

Enhanced Transparency and its Harmonization with Safeguards

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Outlines

- ❑ Safeguards and Transparency
- ❑ Korean Transparency Approach
- ❑ Technology Based Transparency
- ❑ Korean Safeguards Education
- ❑ Summary

Broader Safeguards Conclusion

- ❑ No indication of undeclared nuclear material and activities for the State as a whole, and all nuclear material remained in peaceful activities
- ❑ CSA and AP in force and thru necessary verification and evaluation.
- ❑ Transparent to IAEA

Regional BC Status

- ❑ ROK : BC in June, 2008, and
: IS from integrated safeguards from July, 2008.
- ❑ Japan, Indonesia, and Australia : years ago

Issues

- ❑ Meaning of Broader Conclusion to Other States.
- ❑ Regional Transparency and IAEA Role

Korean Transparency Rationale

Four-Point Principle on the Peaceful Use of Nuclear Energy

- ☐ First, Korea reaffirms that it does not have any intention to develop or possess nuclear weapon.
- ☐ Second, Korea will firmly maintain its principle of nuclear transparency, and will strengthen its cooperation with the international community to this end.
- ☐ Third, Korea will faithfully abide by international agreements on nuclear non-proliferation.
- ☐ Fourth, with the confidence of the international community, Korea will expand the peaceful use of nuclear energy.

Announced on Sep. 18, 2004

Korean Transparency Approach

- ❑ Balanced Transparency Approach in Nonproliferation Regimes
 - Safeguards
 - Physical Protection
 - Export Control

- ❑ Bilateral and Multilateral Approach
 - IAEA
 - Neighboring Countries
 - Major Countries

Recent Topics with IAEA

- ❑ Avoid Duplication of Verifications of IAEA and State
- ❑ Joint Use of Safeguards Equipment and Cost Share
- ❑ Joint Development Program for Unattended and Remote Verification
- ❑ Transparency Policy

Information Asymmetry

- ❑ IAEA Information Gathering
 - State Provision
 - Verification and Evaluation
 - Open Sources

- ❑ Such information must remain unknown to States, in keeping with IAEA's obligation to respect the confidentiality of State supplied information.

- ❑ Information Asymmetry between IAEA and States

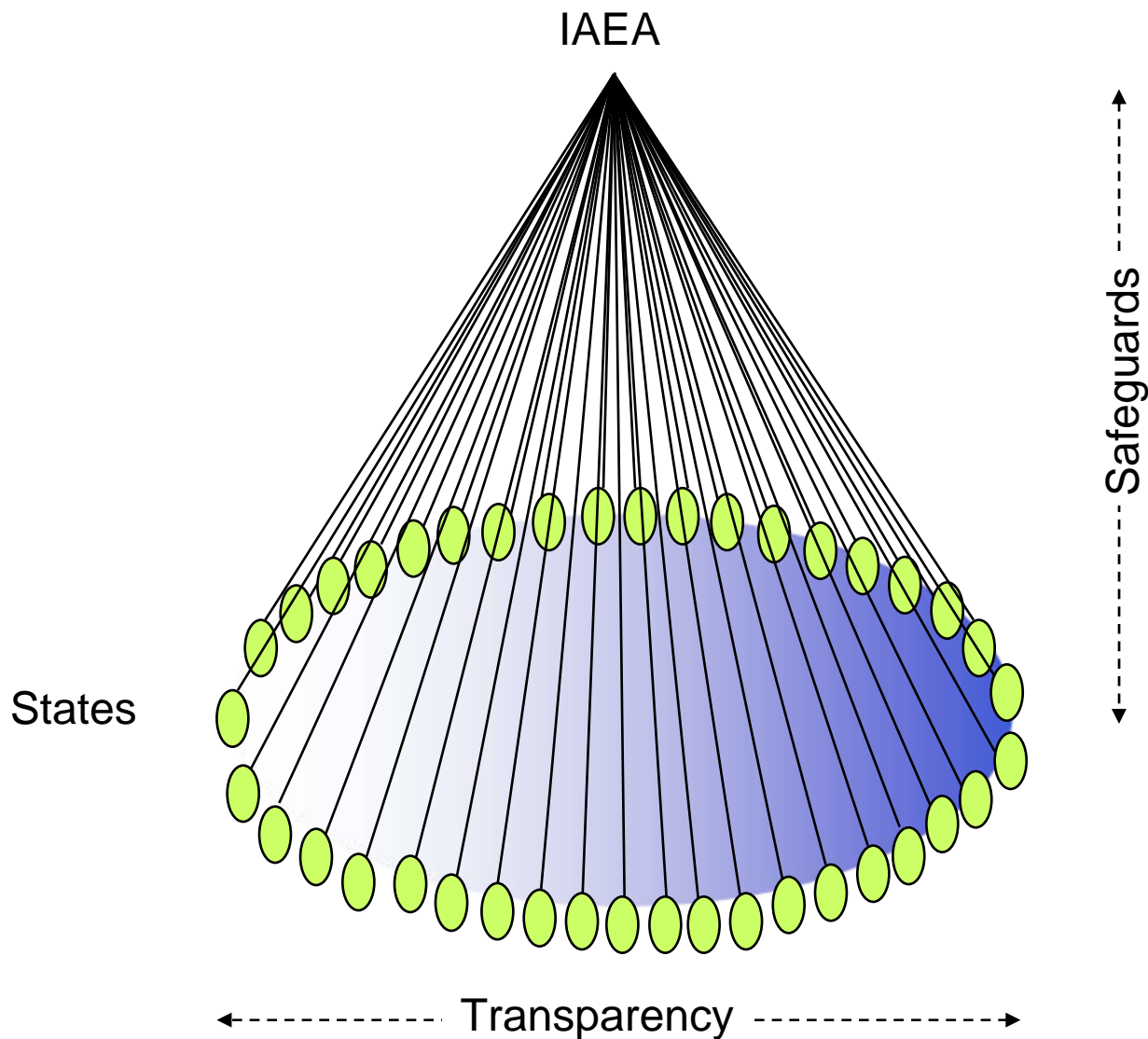
Transparency and IAEA Safeguards

- ❑ Close Involvement of IAEA in Regional Transparency is Important
- ❑ Limited Level of Sharing Information among Consented Countries and IAEA
- ❑ Harmonization of IAEA Safeguards and State Transparency Approach
 - Possible Joint Use of Some Equipment

Safeguards vs. Transparency

Safeguards	Transparency
Trust and Verify	Trust
Openness to IAEA	Openness to States
Statutory Obligation, Regulation	Voluntary, Cooperation, Sharing
Centralized, Vertical Relation	Distributed, Horizontal Relation
Confidentiality	Openness, Confidentiality
Professionals	Professionals and the Public
Criteria	Non-criteria
Highest Form of Transparency	-

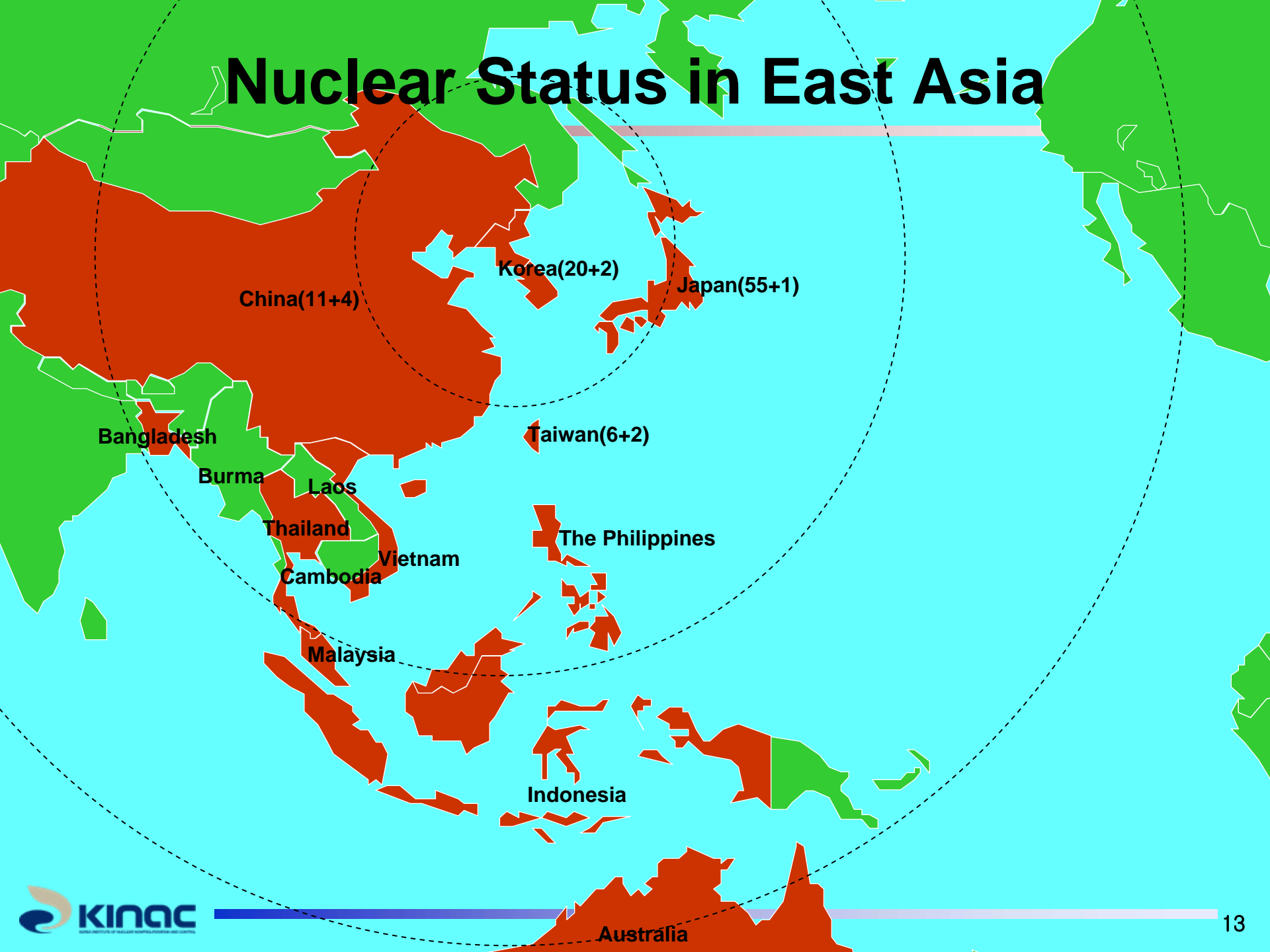
Nonproliferation Cone



Regional Transparency

- ❑ Regional transparency are considered vital in preventing or reducing cross-border tensions and proliferation threats and promoting mutual concerns, arising from nuclear activities.
- ❑ Transparency can be achieved among states concerned through adopting a sustainable approach of voluntary information sharing.
- ❑ Regional transparency in the Asia-Pacific is in early stage.
- ❑ Transparency between regional states needs boost while safeguards is on the right track

Nuclear Status in East Asia



Technology Based Transparency

- ❑ TECATOM : Technical Atomic Energy Community in East Asia
 - An Technology Based Regional Cooperation
 - Higher Level of Transparency
 - Low Intrusiveness
 - Continuous Transparent
 - Relatively Low Cost

- ❑ Technologies : Remote Monitoring, VPN and Mailbox.
 - Remote Monitoring transmits (Near) Real-time Images of Nuclear Activities
 - Mailbox provides Regular Declarations
 - IAEA Safeguards Verification Technology
 - Relaxed Criteria based on Voluntary Provision
 - Experience of Korea, Japan and US

Regional Efforts

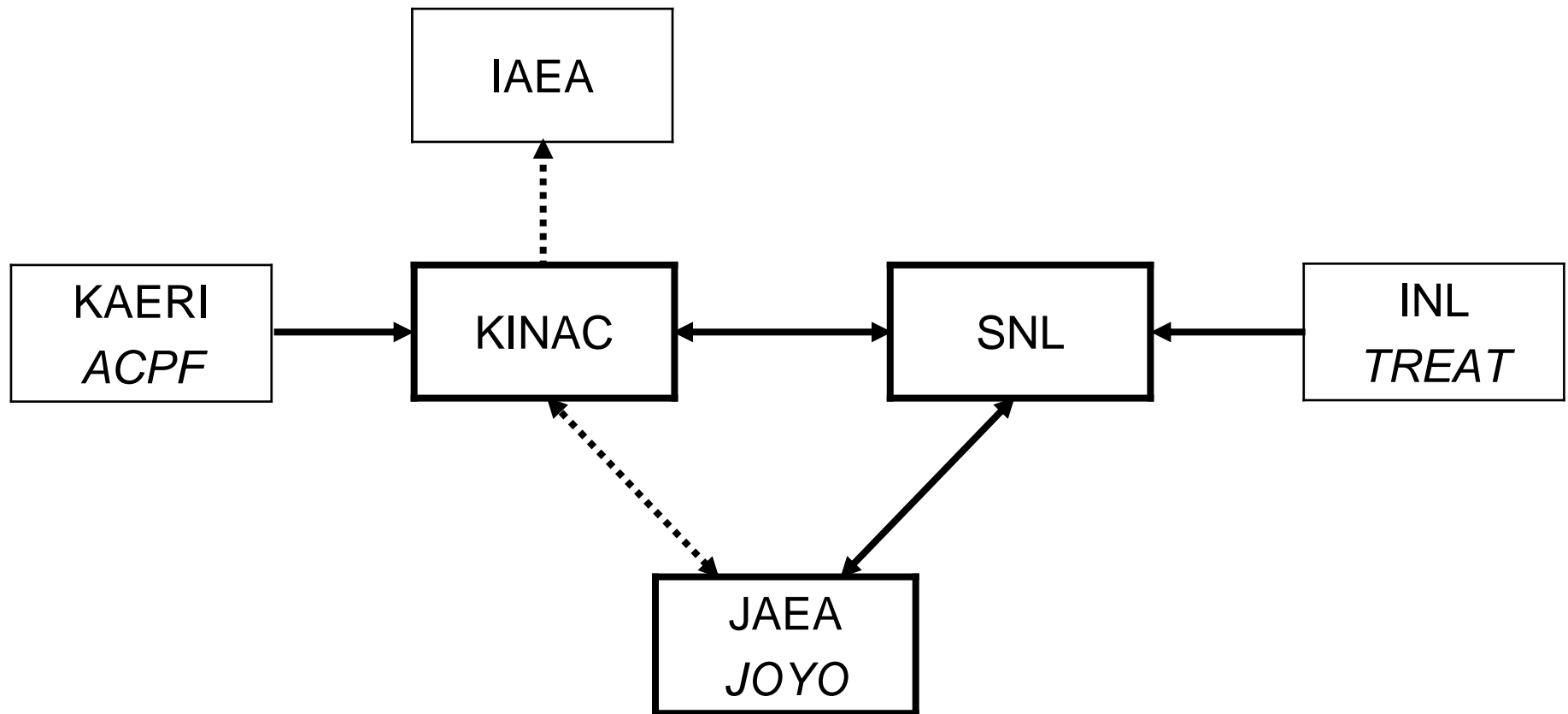
- ❑ Korea, Japan and US have worked for last 10 years
- ❑ Very Slow Progress

- ❑ Korea-US Frame
 - Between KINAC & ACPF of KAERI, Korea and SNL & TREAT of INL, US
 - Remote Monitoring / Virtual Private Network

- ❑ Japan-US Frame
 - Between JAEA/JOYO, Japan and SNL, US
 - Remote Monitoring / Virtual Private Network

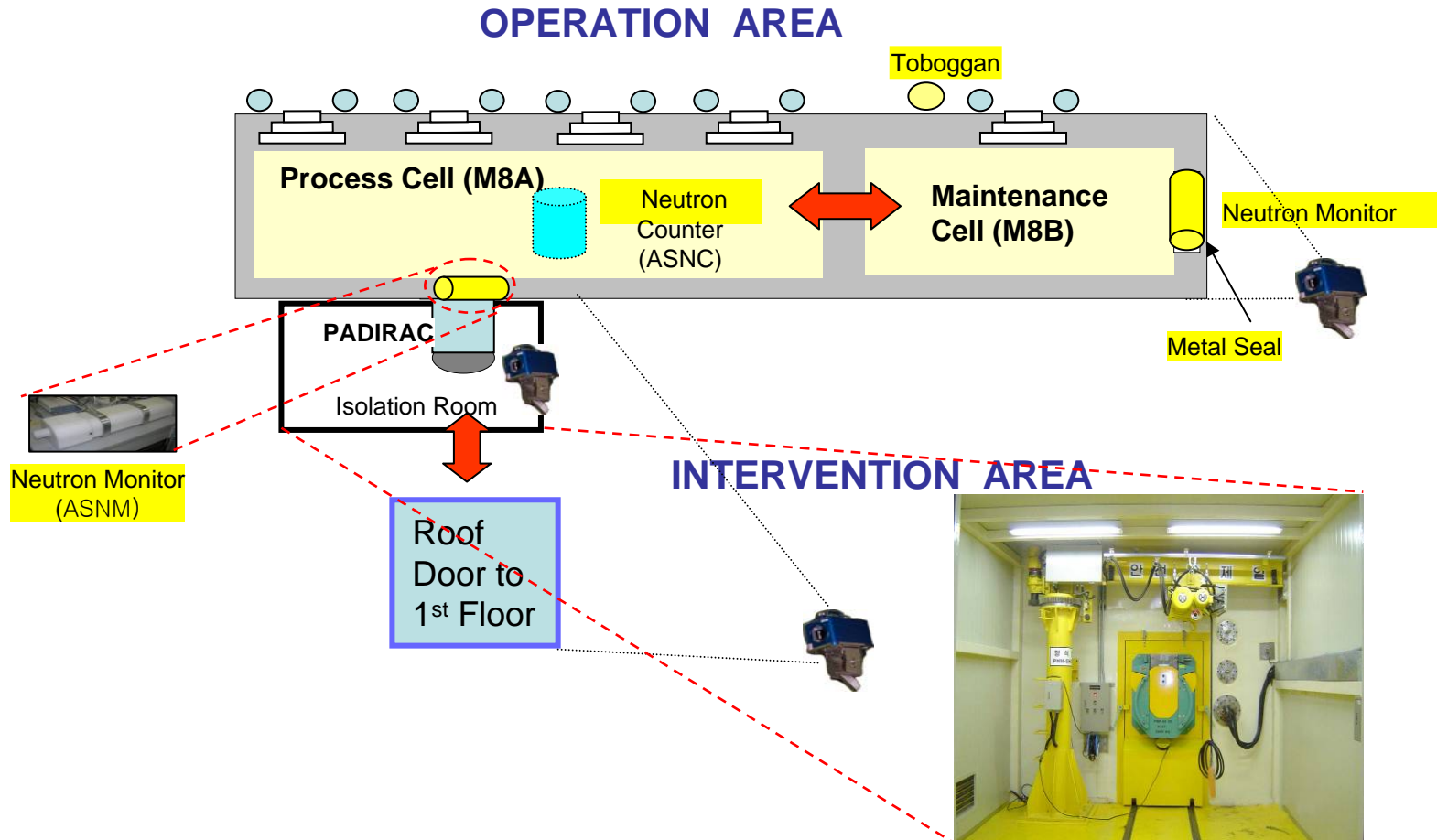
- ❑ Korea-Japan Frame
 - Between KINAC, ACPF of KAERI and JAEA, JOYO, Japan
 - Under Negotiation for Exchanging Camera Images

Scheme



Korean Application

ACPF (Pyro Electroreduction Test Facility) at KAERI



Camera Images



Isolation Room



Maintenance room



Door to 1st Floor

Education Programs

- ❑ No Structured Program for Safeguards and Physical Protection at University Level
 - Several Approaches but not Mature
 - Costly Investments, especially for Degree Program
 - Limited Demand (Job Market) for Graduates
 - Diverse Prior Experience for Safeguards and Physical Protection
 - Possible Recruit Experienced Professionals in Nuclear Industries, and Train
 - Expansion of Fuel Cycle Program may Impact Human Capital Requirements, however, Reactors may do Little

Material Accounting for and Control Education Programs

- ❑ To Foster Awareness of Safeguards Obligations for Safeguards related Workforce of Operators
- ❑ Legally Obligatory
- ❑ Two Courses
 - Course for Fuel Cycle Researchers of Operators
 - Project Leaders of Fuel Cycle Research
 - Annually first year 8 hrs and following year 4 hrs
 - Curriculum : NPT, International Safeguards and Obligations, National Safeguards Policy and Legal Base, Additional Protocol, Export Control

Material Accounting for and Control Education Programs

- Course for Safeguards Staff of Operators
 - Nuclear Material Handling and Safeguards Staff
 - Annually first year 16 hrs and following years 8 hrs
 - Curriculum : Researcher Course Curriculum +
National Inspection,
Material Accountancy Report

Summary

- ❑ ROK has strong Commitment to Transparency.
- ❑ Regional Transparency is still Important in Integrated Safeguards.
- ❑ IAEA Involvement in Regional Transparency is important
- ❑ Harmonization with IAEA Safeguards is essential.
- ❑ Major Nuclear Countries in Region should play a Role in Enhancement of Transparency.
- ❑ Technology based Transparency is an effective and consistent form to Regional Transparency.