asian Nuclear Safety Network (ANSN)
- International Network for Education and Training for Emergency Preparedness and Response (iNET-EPR)
- International Nuclear Security Education Network (INSEN)
- Asian Network for Education in Nuclear Technology (ANENT)
- International Nuclear Science and Technology Academy (INSTA)
- Other Regional Nuclear Knowledge Networks through ANENT we get access to other Networks' resources



Nuclear Power Program: Current Situation



Current Developments on the Nuclear Power Program



IAEA-IFNEC conference recommended the creation of the NEPIO (Sept 2016)

IAEA **INIR Mission** completed (Dec 2018)

Executive Order 116 was issued, creating the **NEP-IAC** (July 2020)

2016

2017

2018

2019

2020

2021

2022

Ph DOE **NEPIO** was created (Oct 2016)

DOE NEPIO was officially funded; First recommendation for national position (Apr 2018)

Public perception survey conducted, **79.0% approval/ acceptability** (Apr-May 2019)

NEP-IAC workshop finalized the second recommendation for national position (Dec 2020)

Executive Order 164 **Adopting a National Position** was issued (Feb 2022)



Creation of the Nuclear Energy Program Inter-Agency Committee (NEP-IAC)

**Executive Order
No. 116**
(issued on 24 July
2020)



Directing a study for the adoption of a National Position on Nuclear Energy Program (NEP)



Establishing the Nuclear Energy Program Inter-Agency Committee (NEP-IAC)



Department of Energy (DOE)



Department of Science and Technology (DOST)



Department of Environment and Natural Resources (DENR)



Department of Interior and Local Government (DILG)



Department of Finance (DOF)



Department of Foreign Affairs (DFA)



National Economic and Development Authority (NEDA)



National Power Corporation (NPC)



National Transmission Corporation (Transco)



Philippine Nuclear Research Institute (PNRI)



Philippine Institute of Volcanology and Seismology (PHIVOLCS)

Additional Members that were invited citing Section 5 (Convergence) of the EO:

Department of Justice (DOJ)

Department of Trade and Industry (DTI)

Department of National Defense (DND)

Presidential Communications Operations Office (PCOO)

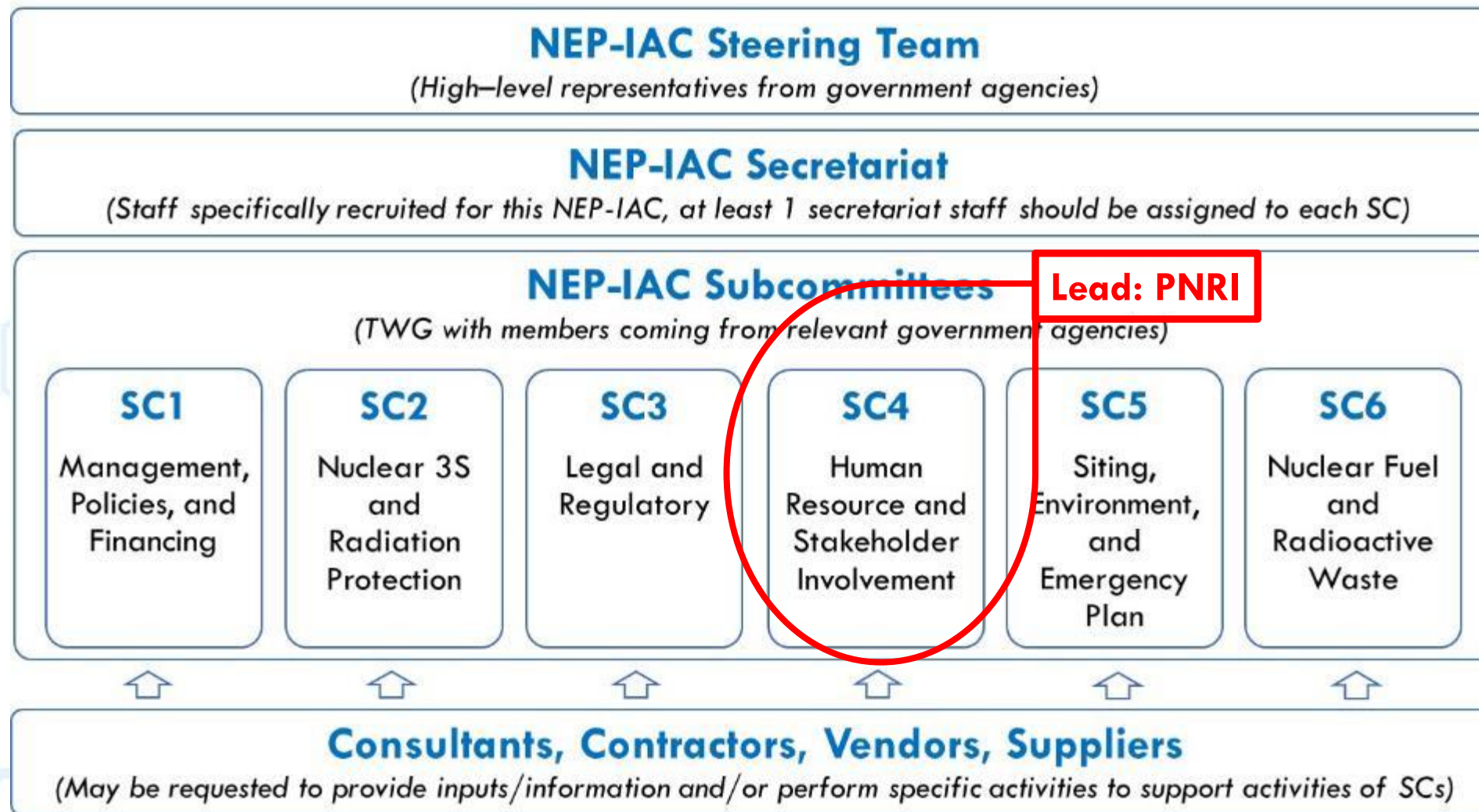
Commission on Higher Education (CHED)

Technical Education and Skills Development Authority (TESDA)

Department of Health (DOH)



Nuclear Energy Program Inter-Agency Committee (NEP-IAC)



Executive order 164: Adopting a National Position for a Nuclear Energy Program



MALACAÑAN PALACE
MANILA

BY THE PRESIDENT OF THE PHILIPPINES

EXECUTIVE ORDER NO. 164

ADOPTING A NATIONAL POSITION FOR A NUCLEAR ENERGY PROGRAM, AND FOR OTHER PURPOSES

WHEREAS, Section 1, Article XII of the Constitution adopts the general economic policy of a more equitable distribution of opportunities, income and wealth, including the promotion of industries that make full and efficient use of human and natural resources, and which are competitive in both domestic and foreign markets;

WHEREAS, the updated Philippine Development Plan 2017 to 2022 recognizes a balance among energy tariffs, service reliability and environmental soundness of different technologies in ensuring energy supply flexibility and security, and improving electric grid performance and asset utilization;

WHEREAS, to provide for a strategic direction of the State's energy requirements, the Philippine Energy Plan 2018 to 2040 supports a technology-neutral approach for the optimal energy mix to ensure energy security and improve the reliability, adequacy and efficiency of energy needed to supply the demands of an upper middle income economy;

WHEREAS, the competitive position of nuclear energy is recognized and the experience of highly developed countries shows that nuclear power can be a reliable, cost-competitive and environment-friendly energy source;

WHEREAS, the International Atomic Energy Agency (IAEA) has prescribed Guidelines on Building a National Position for a Nuclear Power Program under IAEA Nuclear Energy Series NG-T-3.14 (2016), which identifies significant components thereof, such as but not limited to national policy development, energy analysis and planning, pre-feasibility study, and the engagement of the public and relevant stakeholders;

WHEREAS, the State has committed to a multi-stakeholder involvement in developing the country's National Position for a Nuclear Energy Program and shall at all times abide by the international standards on safety, security and safeguards on peaceful development of nuclear energy;

➔ Legal and regulatory framework

➔ National strategy for nuclear program

➔ Development of 19 nuclear infrastructure

➔ Implement strategic communication

➔ Implement IWP with IAEA assistance



STAKEHOLDERS

(Main National “Institutions” Involved)

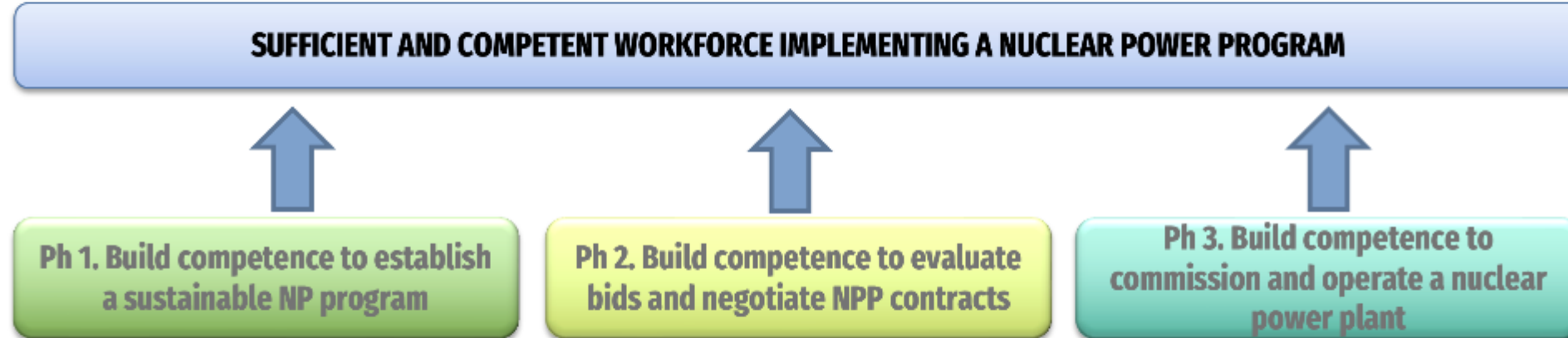
- ❑ **Government - National Nuclear Authority (PNRI)**
- ❑ **Regulatory Body (PNRI - NRD) and DOH-CDRRHR***
- ❑ **Technical Support Groups (PNRI – Technical Divisions)**
- ❑ **Licensees (Entities/Facilities handling radioactive materials, Occupational Radiation Workers, Vendors, other service providers)**
- ❑ **Nuclear Energy Programme Inter-Agency Committee (NEP-IAC)**

*Center for Device Regulation, Radiation Health, and Research - for electrically generated radiation devices



NEP-IAC Sub-Committee on Human Resource Infrastructure

Sub-Committee 4 Human Resource Development

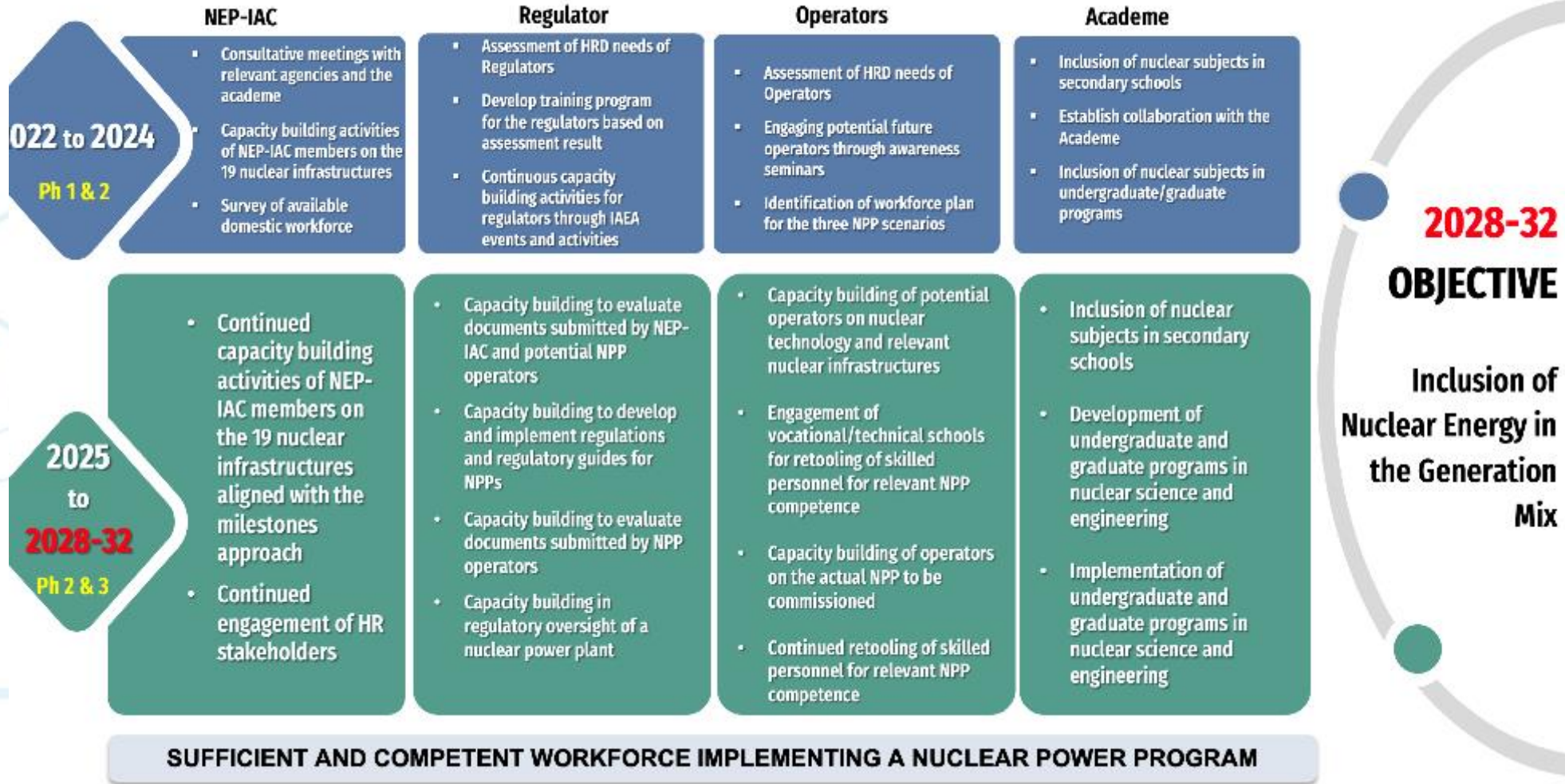


Human resource infrastructure refers to the PEOPLE involved in the planning, designing, operating and maintaining systems/industrial plants/corporations/companies.



NEP-IAC Sub-Committee on Human Resource Infrastructure

HUMAN RESOURCE DEVELOPMENT



NEP-IAC Sub-Committee on Human Resource Infrastructure

Knowledge Management Assist Visit (Nov 20-24)

- Establishing and sustaining nuclear and radiological education programme in the Philippines (please refer to the file, **PHIL_KMAV Working Document vOct17.**)



Thank You

