

# Activities and Prospective of the Korea COE - INSA

**Kwan-Kyoo CHOE**

**July 18, 2014**

**International Nuclear Nonproliferation and Security Academy**

**Korea Institute of Nuclear Nonproliferation & Control**





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in International Community**

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# I. Introduction

- **Energy Security** and Economy Development
  - **Import of 96% of Energy Resources** (4% of Independence)
- Nuclear Energy and **Geopolitical Configuration in Northeast Asia**
  - **Japan**: Unique Country to Where Atomic Bombs Used in War
  - **China, Russia, USA**: Nuclear Countries
  - **North Korea**: Tests of Atomic Bombs by 3 Times
- **End of the Cold War & Basic Policy of the ROK**
  - **Denuclearization** of the Korean Peninsula
- TCNC(Technology Center for Nuclear Controls)
  - Establishment of Former KINAC in 1994 (KINAC in 2006)
- **Implementation of Additional Protocol and Integrated Safeguards** - AP(2004) & IS(2008)
- **Nuclear Industry and Globalization**
  - **Export of APR 1400 x 4 Reactors ('09) to UAE** and RR(2010) to Jordan
- **Leading Role for Nuclear Nonproliferation and Security**
  - 2<sup>nd</sup> NSS(2012, Seoul)
  - INSA(2014)
  - Strong Engagement in IAEA/NSSC and APSN



## II. ROK: Nuclear Supplier Country & Responsibility in International Community

### 2012 Seoul Summit

- We also encourage States to promote human resource development through education and training.

In this regard, we welcome the **establishment of Centers of Excellence** and other nuclear security training and support centers ”.



### 2014 Hague Summit

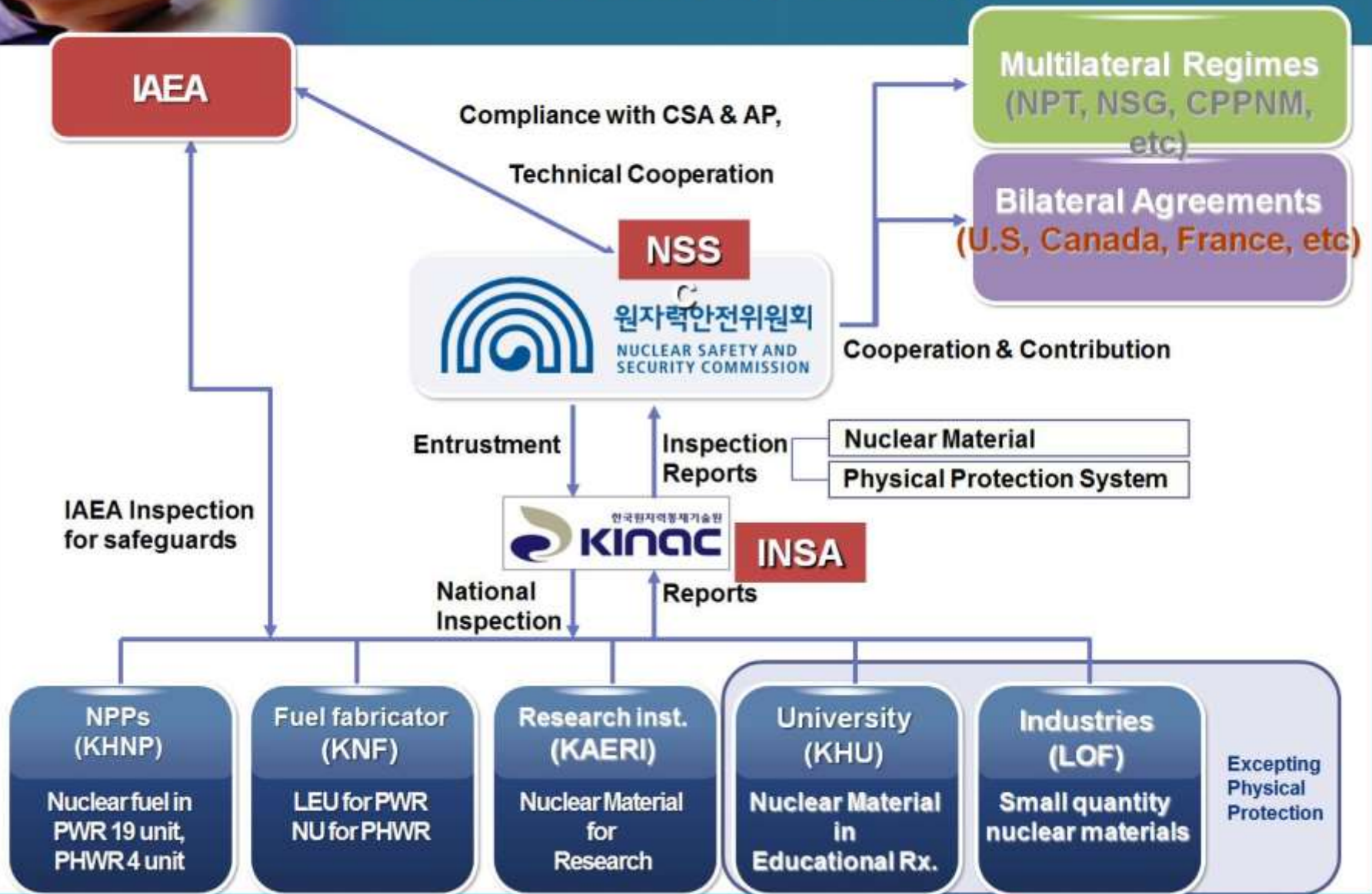
- **Four-Point Proposal Statement**
  - 1) **Holistic Approach**: N. Security, N. Disarmament, N. Nonprolifer.
  - 2) **Regional Dialogue Mechanism**
  - 3) **Overcoming of the Capacity Gap**
  - 4) **Cyber Security**



# III. INSA : Vision, Strategy & Works Framework



### III. INSA : ROK's Regulatory Framework





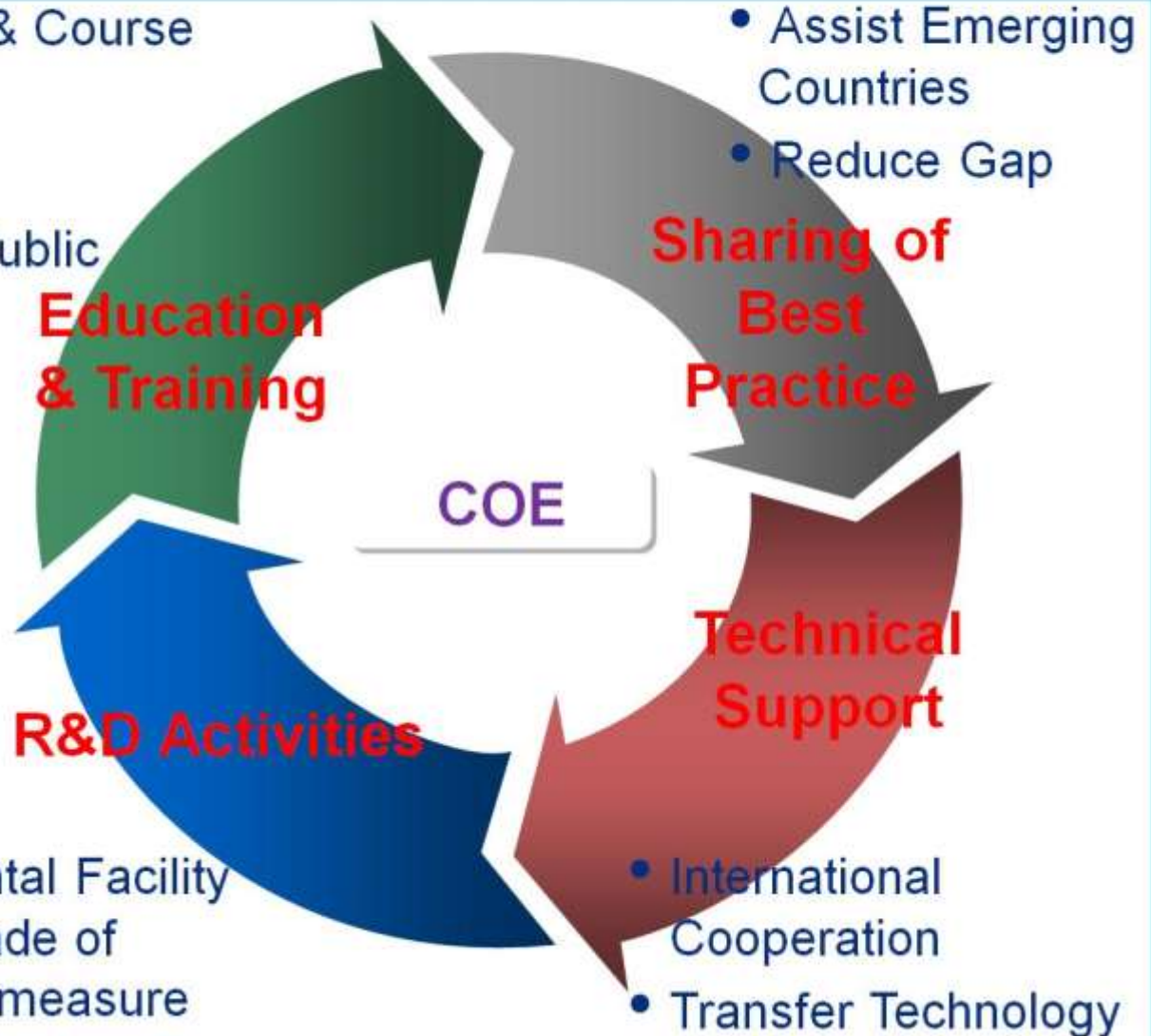
## IV. INSA: Roles & Activities - 1

- Develop Program & Course
- Raise Lecturers
- Capacity Building
- Spreading out of Public Awareness

### Overview

- ❖ **Location:** Daejeon, Korea
- ❖ **Lot Area:** 44,329m<sup>2</sup>
- ❖ **Gross Area:** 4,959m<sup>2</sup>
- ❖ **Scale:** 1 Basement/5 Story Building

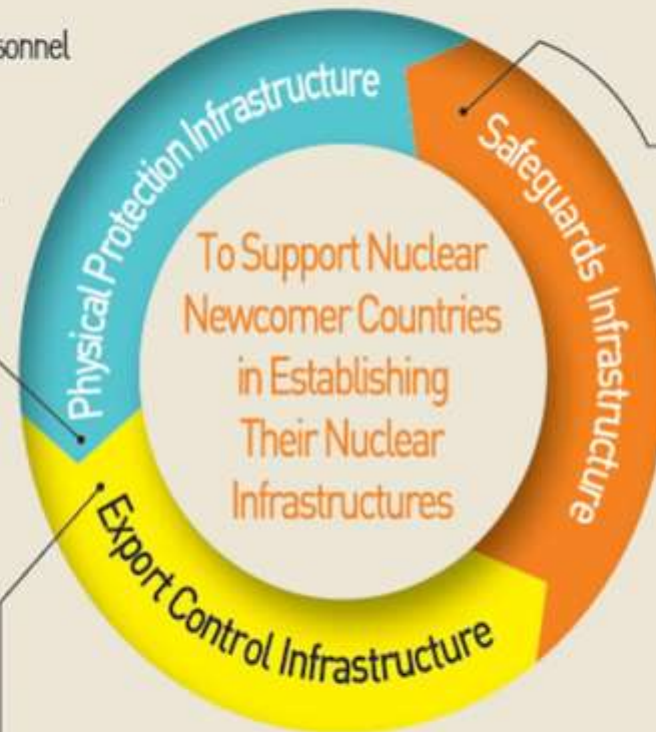
- Using Experimental Facility
- Innovative Upgrade of Security Countermeasure



# IV. INSA: Roles and Activities - 2

## INSA: International Program & Courses

- **Targets :** Nuclear Regulator and Facility Personnel
- **Contents :** Design and Evaluation of Physical Protection System and Subgroup Exercises Using INSA SETT Facility and Assessment Software
- **Duration :** 5days(Invitation Course)



- **Targets :** Nuclear Regulator and Facility Personnel
- **Contents :** IAEA Safeguards System, Nuclear Material Accounting and Establishment of SSAC
- **Duration :** 5days(Invitation Course)

- **Targets :** Nuclear Regulator and Customs
- **Contents :** Multilateral Export Control Regime, Trigger List, and Practices of Strategic Trade Controls
- **Duration :** 5days(Invitation Course)

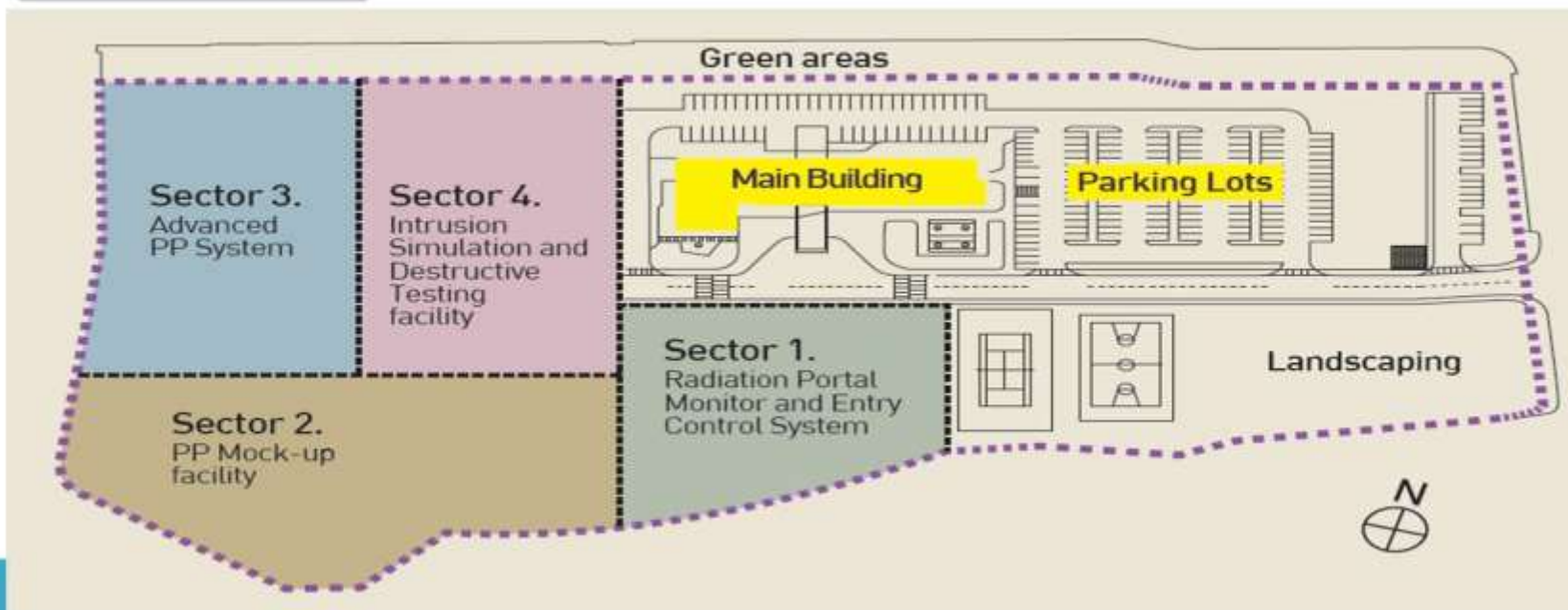




## IV. INSA: Roles & Activities - 3

Program	Courses	
International	<b>1) Basic Nuclear Security</b>	<b>12 Countries (30 pers.)</b>
	2) Fundamentals of Safeguards	12 Countries (30 pers.)
	3) Introduction to Export Control	12 Countries (30 pers.)
	4) IAEA Regional Training Course Security(Sep.) & Safeguards(Oct.)	RTC (30 pers.) in Sep. & Oct.
	5) IAEA Inspector Course	IAEA Inspector & Korean
Domestic	<b>1) Nuclear Controls Course</b>	<b>By Law (2 times/year)</b>
	2) Physical Protection Course	By Law(New & Refresh)
	3) Inspector Course	SSAC & N. Security Inspector
	4) Public Course	Teachers, University Students, Municipal Officials around NPPs
	5) High Level Gov. Official Course	Nuclear Security Culture

## IV. INSA: Roles & Activities – 4 Test Bed(SETT)





# IV. INSA : Roles & Activities – 4

## SETT(SECURITY Training & Test facility)

### Sector 1

- Radiation Portal Monitoring and Entry Control System
  - Vehicle inspection system at Megaports
  - Entry and Search control system for educational purpose





## IV. INSA : SETT (SEcurity Training & Test facility)

### ● Sector 2

- Mock-up facilities of conventional PP system
  - Fences, Active Infrared Sensor, CCTV, Magnetic Field Sensor, PIR etc.
- Training Infrastructure for guards, security management Personnel from Nuclear Facilities





# IV. INSA : SETT (SEcurity Training & Test facility)

## Sector 3

- Test-field for Advanced PP system
  - Planed to be used for State of the art sensor system
  - Thermal detection camera, Sonar, Laser Fence, Laser Camera etc.



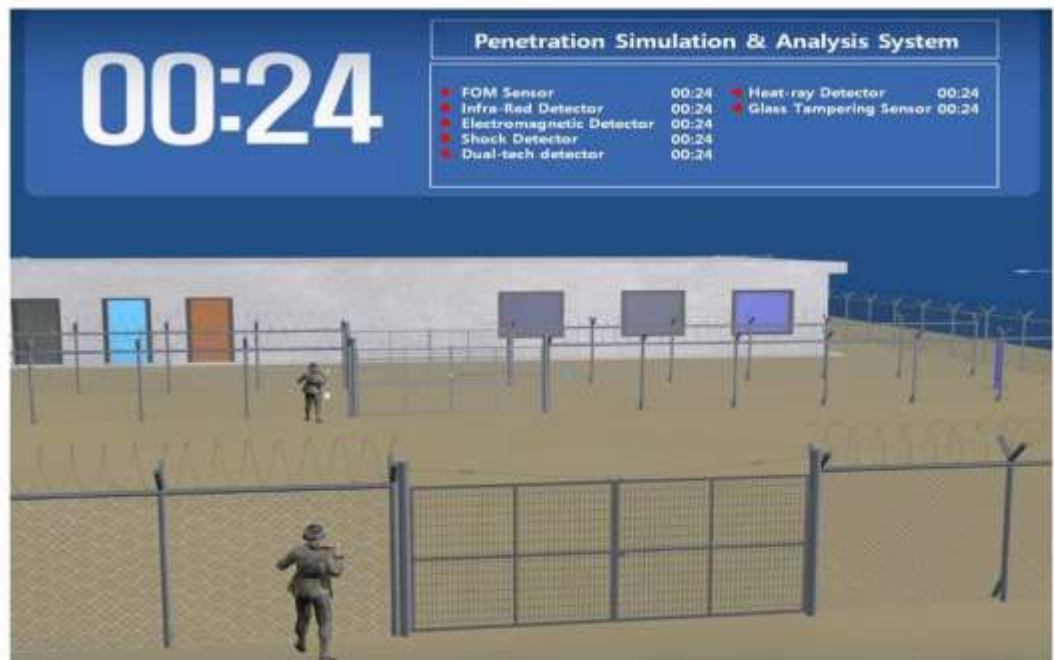
- ✓ Pop-Up on Event
- ✓ 3 Dimensional View
- ✓ Range Find
- ✓ Target Coordination
- ✓ Target Trace
- ✓ Autonomous Scan
- ✓ Sensor Fusion
- Intelligence Fence
- Ground Radar
- Acoustic Sensor



# IV. INSA : SETT (SEcurity Training & Test facility)

## Sector 4

- Simulation facility for Force-on-Force exercise
- Destructive test facility
  - Cutting test on Fences, Crash test on barriers, etc.





## IV. INSA: Roles & Activities – 5 Needs Survey & RTC with IAEA

### ○ Indonesia



### ○ Vietnam



### ○ Malaysia



### ○ RTC with IAEA



### ○ Thailand

# IV. Roles & Activities - 5

## TTT(3 Areas) & Dry-Run Courses Focused

	Day 1	Day 2	Day 3	Day 4	Day 5
9:00 AM	Welcome				Discussion on Nuclear Security Regime Development
10:00	Introduction of attendees	Physical Protection System Requirements (Modules 6 and 7)	System Effectiveness Evaluation (Module 14)	Subgroup Exercise	Transportation Security (Module 15)
11:00	Break	Physical Protection System - Detection, Delay and Response (Module 8)	Overview of INSA SETT facility	Subgroup finalization on subgroup exercises	Feedback and Next steps for Collaboration
12:00	Course Overview and Overview of 225 (from Module 1)			Subgroup presentations	
1:00 PM	Lunch	Lunch	Lunch	Lunch	
2:00 PM	Development of a Nuclear Security Regime (Modules 1 and 2)	Exercise - Development of the State's Regime	Overview of 3D Vulnerability Assessment S/W	Subgroup presentations	
3:00 PM	Break	Break	Break	Break	
4:00 PM	Physical Protection Concepts (Modules 4 & 5)	Elements of PPS - (Modules 9,10,11,12,13)	Subgroup Exercise Planning	Development of National Security Regime (Module 1)	
5:00 PM			Subgroup Exercise	Korean Experience	





## IV. INSA: Roles & Activities - 6

### KINAC/INSA Opening Ceremony (Feb. )



## IV. INSA: Roles & Activities - 6

### KINAC/INSA International Symposium





## IV. INSA: Roles & Activities - 6

### KINAC/INSA International Symposium



# IV. INSA: Roles & Activities - 7

## KINAC/INSA 1<sup>st</sup> Intl. Nuclear Security Education & Training







## IV. INSA: Roles & Activities - 7

### KINAC/INSA 2<sup>nd</sup> Intl. Safeguards Education & Training Course







## IV. INSA: Roles & Activities - 7

2<sup>nd</sup> Intl. Safeguards Education & Training Course – NPP Visit







## **IV. INSA: Roles & Activities – 7 KINAC/INSA International Security and Safeguards Training Courses**

- **Theme: Fundamentals of Nuclear Security(1) & Safeguards(2)**
- **Date: (1) March 10-14 & June 9-13, 2014**
- **Place: KINAC/INSA**
- **Lecturer: (1) KINAC(Mr. Yoon, Mr. Yoo, Mr. Choe, Mr. Kim, Mr. Go),  
SNL(Mr. B. Berry, Ms. P. Kissock)  
(2) KINAC(Mr. AHN, Mr. JO), PNNL(Mr. John Oakberg,  
Ms. O. Elkhamri), IAEA (Mr. HURT, Mr. RUSSELL)**
- **Invited Countries for Safeguards (12 Countries, Participating Numbers)  
Vietnam(3), Indonesia(3), Philippines(2), Malaysia(3), Myanmar(3),  
Thailand(2), Mongolia(3), Saudi Arabia(1), Algeria(2), Egypt(2), Jordan(3),  
UAE(2), Japan(Observed, 1)**
- **Site Visit: Exercise in INSA SETT (1), Visit of Hanbit NPP (2)**

## IV. INSA: Roles & Activities - 8

### Education & Training Needs Survey and Bilateral Cooperation

#### ❖ NEA, Mongolia



#### ❖ VARANS, Vietnam



#### ❖ MOST, Myanmar





## IV. INSA: Roles & Activities - 8

### Education & Training Needs Survey and Bilateral Cooperation

#### ❖ BAPETEN(Nuclear Energy Regulatory Agency), Indonesia



#### ❖ PNRI, Philippine





## V. Prospective

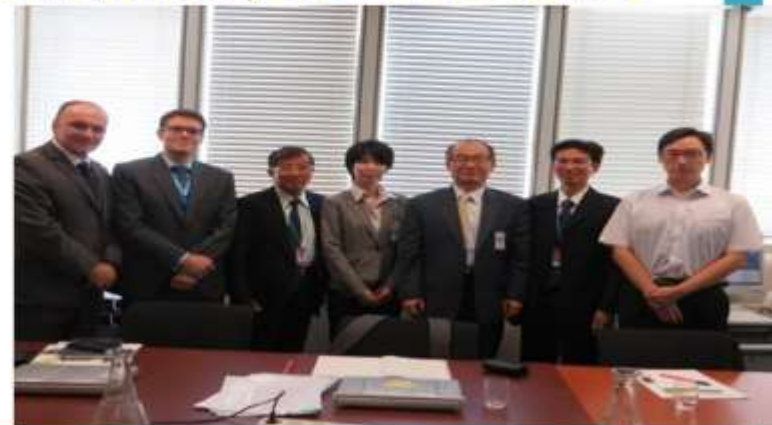
- **Cooperation among COEs of the ROK-China-Japan**
  - **Regular Meetings with IAEA** (Vienna, Feb. & August)
  - **Sharing of Course Modules** (INSA - ISCN)
  - **Support of Lecturer** (INSA -> ISCN in Security & Safeguards)
  - **Sending Observers** (INSA – ISCN Mutual Exchange)
  - **Setting a Governmental Cooperation Framework:**  
ROK(INSA)-China(SNSTC) on Exchanges of Lecturer and Courses for International Education/Training on Nuclear Security at the 11<sup>th</sup> ROK-China Annual Nuclear Technology Cooperation Meeting on May, 2014 in Beijing
  
- **Cooperative Situation & Harmonization**
  - **23% of Nuclear Power Plant of the world located in Northeast Asia**
  - **Common Interest on 3S:** Geographical Proximity
  - **Rapid Development of the China in NPP**(21 Operation, 28 Under Construction) & HRD in Nuclear Safeguards & Security





## VI. Conclusion

- **Peaceful Uses of Nuclear Energy for Peace and Prosperity**
- **Prerequisite Condition**
  - Strengthening of Nuclear Nonproliferation and Security Regime
  - Strengthening of Nuclear Security Culture and Human Capacity Building
  - Cooperation among Regional COEs: Courses & Lecturers
- **Roles of the COEs in Northeast Asia**
  - **Innovator From the Past to Mutual Interdependence**
  - **Internalization of Common Value : Mutual Respect and Confidence, Co-Existence**
  - **Leadership of the USA : Reducing in Capacity Gap and Spreading out to Other Regions**
  - **Regional Mechanism for Dialogue and Cooperation**





# Thank You !

## 감사합니다



2012 서울  
핵안보  
정상회의



Nuclear  
Security  
Summit  
Seoul 2012



한국원자력통제기술원  
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