

Asian Nuclear Safety Network Education and Training Topical Group  
Regional Workshop on the Management of Training Systems for Nuclear and Radiological Safety  
14-18 November 2022  
PNRI, Manila, Philippines

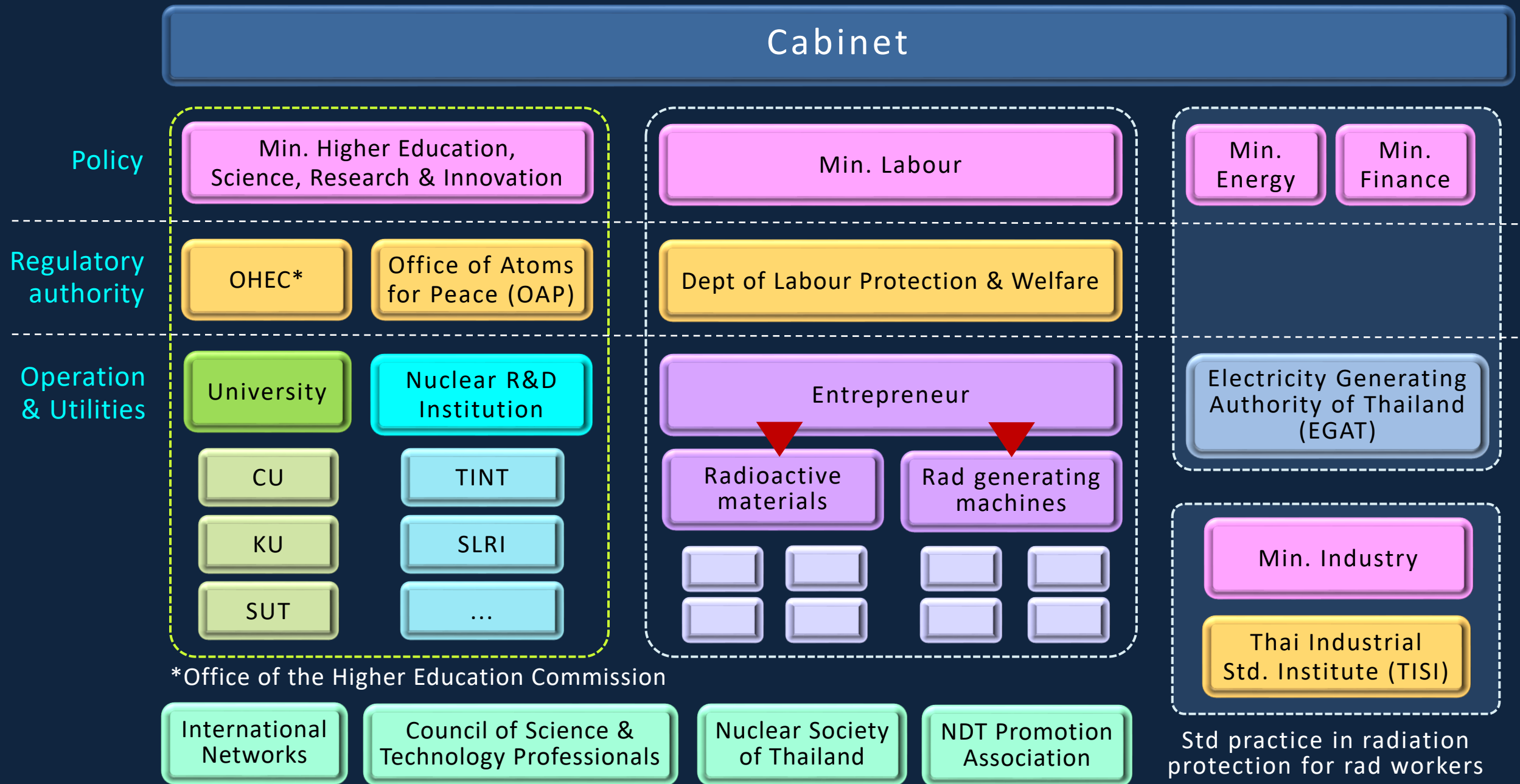
# Thailand



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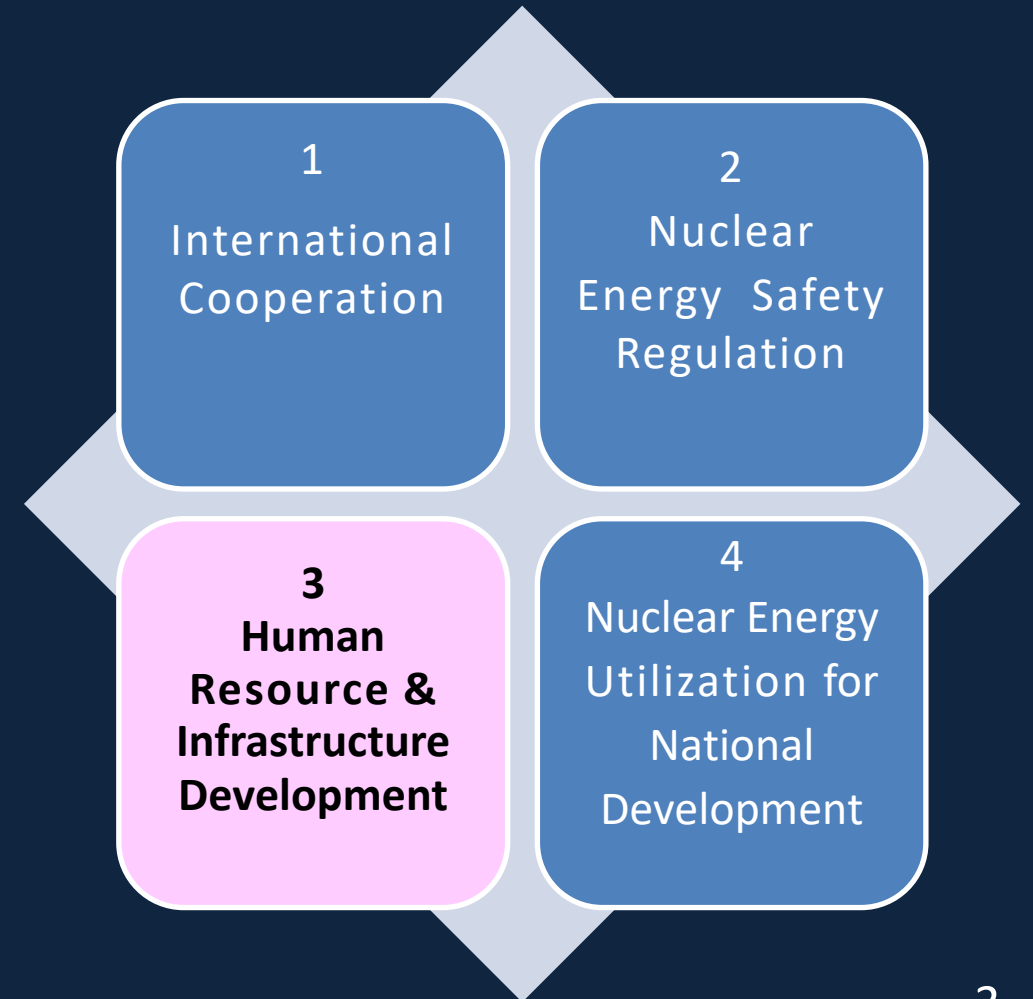
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# National Strategy on Education and Training in Nuclear and Radiation safety



“National Nuclear Energy Development Policy and Strategic Plan 2017 – 2026” has been developed by [Nuclear Energy for Peace Commission](#) and [sub-committee](#) as a roadmap and framework for nuclear for peace activities in Thailand consist of 4 strategies



# National Strategy on Education and Training in Nuclear and Radiation safety (Con't)



To strengthen the production and development system of human resources and infrastructure in nuclear science and technology



To promote Thai society's awareness and confidence in nuclear energy safety.

Objectives regarding to human resource development

The main idea for this strategy is starting from

Widely use of nuclear energy all over the country

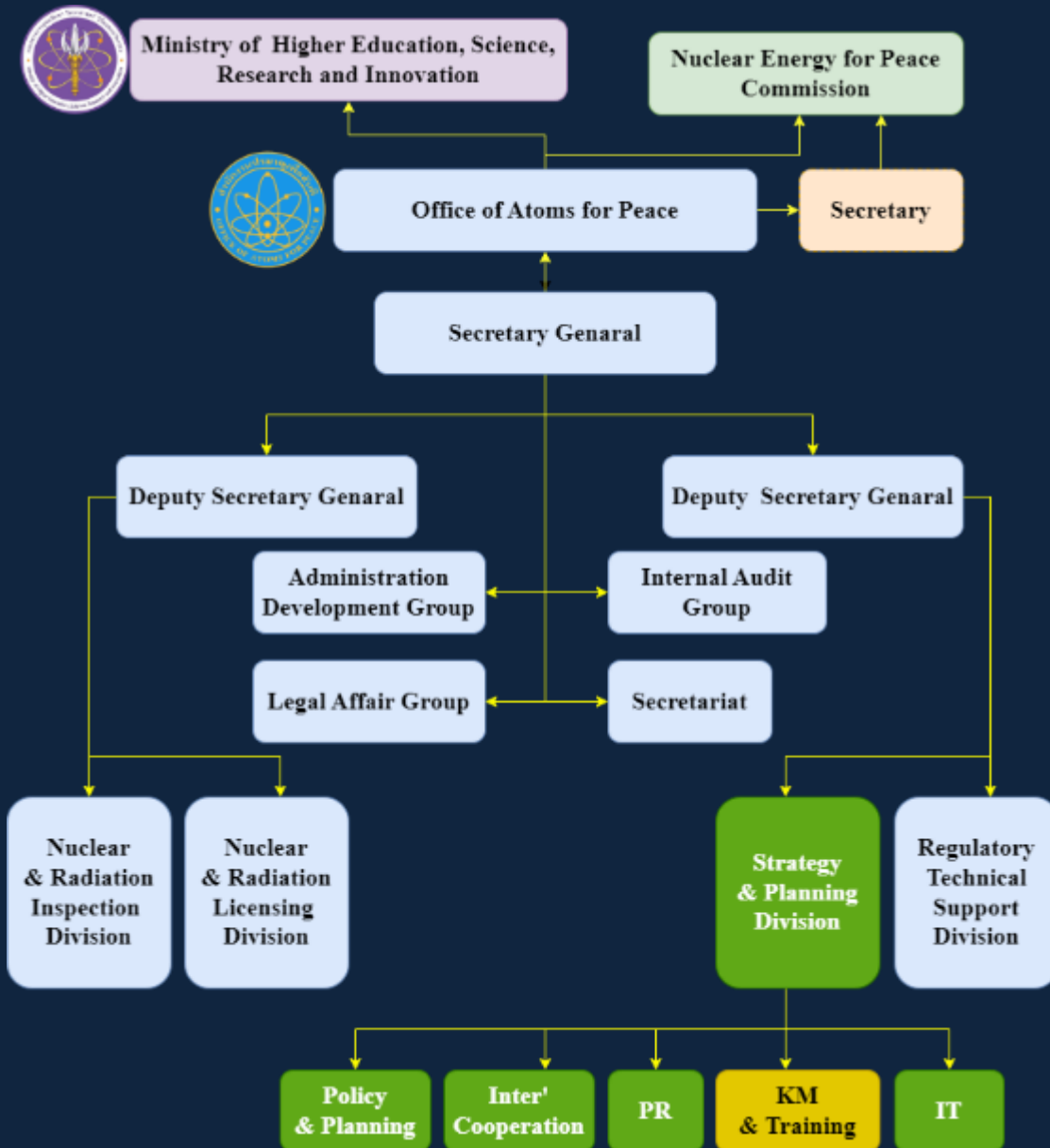


Human resource development become a very important priority to be able to support the peacefully use of nuclear energy safely and effectively manner

Academia

Technical Officer





OAP as a nuclear and radiation safety regulatory authority of Thailand and secretary of the Nuclear for Peace Commission will respond for the implementation of the national strategy on E&T as following ;

Promote the strategy with relevant agencies through involved sub-committees.

Academic coordination with relevant agencies both national & international level

**Funding for the implementation : Government of Thailand depending on each fiscal year and government policies**

Main national institutions involved;

1. Nuclear Energy for Peace Commission
2. Office of Atoms for Peace (OAP)
3. Thailand Institute of Nuclear Technology (TINT)
4. Chulalongkorn University
5. Kasetsart University
6. Suranaree University of Technology
7. Suan Dusit University
8. Etc.,

## Systematic Approach to Training

### ■ **Status of SAT at OAP**

- Develop annually training plan for both internal and external personnel
- Maintain good coordination with national and international coordinator and lecturers
- Post training evaluation
- Annually report of training summary
- Management review meeting

### ■ **example on application of SAT**

- Continuously organize the training course as plan (5–15 times/years)
- Provide BCP to support unexpected situations

## Assessment of Competence Needs

- To assess the competence needs, OAP as following;
  - Stakeholder mapping
  - Development assessment survey
  - Stakeholder's interviewing/survey
  - Analyse the answer
  - Summarize the competence needs

# Training Management at OAP

- **Management of training at your organization**
  - Develop and follow PM documents (ISO 29993)
  - Management review meeting to consider about the detail of the documents and revision if necessary
- **Status of training material**
  - topical areas : PPT slide, exercise, online
  - structured database : electronic interface
  - updating process : annually
- **Availability of training packages**
  - Develop online and onsite training packages involved with radiation safety / nuclear security by OAP and relevant organizations (WINS, ASEANTOM)

# Networking and sharing in E&T

- **Readiness for networking**

- Working group
- Infrastructures

- **IT means for networking**

- Social network platform such as face book/whatapps

- **Catalogue of training packages**

- Online Course description through OAP's website such as objectives/course's audience/duration/outcome/terms & conditions

- **Language of training packages**

- Only in Thai



# Challenges and future plans in Education and Training

- **At national level**

- To implement and successfully follow the National Nuclear Energy Development Policy and Strategic Plan

- **At organizational level**

- Enhance capacity on nuclear science and radiation safety to OAP staffs
- Increase training platforms to be more easily accessible
- Develop more training courses to meet training needs
- To be a nuclear and radiation safety regulation of regional



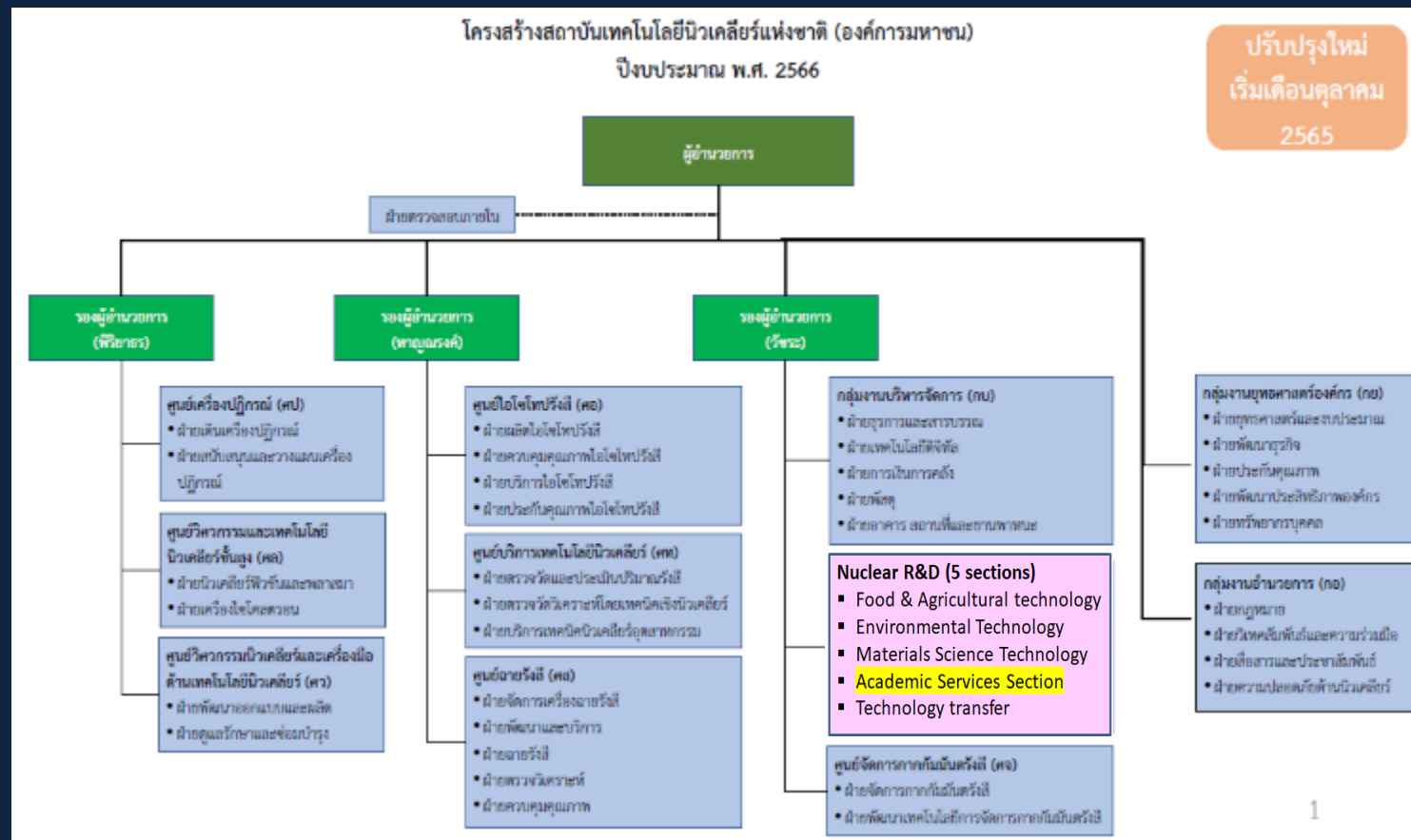
# Thailand Institute of Nuclear Technology (Public Organization)

## Vision

- To be a leading institute for research, innovation and services in nuclear technology to increase the economic value of the country by more than 3.5 times the total expenditure (excluding investment budget) by 2024 and become a leader in nuclear technology in ASEAN by 2027

## Mission

- Research on nuclear science and technology and its applications.
- Provide nuclear technical services, radioisotope product manufacturing and services, and radioactive waste management.
- Providing academic services**, promoting, supporting and transferring nuclear science technology as well as training and developing personnel in the utilization of nuclear technology.
- Research on the utilization of nuclear energy and other related fields, as well as on nuclear and radiation safety, environmental radiation dosimetry and radiation protection.
- Carry out nuclear and radiation safety, security and protection work.





# Academic Services Section

## Objectives and goals

- To develop personnel and transfer nuclear technology in accordance with the strategic plans of the institute and of the country
- Organize meetings, training, seminars & transfer of nuclear radiation technology for the sustainable development of the country
- Develop domestic and international cooperation networks to cultivate talents and transfer nuclear technology.
- Develop nuclear, radiation and related technical personnel according to domestic needs



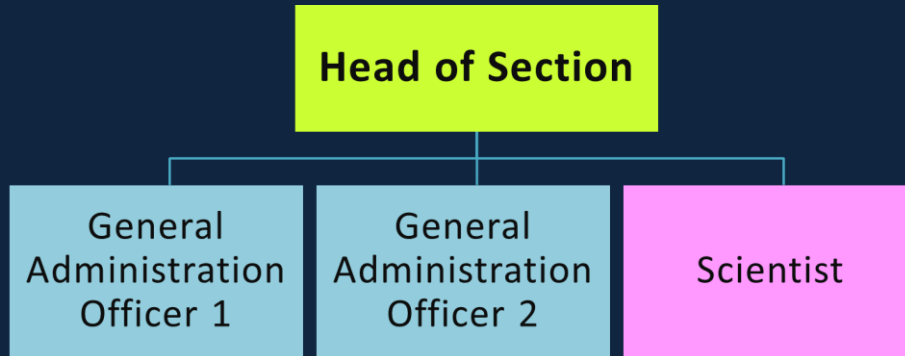
# Academic Services Section

## Scope of work

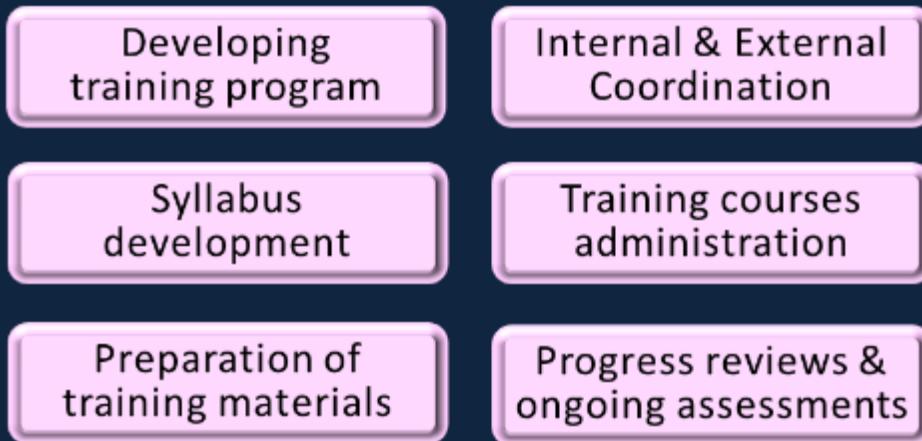
- Develop a strategic plan for human resources development & nuclear technology transfer in accordance with the national strategic plan
- Manage personnel development & transfer of nuclear technology to meet the needs.
- Develop personnel and courses on nuclear, radiation & nuclear technology to meet the needs of the country.
- Budget administration & financial management
- Develop a network of cooperation from both domestic and international
- Provide infrastructure for training courses/workshops to support personnel development and nuclear technology transfer.
- Develop personnel to be lecturers in nuclear, radiation and related technologies



# Academic Services Section



## Main elements



## Main national institutions involved

- Office of Atoms for Peace
- JAEA

## Funds for the implementation

- Annual budget from organization

## Interesting activities, events, programs, ideas

- Gather information on the performance of special duties of officers.
- Statistic analysis/ research

## Systematic Approach to Training

### Status of SAT at TINT

- Develop an annual action plan.
- Maintain good coordination with course directors and lecturers
- Risk assessment/having backup plans in case of unexpected situations
- Regularly develop and update learning materials
- Pre-training check list
- Course certificate/renew by regulator
- Course evaluation
- Annual report of activity
- Training need assessment
- Example on application of SAT
  - Continuous training course on Radiation protection can be organized 12-15 time/year

## Assessment of Competence Needs

- Observed
- Surveys
- Post training evaluation/ discussion
- Trainees interview
- Instructors discussion

## Training Management

- **Management of training at TINT**
  - Develop/ follow PM/WI
  - Annually maintain PM/WI (iso)
  - Training brochure dissemination
  - Online application platform
- **Status of training material**
  - topical areas: books, slides, exercises, elearning, video, electronic files
  - structured database: easy to access using electronic interface
  - updating process: regularly according to nuclear regulation
- Availability of training packages
  - Classroom, online, elearning

## Challenges in Education and Training

### At national level

- More target groups of trainees

### At organizational level

- Create a new instructor
- Develop more training packages



## Networking and sharing in E&T

### Readiness for networking

- Working group, infrastructures, risk assessment, internal control system

### IT means for networking

- Social network platform, i.e. line

### Catalogue of training packages

- Course type, term and condition, cost, certificate, targeted audience, duration, prerequisite, contact person

### Language of training packages

- Thai, English

## Future Plans in Education and Training

### At national level

- Normalize/ standard setting of minimum requirements for course contents & syllabus design
- More international collaboration
- Open access to some networks

### At organizational level

- LMS and elearning materials are parallel developed using Moodle platform and Articulate360
- More remote training and virtual training
- More cooperative networking
- Improve the attractiveness of the training programmes



## Preset courses

- Radiation protection Level I (1 week)
- Radiation protection Level II (2 week)
- Radiographic testing Level I
- Radiographic testing Level II
- Basic reactor engineering\*
- Environment radioactivity monitoring\*
- Radiation application & radiation safety
- Radiation safety knowledge refreshment
- Nuclear & radiation emergency cooperative & networking
- Nuclear & radiological emergency preparedness and response\*

\* In cooperation with HRD JAEA

- Course director
- Qualified instructors
- Syllabus : IAEA, Nuclear Act
- Pre/post test & exam
- Online course evaluation

## In-house & Tailor-made

- Basic radiation safety for radiation workers
- Annual radiation safety refreshment
- Radiation awareness for safety officer
- Radioactive materials transportation
- Nuclear youth camp, etc.

## In-house for TINT staffs

- Knowledge review for research reactor operator
- Annual knowledge review for irradiation facility workers
- Fire drill training for radioactive waste management center
- Development of e-Learning materials on nuclear and radiation

2023 Action plan  
of Academic Services Section  
@ TINT  
Starting 1 October 2022

[illegible]

# Issues and Lesson Learned

Sustainability

- Programme constantly needs to actively recruit lecturers due to staffs workload and retirement

Course contents

- More course contents are required (by law) for training on Radiation Protection in accordance with newly issued ministerial regulations, and announcements
- Difficult for learners to obtain in a limit time

Attendee recruitment

- Scarcity of participants in certain topic such as Basic reactor engineering

Alternative outreach program

- To support the needs of business owners in training their employees including to neighbouring countries

Distance learning

- Possible for lecture but not laboratory practice
- Learner engagement measuring

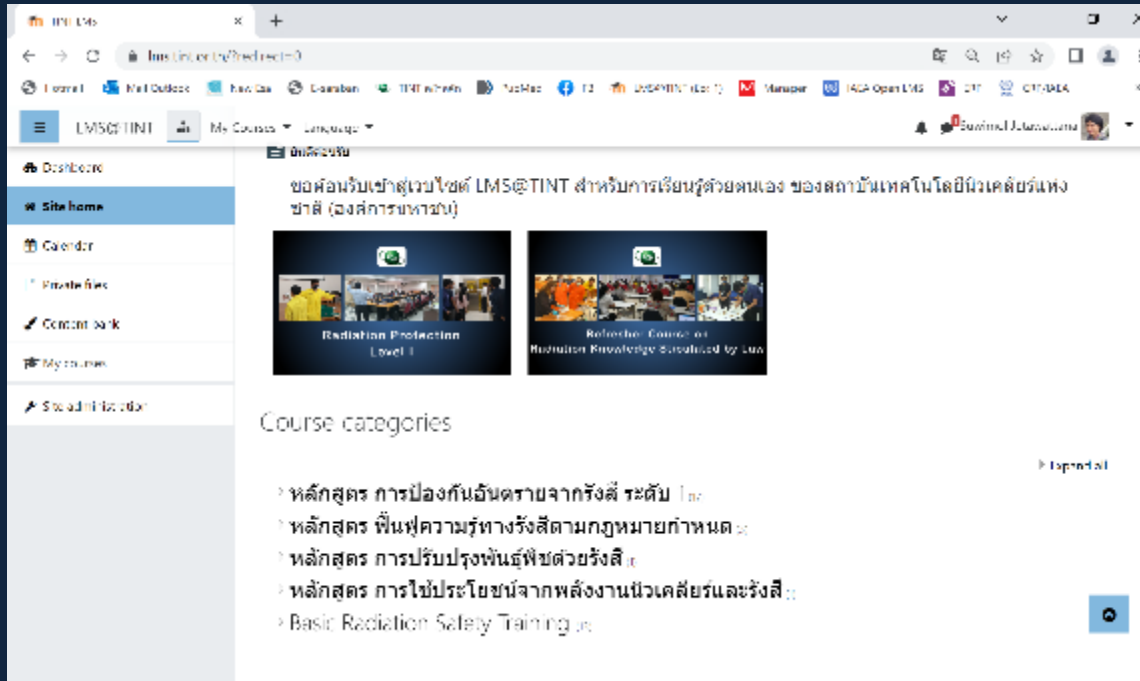
# Successful Experience & Best Practice



Year	All courses	Activity	Attendee
2022	22	41	2,403
2021	11	34	1,544
2020	21	42	1,651
2019	25	71	3,272
2018	29	54	2,564
2017	32	53	3,348
2016	36	66	3,298
Total		361	18,080

- Instructors are from experienced TINT staffs with tacit knowledge.
- The Radiation Protection Level I training course has been well received.
- Onsite/ online/ hybrid training system is available.
- Three books for training materials were published and regularly revised
- Remote training services for in-house training
- LMS and elearning materials are parallel used (Moodle platform and Articulate360)
- ISO9001 certified (whole organization)

# Learning Management System : LMS



<https://lms.tint.or.th/>

course	Participants
Radiation Protection Level I	244
Biennial Refreshment	57
Plant Mutation Breeding	29
<b>Total</b>	<b>330</b>

- Learning Management System is actively maintained and used

- 2022 elearning activities

<https://lms.tint.or.th/>

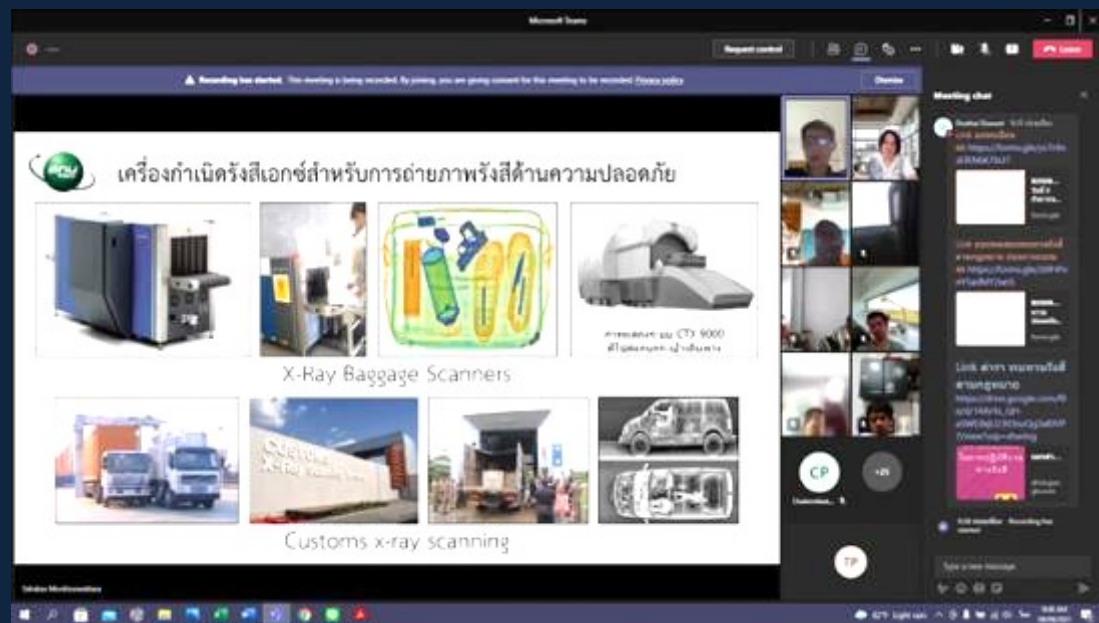
# 2022 Performance of Academic Services Section Ending 30 September 2022

สรุป ภาพรวมผลการดำเนินงานฝ่ายบริการวิชาการ ปีงบประมาณ 2565		
	เป้าหมาย	ผลการดำเนินงาน
1. รายได้ค่าบริการวิชาการ (ตามแผน) (ปี งบประมาณ 2565) รายได้จากการให้บริการจัดฝึกอบรม (ร้อยละ)	10 ล้านบาท	3,328,782.07 บาท (รวม vat 7%) 11,052,898 บาท (รวม vat 7%)
รวมรายได้		4,381,680.07 บาท (รวม vat 7%)*
การมอบเงินช่วยเหลือเป็นค่าตอบแทน สทน.		360,055 บาท (รวม vat 7%) (งบ 1 - 21 สน งบ 2 - 20)
รวมการสร้งรายได้ทั้งสิ้น		4,741,735.07 บาท (รวม vat 7%)
2. การจัดกิจกรรม	37 ครั้ง	จัดหลักสูตรรวม 22 หลักสูตร จำนวน 47 ครั้ง มีบุคลากรได้บริการฝึกอบรม 2,403 คน
3. การปรับปรุงระบบงาน	3 รายการ	1. การให้บริการอบรมวิชาการผ่านระบบ e-learning (stand-alone or hybrid with on-site) 2. การจัดทำหลักสูตรการฝึกอบรมระหว่างประเทศ on line ผ่านระบบ Zoom, e-learning หรืออื่น ๆ 3. การให้บริการหลักสูตรเพื่อส่งเสริมการให้บริการหลักสูตรเพื่อส่งเสริมการใช้พัฒนาโดยอาศัยโครงสร้างพื้นฐานทางความรู้ด้านนิวเคลียร์และโครงสร้างพื้นฐานทางบุคลากรของ สทน.

หลักสูตรที่ยกเลิกการจัด		
หลักสูตร	เหตุผล	งบประมาณ
1. การถ่ายภาพด้วยรังสี ระดับ 1	ทาง สท. ขอ	45,300
2. การถ่ายภาพด้วยรังสี ระดับ 2	ยกเลิก เพื่อให้สอดคล้องกับ	85,300
3. การตรวจสอบโดยใช้คลื่นเสียงความถี่สูง ระดับ 1	กระบวนการ	42,800
4. การตรวจสอบโดยใช้คลื่นเสียงความถี่สูง ระดับ 2	ทางระบบ ISO	94,900
5. Environment Radioactivity Monitoring	โควิด-19 ไม่มีความจำเป็น	107,200
รวมยกเลิก 5 รายการ เป็น งบประมาณ. ทั้งสิ้น xx บาท (ไม่ได้ใช้) คิดเป็น ร้อยละ xx ของงบประมาณการจัดหลักสูตรอบรมที่ขอไว้ตามแผนปฏิบัติการ (6,012,150 บาท)		375,500

การจัดประชุม-ฝึกอบรม-สัมมนา-ถ่ายทอดเทคโนโลยีนิวเคลียร์			
ประเภทหลักสูตร	หลักสูตร	ครั้ง	คน
ภายนอก (ตามแผนปฏิบัติการ)	8	19	885
ภายนอก (เชิงรุก+ร้องขอ)	4	18	1,001
ภายใน (ตามแผนปฏิบัติการ)	10	10	517
รวม	22	47	2,403
ผลการรวบรวม การปฏิบัติงานพิเศษของเจ้าหน้าที่ สทน. (เป็นวิทยากรพิเศษ-อาจารย์พิเศษ-อาจารย์ที่ปรึกษา-กรรมการสอบวิทยานิพนธ์-Invited Speakers/Lecturers)			361
รวมบุคลากรที่ได้รับการพัฒนาด้านนิวเคลียร์ทั้งปี			2,764





Thank you!

