

The Role of NMCC in Japanese SSAC

**THE 1st APSN MEETING
Denpasar, INDONESIA
June 2 - 4, 2010**

**Kaoru Naito
President
Nuclear Material Control Center**



Outline

1. Introduction

- Current Japanese SSAC
- Major Nuclear facilities
- NMCC Outline
- Location & Organizations

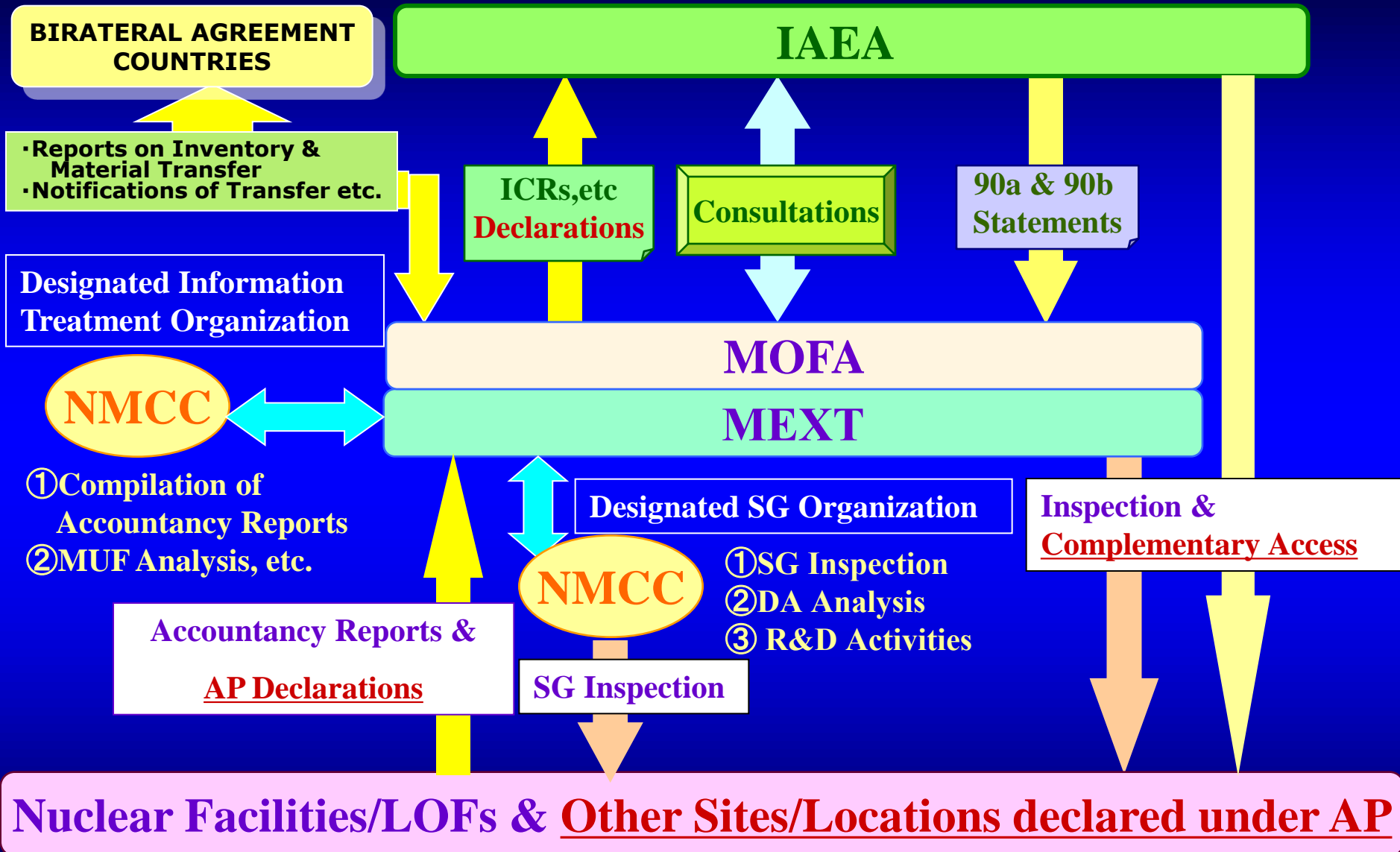
2. Major Functions

3. Recent Developments

4. Summary

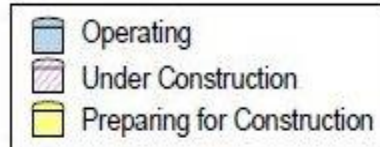
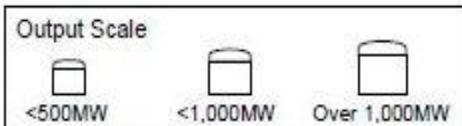
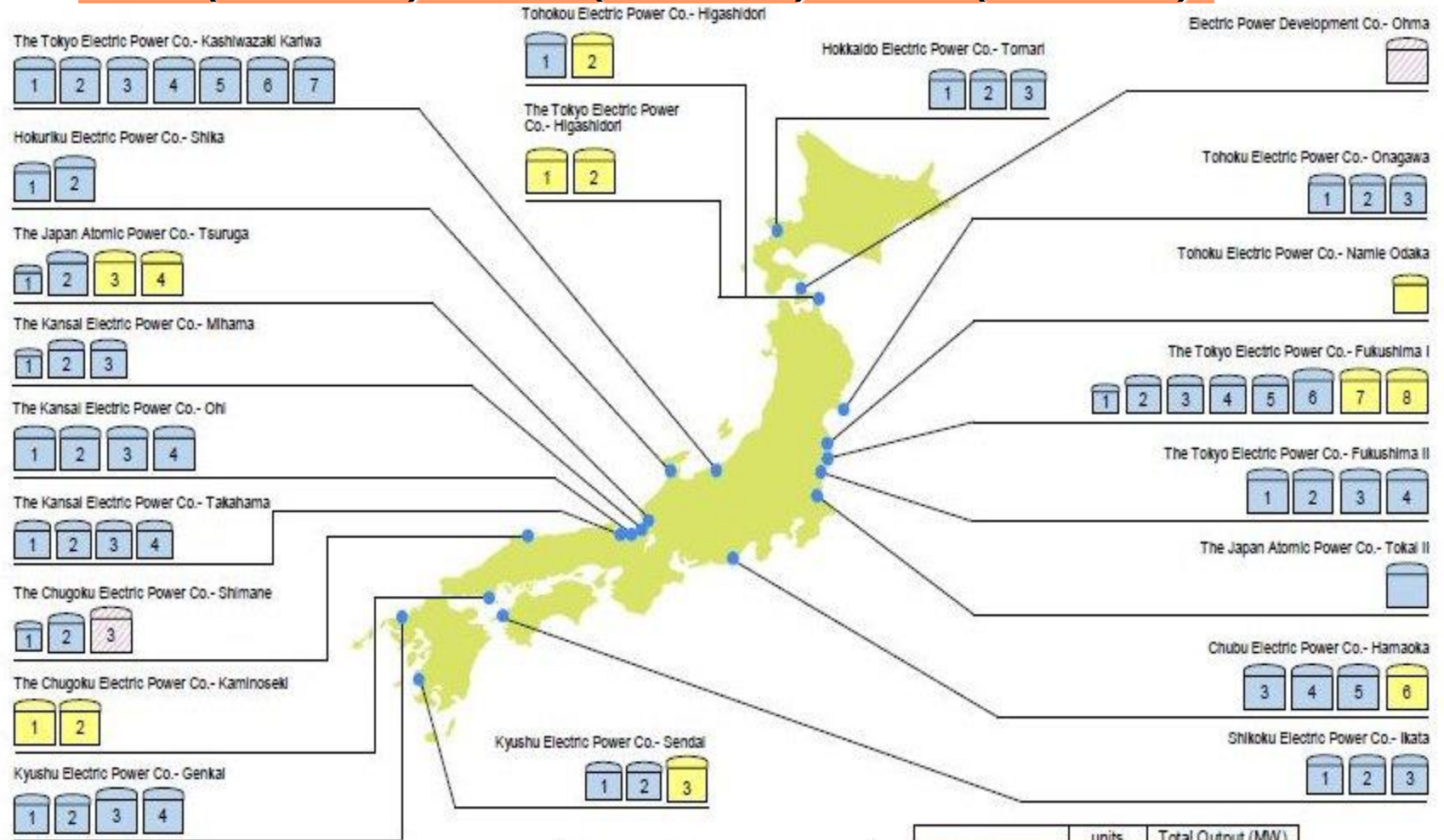


Current Japanese SSAC



Nuclear Power Plants in Japan

LWR(54 units)=BWR (30 units)+PWR (24 units) (as of the end of 2009)



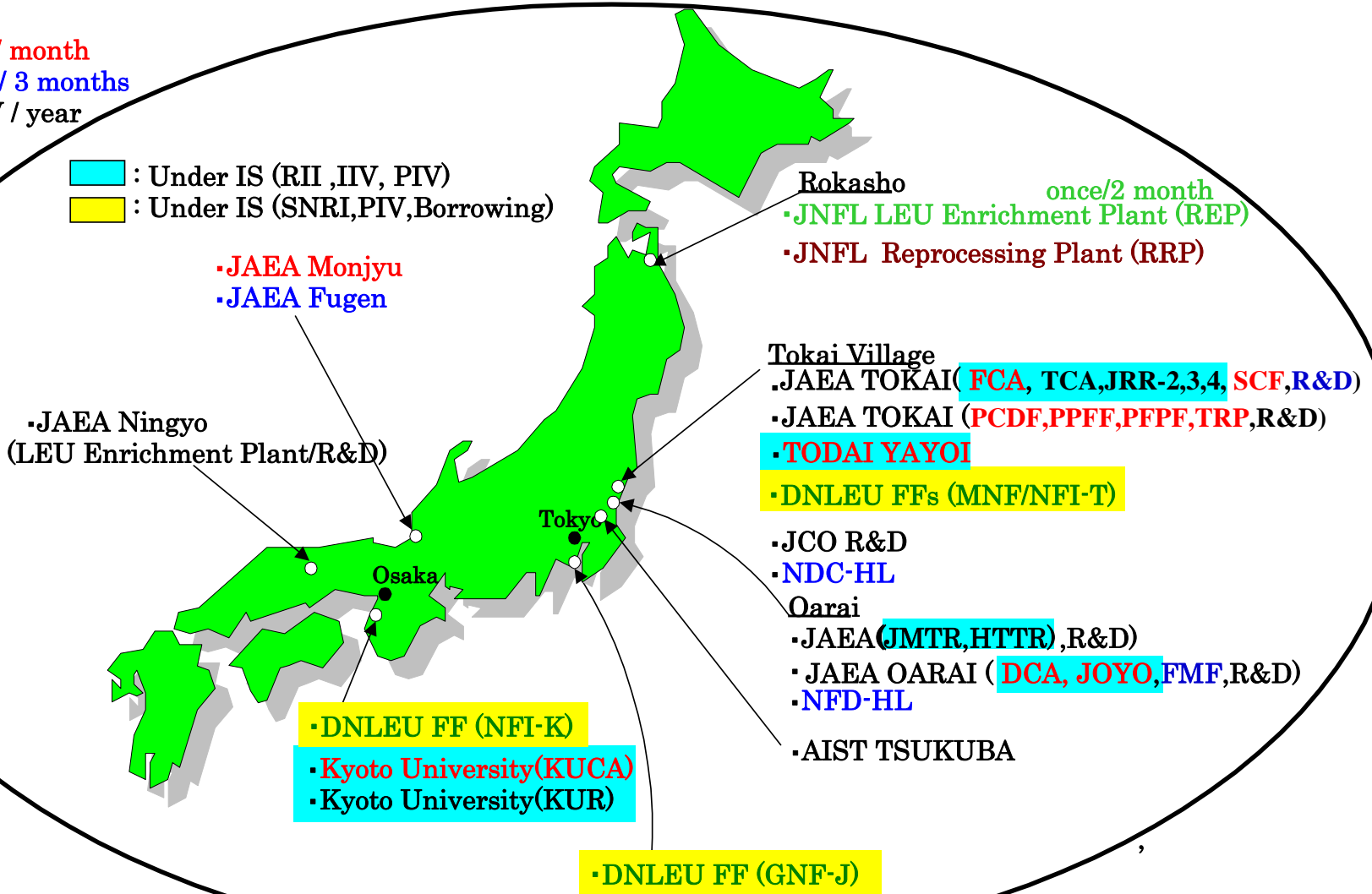
	units	Total Output (MW)
Operating	54	48,847
Under Construction	2	2,756
Preparing for Construction	12	16,552
Total	68	68,155

(Note) End of Operation: The Japan Atomic Power Co. - Tokai (March 31, 1998) / Chubu Electric Power Co. - Hamaoka reactors 1 and 2 (January 30, 2009)

Major Nuclear Facilities in Japan

*red : IIV / month
 *blue : IIV / 3 months
 *black: PIV / year

 : Under IS (RII ,IIV, PIV)
 : Under IS (SNRI,PIV,Borrowing)



•JAEA Monju
 •JAEA Fugen

•JAEA Ningyo
 (LEU Enrichment Plant/R&D)

•DNLEU FF (NFI-K)
•Kyoto University(KUCA)
•Kyoto University(KUR)

Rokasho once/2 month
 •JNFL LEU Enrichment Plant (REP)
 •JNFL Reprocessing Plant (RRP)

Tokai Village
 •JAEA TOKAI(FCA, TCA, JRR-2,3,4, SCF, R&D)
 •JAEA TOKAI (PCDF, PPF, PPF, TRP, R&D)
•TODAI YAYOI

•DNLEU FFs (MNF/NFI-T)

•JCO R&D
 •NDC-HL

Oarai
 •JAEA(JMTR, HTTR), R&D
 •JAEA OARAI (DCA, JOYO, FMF, R&D)
 •NFD-HL

•AIST TSUKUBA

•DNLEU FF (GNF-J)

NMCC Outline

- ◆ **Established in 1972;**
 - **“Designated Information Treatment Organization” in 1977;**
 - **“Designated Safeguards Organization” in 1999;**
- ◆ **Number of Personnel : some 170 ;**
- ◆ **Budget : \3.06 billion (FY2010);**
- ◆ **Qualified SG inspectors: some 80;**
- ◆ **Safeguards Analytical Laboratories:
Tokai (13 analysts) and Rokkasho (18 analysts).**



Nuclear Material Control Center (NMCC)

NMCC HQs and SG Centers in Japan



NMCC Tokyo HQ



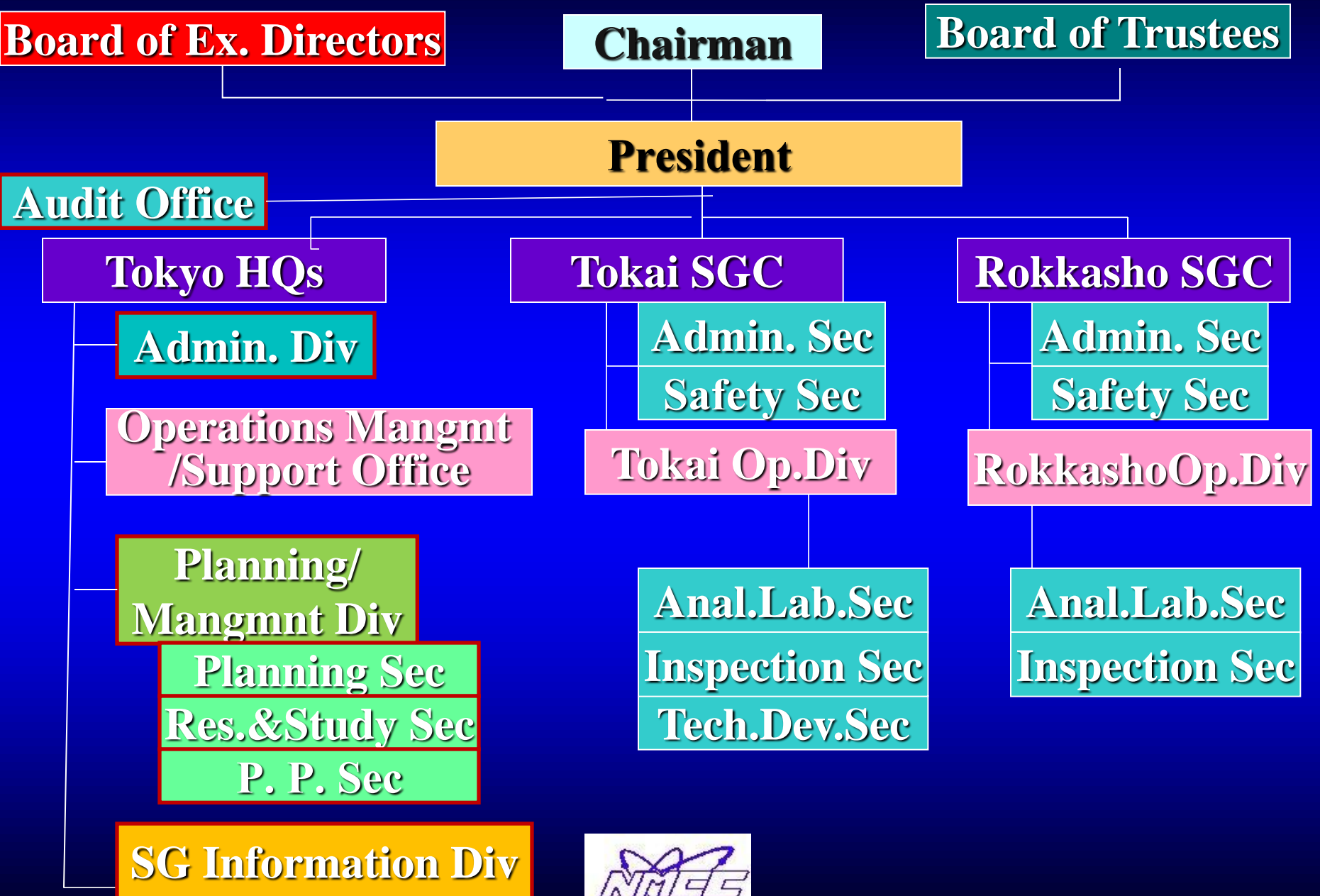
Rokkasho SG Center



Tokai SG Center



NMCC Organizational Structure



2. Major Functions

- ◆ **Information Treatment :**
 - **IAEA: submitting ICRs, MBRs & PILs and AP declarations;**
 - **Bilateral Agreements: submitting inventory lists;**
 - **Statistical analysis support: SRD/MUF analysis, error evaluation, Operator-Inspector paired comparison, sample size calculation, etc.**
- ◆ **Safeguards Inspections, Sample Analysis, etc:**
 - **SG inspections;**
 - **DA sample analysis, C/S record evaluation, NDA equipment calibration/maintenance;**
 - **Research on DA, NDA and other SG technologies, as well as IS, SLA and other SG approaches**



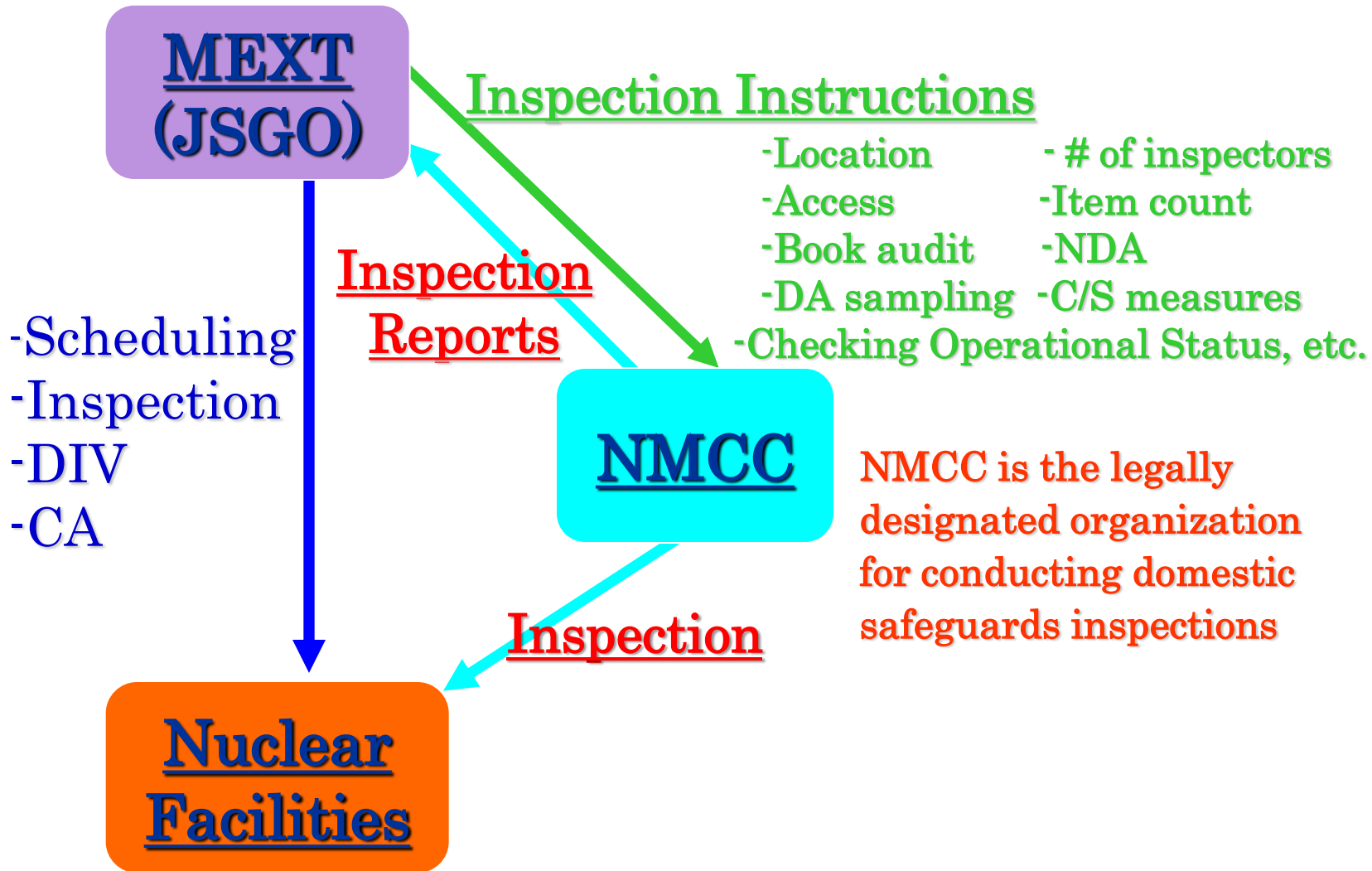
□ **NM App. Audit**

2. Major Functions (Cont.)

- ◆ **Research & Technical Development :**
 - **JMOX safeguards system: SG approach, equipment development;**
 - **Physical protection: overseas study, PP inspection manual, vulnerability tests, etc.;**
 - **Other studies, e.g. LWR w/MOX approach, IS approaches, SLA.**
- ◆ **International Cooperation: KINAC, JASPAS**
- ◆ **Outreach Activities/ Training & Education**
 - **Monthly NMCC News;**
 - **SIR Seminar, SG Seminar, PP Seminar;**
 - **Training Courses on Accountancy Reporting;**
 - **Distinguished Service Award in NM Management.**



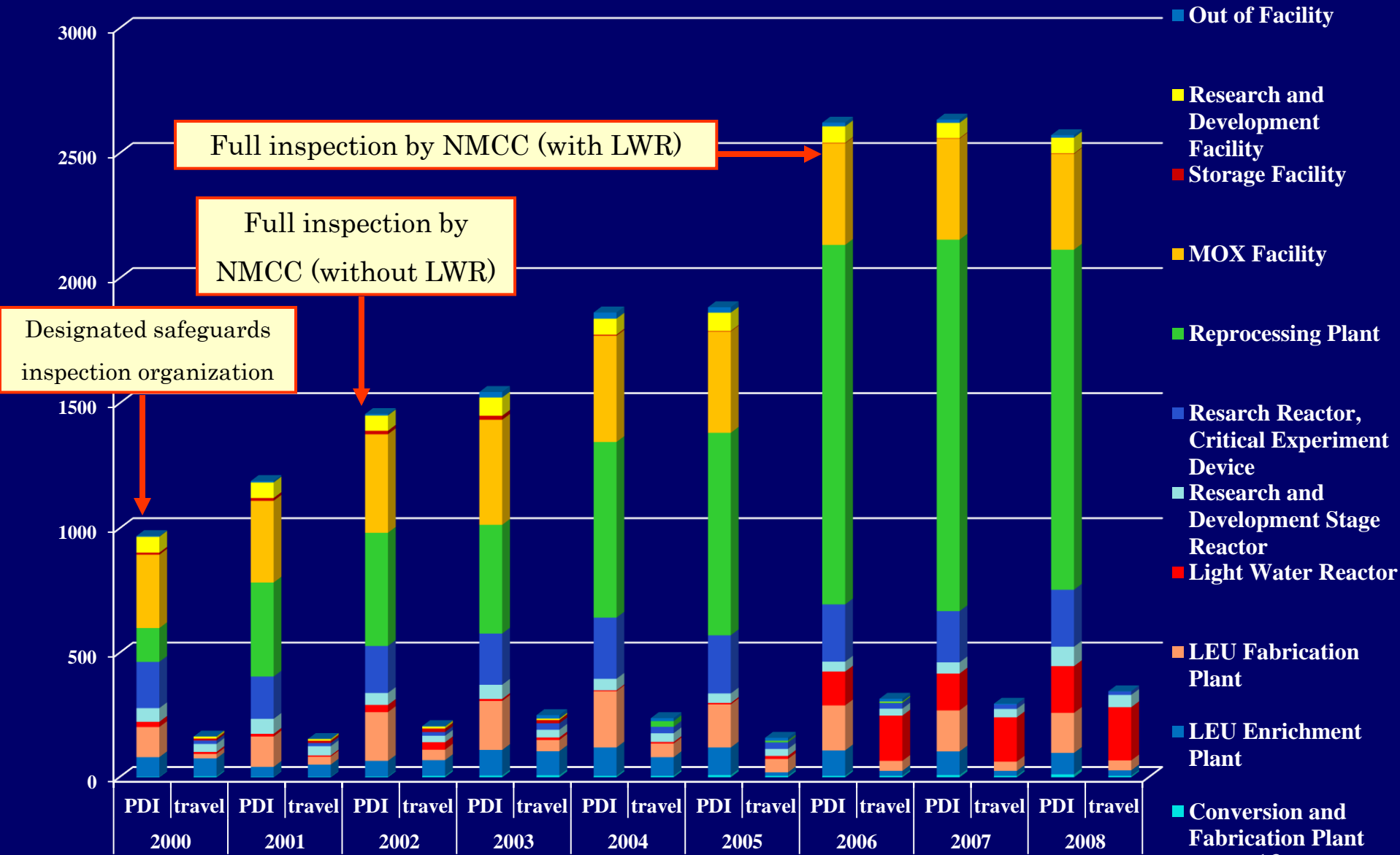
State Inspection Scheme



IAEA & NMCC Inspectors



NMCC's PDIs per Facility Type in Calendar Year

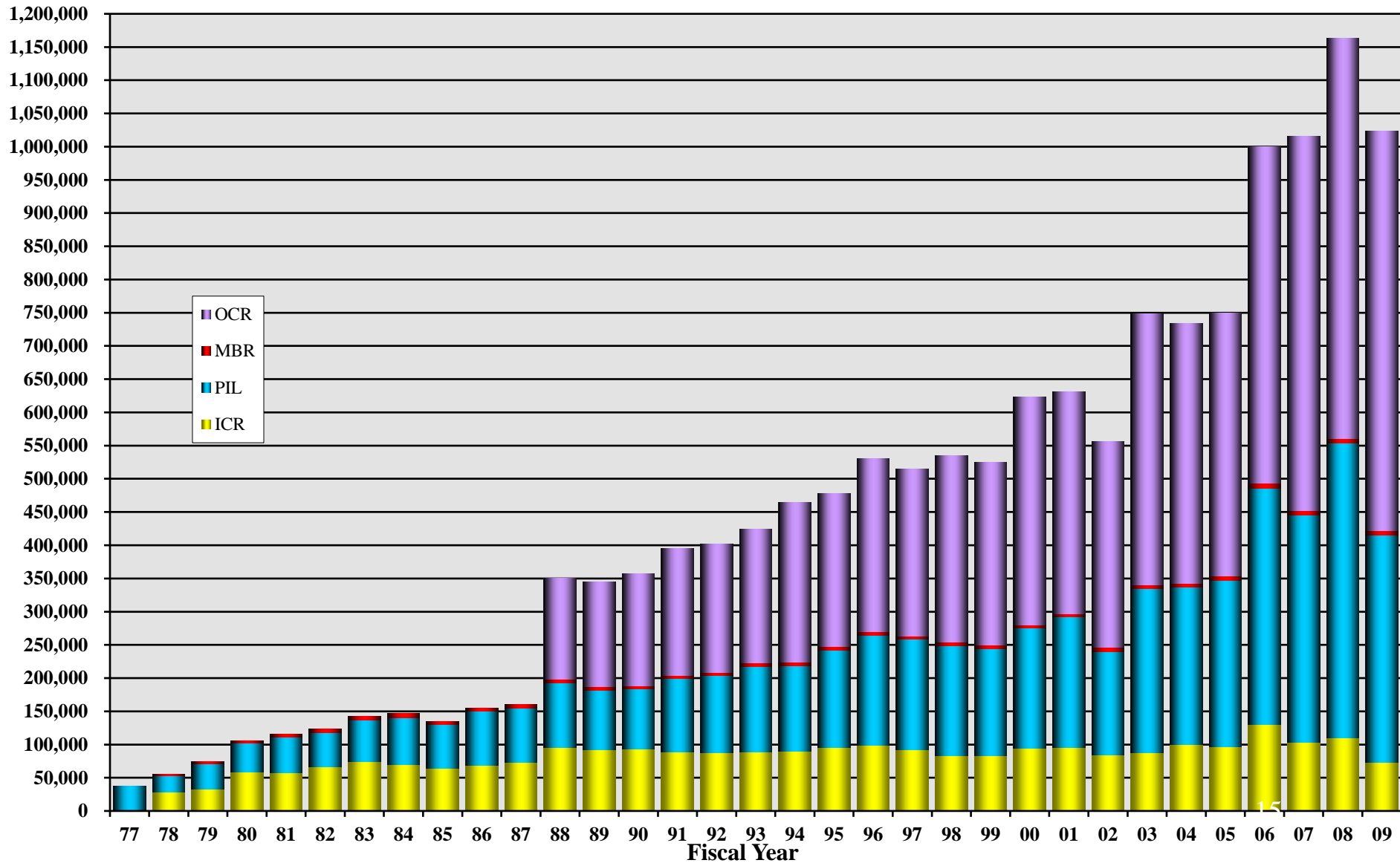


Number of Facilities, Material Accountancy Reports and PDIs in Japan

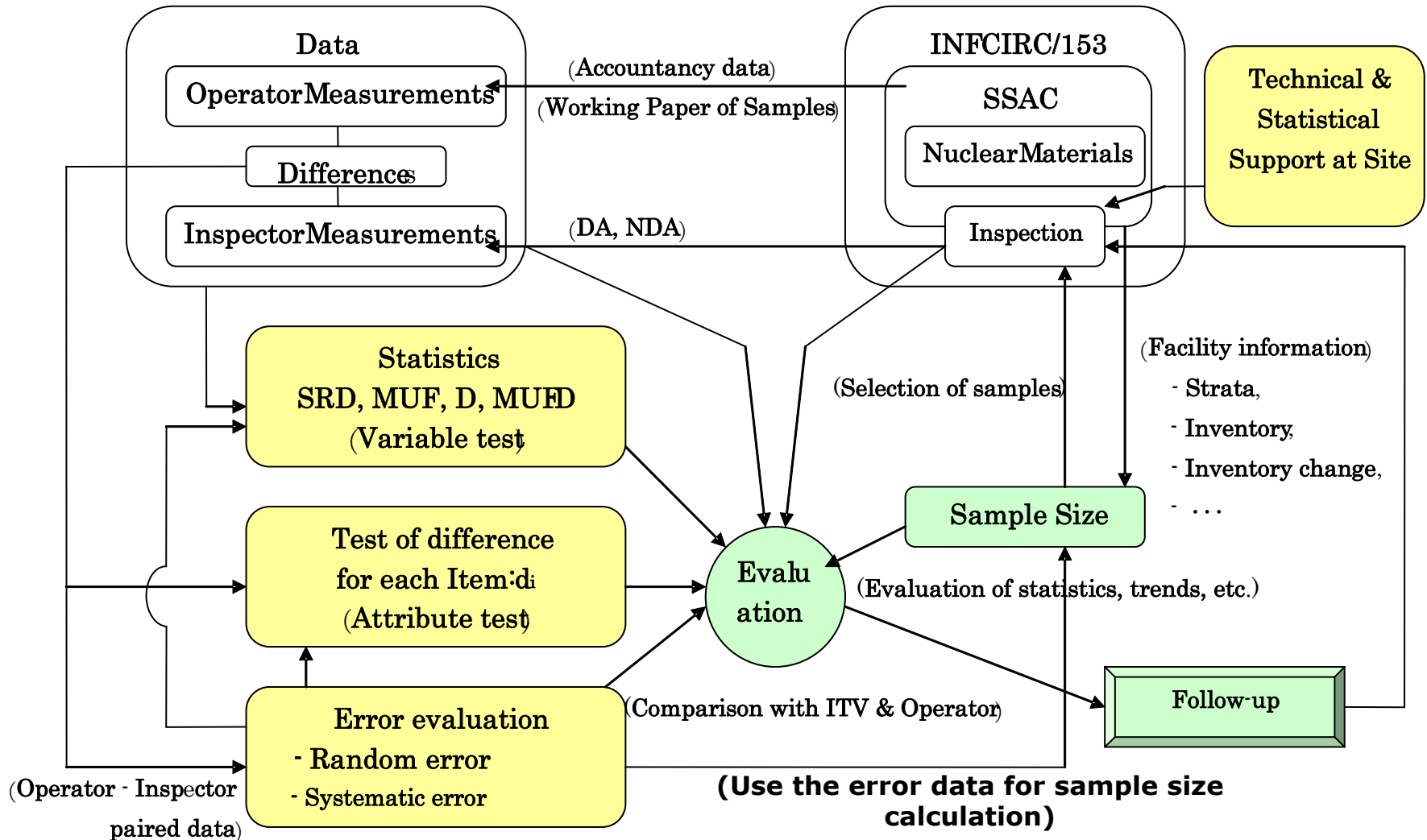
Categories	Number of Facilities and LOFs	Number of Material Accountancy (MBRs,PILs&ICRs)		Persons Day of National Inspection	JSGO	NMCC
		Reports	Data			
Fuel Fabrications	6	402	25,424	272	25	247
Reactors	80	3,687	323,588	564	69	495
Reprocessing	3	1,045	89,785	1,434	74	1,360
R&Ds, LOFs	173	1,877	85,633	493	22	471
Total	262	7,011	524,430	2,763	190	2,573
DIV	-	-	-	112	112	-
CA	-	-	-	21	21	-

As of 31 December 2008

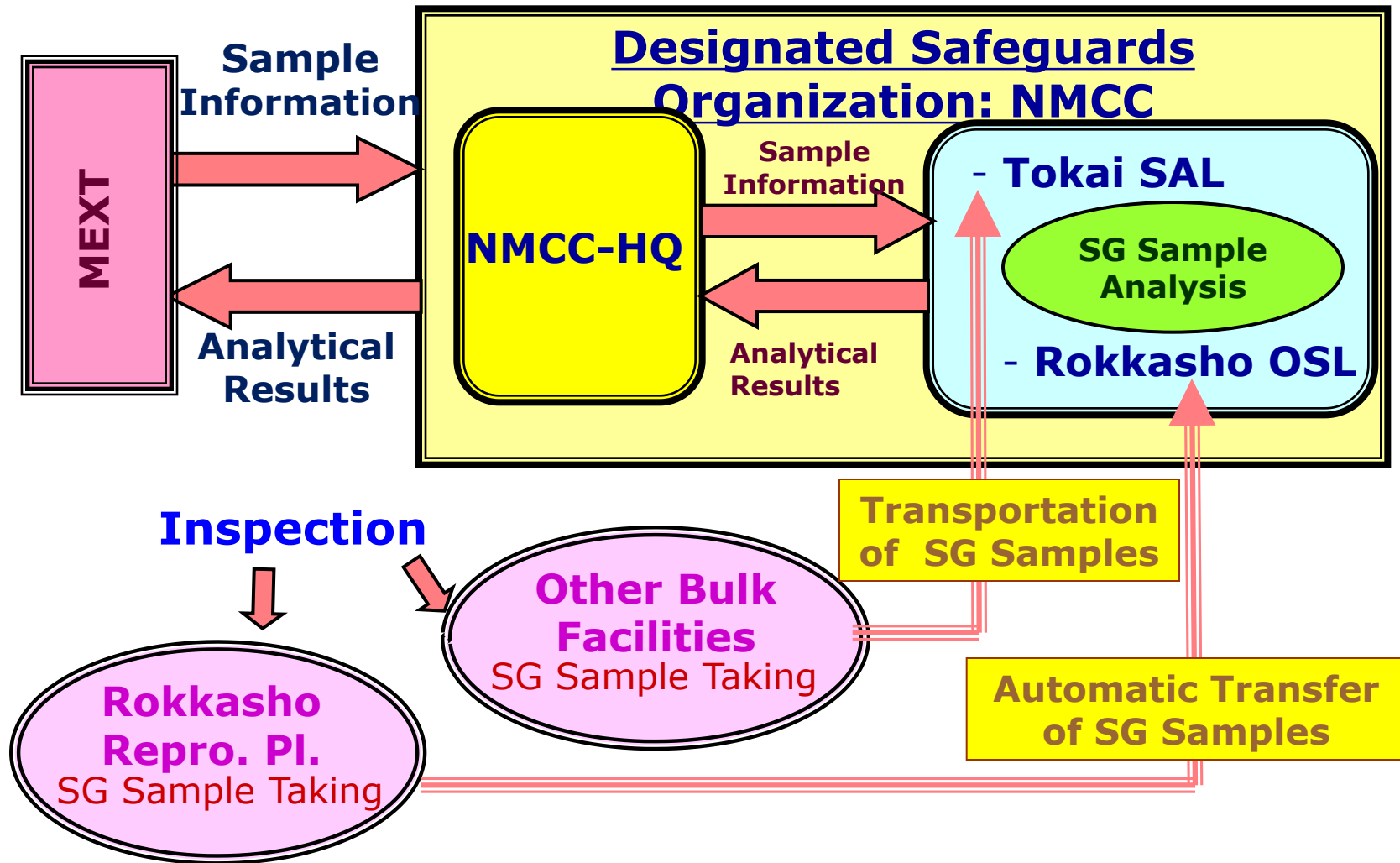
Trend of Processing Accounting Reports: MBRs, PILs, ICRs & OCRs



Statistical Analysis Support by NMCC in Japanese SSAC



Main Flow of SG Sample Analysis (Samples & Related Information)



OSL (On-Site Laboratory) at RRP

RRP



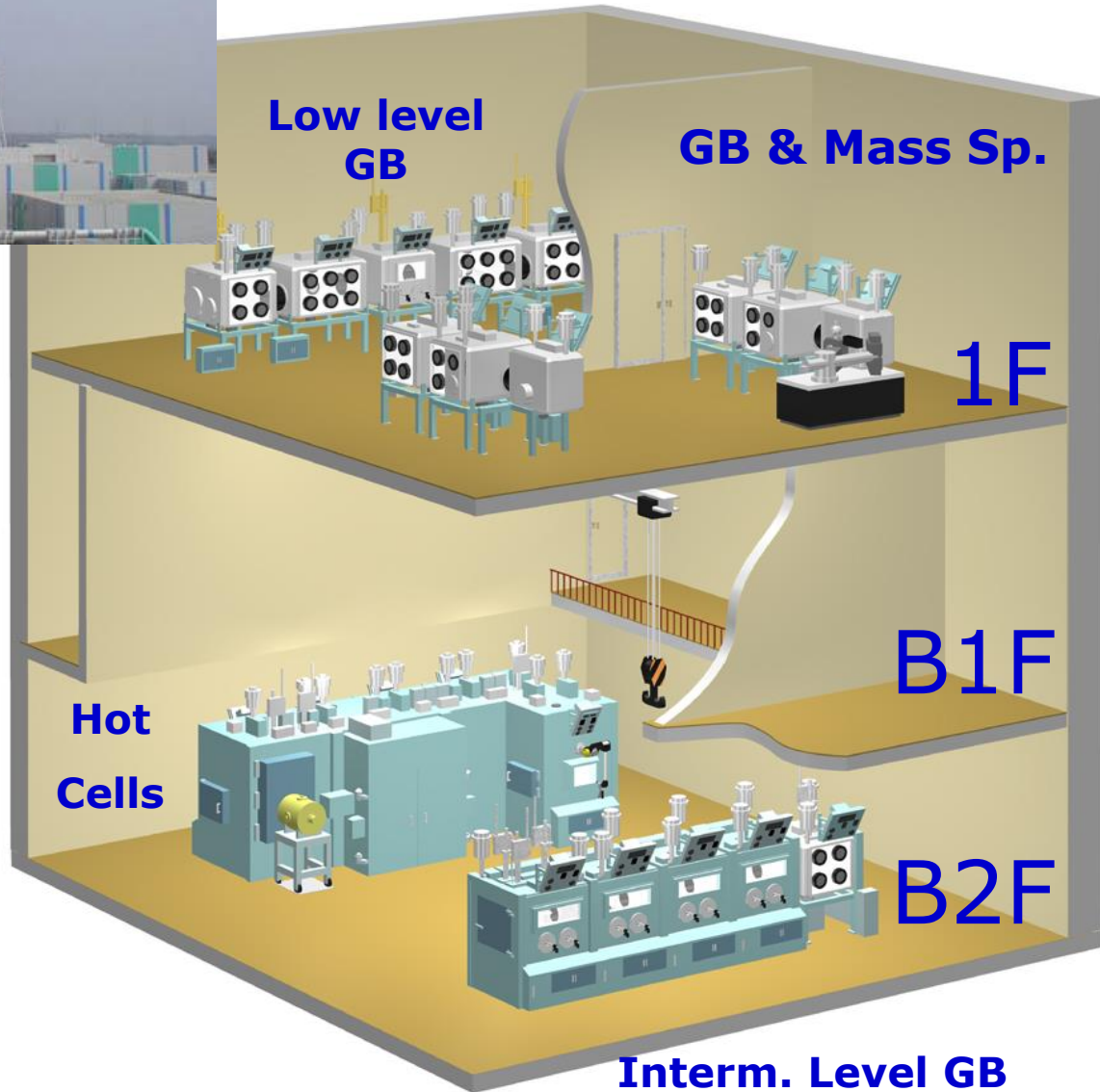
Hot Cells



Gloveboxes & MSs



Cutaway View of OSL



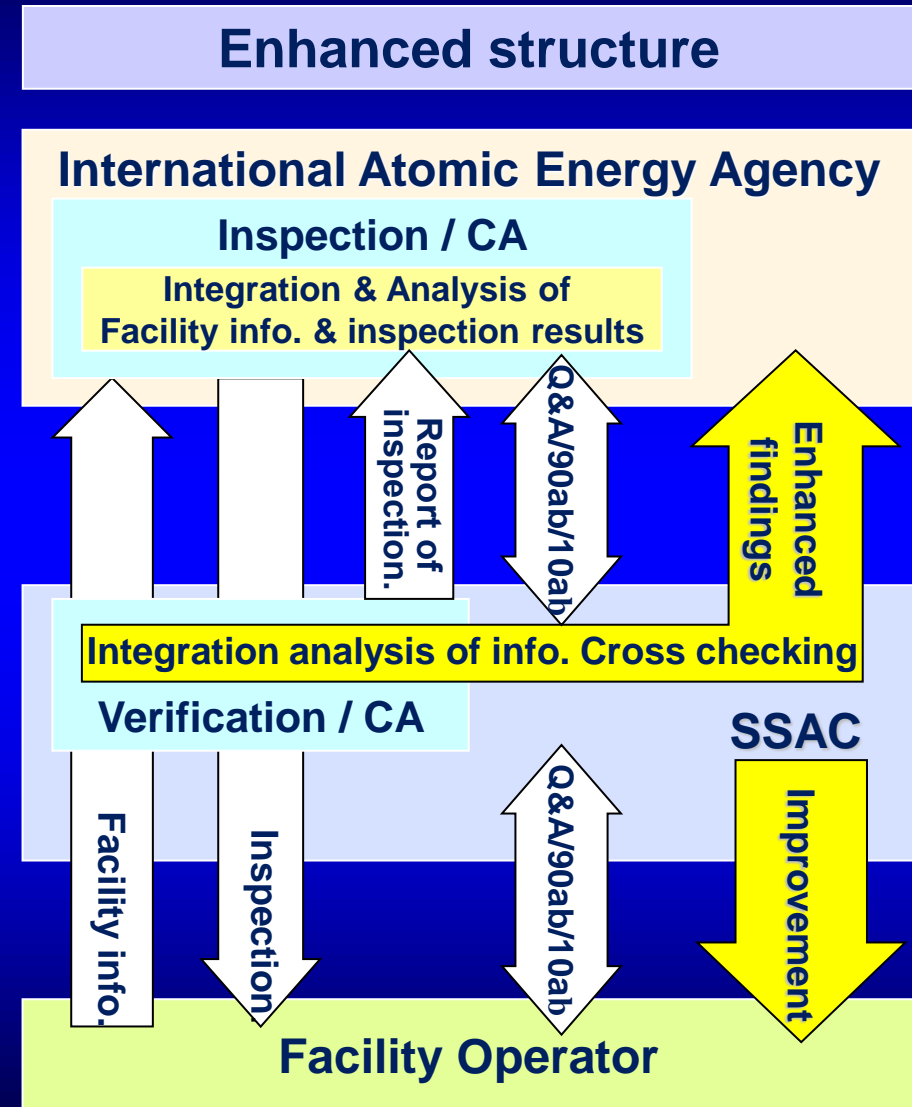
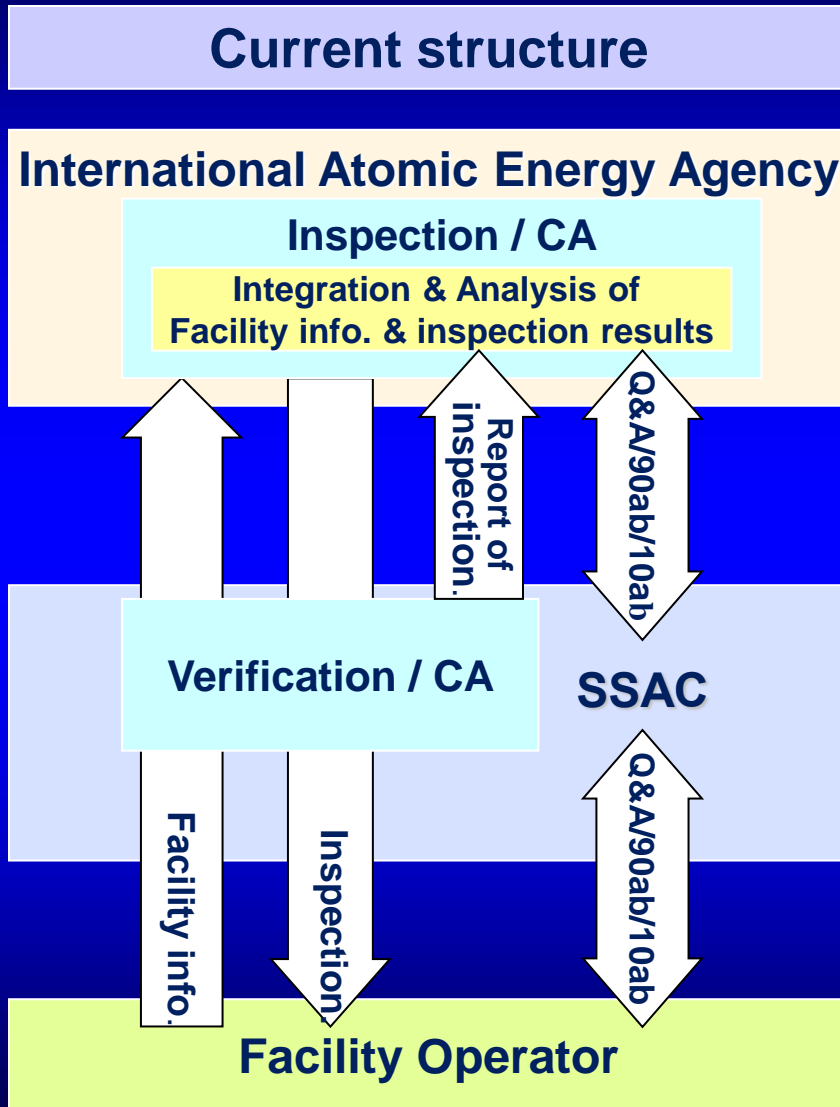
3. Recent Development

- ◆ Information Treatment:
 - Preparations for new bilateral agreements (e.g. Russia, Kazakhstan, ROK);
 - Replacement of host computer;
- ◆ Safeguards Inspections:
 - MOX use at LWRs, Restart of Monju;
 - Field Test of Remote Monitoring;
- ◆ Safeguards Sample Analysis:
 - Revision of ITV, QMS and start of RRP;
 - Waste disposal;
- ◆ R&D and Study:
 - Full MOX Reactor, Site Approach, ISIS-J etc.
 - PP.



ISIS-J

Towards More Effective and Efficient SSAC



4. Summary

- ◆ Under relevant laws and regulations, Japan has established her SSAC to facilitate IAEA safeguards and conduct domestic safeguards;
- ◆ NMCC, established in 1972 as a Public Interest Incorporated Foundation, plays a key role in Japanese SSAC, conducting SG inspections, processing NM accountancy reports, analyzing SG samples, providing statistical analysis support and conducting studies on SG methods & technologies to achieve effective and efficient SG;
- ◆ NMCC also provides outreach and training services;
- ◆ A project has been started to make Japanese SSAC more effective and efficient.

Thank You! Terima Kasih!
谢谢! 고맙습니다! ขอบคุณ! Cám ơn!

