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Japanese Regulatory Activities Addressing Nuclear Globalization

Toshihiro Bannai
 Director, International Affairs Office
 Nuclear and Industrial Safety Agency (NISA), Japan
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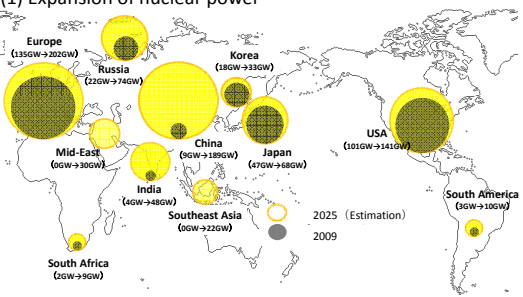
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1. Situation of Nuclear Development in the World

New design reactors are globally deployed...

(1) Expansion of nuclear power



Region	2009 Capacity (GW)	2025 (Estimation) Capacity (GW)
Europe	135	202
Russia	22	74
Korea	18	33
USA	101	141
South America	9	10
China	0	130
Japan	47	68
India	4	49
Southeast Asia	0	22
Mid-East	0	30
South Africa	2	9

Source: Agency for Natural Resources and Energy (ANRE), Ministry of Economy, Trade and Industry (METI).

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3. International Frameworks for Nuclear Safety
Addressing Globalization

- **Deployments of new design reactors are globally planned, especially in newcomer countries.**
- **“Accident anywhere is accident everywhere.” The potential size of “anywhere” is growing fast.**
- **Nuclear safety must internationally be maintained, however, regulatory resources are limited in every country.**



The international community must take effective, efficient and sustainable approaches

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3. International Frameworks for Nuclear Safety
Addressing Globalization (Cont'd)

4 Key Approaches for Effectiveness, Efficiency and Sustainability
– Taking followings approaches comprehensively is crucial –

- i. Global Harmonization and Experience Sharing**
 - MDEP, CORDEL proposal, WGRNR and WENRA
 - IAEA Safety Standards
 - Safety Conventions
 - Other bilateral or multilateral information exchanges
- ii. Conformity Peer Reviews in the International Community**
 - IAEA review services (ex. IRRS, ISR, GRSR)
 - Safety Conventions
- iii. Newcomers' Establishing Safety Infrastructure**
 - Newcomers' active commitment and implementation
 - Promotion of newcomers' participating in abovementioned global activities
 - IAEA assistance programs (ex. RCF, ANSN)
 - Bilateral cooperation especially from vendor countries
- iv. Vendors' Responsibility**

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i. Global Harmonization and Experience Sharing

(a) MDEP

- An initiative taken by national safety authorities to leverage their resources and knowledge for new reactor design reviews, pooling an effective and efficient expert network from each country.
- Japan supports this initiative and has actively participated in its activities including 3 WGs and SGSC:
 - Code & Standards WG
 - Contributing as vice-chair, developing hierarchy of harmonized document,
 - Vendor Inspection WG
 - Leading comparison of existing QA criteria toward globally common QA criteria,
 - Digital I&C WG
 - Leading developing Common Position 3 (software verification and validation).

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i. Global Harmonization and Experience Sharing (Cont'd)

(a) MDEP (Cont'd)

- MDEP has successfully and steadily been bearing fruits, especially:
 - Generic Common Positions from DICWG,
 - Deepened discussion on hierarchy of harmonized documents with participation of SDOs and CORDEL in CSWG,
 - Development of the framework on the Safety Goal of new reactors by SGSC.
- Japan will continue its contribution toward effective and practical harmonization of new reactor design reviews expecting the outcomes to be reflected to the future IAEA Safety Standards.

i. Global Harmonization and Experience Sharing (Cont'd)

(b) CORDEL proposal

- Meaningful suggestions to effectively maintain global nuclear safety mainly by regulatory harmonization, encouraging MEDP.
- A joint effort of industry, governments and regulators is crucial as proposed.
- Especially, the following activities proposed to be done by the industry would greatly contribute toward maintaining global nuclear safety.
 - Harmonizing industry standards and requirements
 - Expanding the use of existing feedback-sharing mechanisms during construction and operation across utilities and countries
 - Establishing mechanisms for long-term design knowledge management
 - Developing design-specific training material for utilities and regulators
 - Sharing information and expertise relevant to adapting the regulatory framework with regulators

i. Global Harmonization and Experience Sharing (Cont'd)

(c) WGRNR

- A working group examining and promoting experience sharing on the siting, licensing and regulatory oversight of new reactors.
- The WG activities could greatly help every new reactor program especially in the construction phase to be safely and steadily regulated based upon globally shared experience.
- Collaboration with MDEP is making robust outcomes.

(d) WENRA

- The involved regulators take a common approach in modeling their national regulations on these reference levels.
- It could be a model for international voluntary cooperation of regulators aiming for a greater harmonization of safety requirements in order to achieve a consistent high level of safety worldwide, respecting the members' sovereignty and benefiting from industry input.

ii. Conformity Peer Reviews

(a) IAEA review services

- Effective implementation of the IAEA Safety Standards is essential for ensuring a high level of safety.
- IAEA provides useful review services, e.g. IRRS, GRSR, ISR, through which conformity to the IAEA Safety Standards and globally sharing good practices are promoted.
- Further promoting such services as well as developing the IAEA Safety Standards is essential.
- Especially, preparing customized services for the newcomers may further enhance the effectiveness.

ii. Conformity Peer Reviews (Cont'd)

(2) Safety Conventions

- Both of Conventions:
 - Convention on Nuclear Safety
 - Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- aim to legally commit participating States to maintain a high level of safety by setting international benchmarks to which States would subscribe.
- These legal frameworks may also be able to play an important role to maintain global safety regarding new design reactor installation especially in newcomer countries.
 - Improving their review processes, e.g. promoting its transparency, could enhance effectiveness.

iii. Assistance for Newcomers

(a) Bilateral Cooperation

- Many of new design reactors are being deployed in the newcomers and rapidly economically growing countries.
- Establishing and enhancing the safety infrastructure in such countries is crucial.
- Japan is providing assistance programs to the regulatory personnel and the licensees' staff in charge of safety administration in such countries.

	○Trainees from Reg. Organizations			○Trainees from Licensees			
	2007	2008	2009	2007	2008	2009	
China	7	4	10	China	56	56	45
Vietnam	5	14	29	Vietnam	16	16	8
Seismic Safety Course	-	-	25	Total	72	72	53
Total	12	18	64				

iii. Assistance for Newcomers (Cont'd)

- (b) Multilateral Cooperation – Regulatory Cooperation Forum
- RCF is established to provide effective coordination and collaboration among requesting IAEA Member States and those asked to provide regulatory support based on the agreement of the Member State regulatory bodies at the 2009 Conference on “Effective Nuclear Regulatory Systems” in Cape Town.
 - RCF aims to assist newcomers to establish their regulatory infrastructure through effective and efficient international cooperation.
 - Japan led a test case mission to Jordan, and will continue to make a contribution.

iii. Assistance for Newcomers (Cont'd)

- (b) Multilateral Cooperation – Asian Nuclear Safety Network
- Regional cooperation frameworks like ANSN can be quite effective tools to promote newcomers’ actively participating in international cooperation programs, sharing experiences as well as disseminating globally harmonized regulatory practices.
 - As for ANSN, some subgroups are even being led by developing countries together with developed countries, through which capacity building is strongly boosted.
 - Experiences accumulated through ANSN activities for more than 10 years can be utilized in RCF and other regional cooperation frameworks.

iv. Vendors’ Responsibility

- As stated in the CORDEL proposal, global nuclear vendors should play important roles in maintaining global nuclear safety together with governments and regulators.
- “Safety” shall not be justifiably discounted; global nuclear vendors shall always attend to this commandment.
- Global nuclear vendors’ actively exercising initiatives which promote such commandment (or some codes of conduct) are strongly expected.

4. Conclusion

◆ To maintain nuclear safety in globalized market with limited regulatory resources, 4 approaches are essential regarding effectiveness, efficiency and sustainability.

- i. Global Harmonization and Experience Sharing ,
- ii. Conformity Peer Reviews in the International Community,
- iii. Newcomers' Establishing Safety Infrastructure,
- iv. Vendors' Responsibility.

◆ Japan will promote these approaches together with other peer countries and international organizations, especially through:

- ✓ Upgrading Japanese regulatory practices to globally harmonized ways.
- ✓ Positive participation in strengthening the global nuclear safety regime and activities (Safety Conventions, IAEA and OECD/NEA's programs)
- ✓ Contribution and participation in RCF and ANSN to effectively and efficiently facilitate newcomers' safety infrastructure establishment
- ✓ Strengthening NISA and JNES's functions of conducting assistance programs for newcomers countries



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Thank you for your attention!
