



What we did in relation with Fukushima Accident in Korea

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I. How to respond to Fukushima Accident

- ❑ Activation of Emergency Response Team
- ❑ Crisis communication with public
- ❑ Strengthening Environmental Radiation Monitoring and public release
- ❑ Special Safety Inspection on Nuclear Facilities

□ Special Safety Inspection by RB

- ❖ Special safety inspection was performed to 21 operating NPPs and 1 research reactor.
- ❖ Unlikely worst case scenario was considered including
 - *Extreme natural disaster (earthquake + tsunami)*
 - *Loss of off-site power and failure of emergency DGs (SBO)*
 - *Severe accident*

□ Objective of special safety inspection

- ❖ how well the NPPs are designed against natural disasters;
- ❖ how well they can mitigate the severe accident;
- ❖ how much effective the emergency response system are in place.

❑ Conclusion of Special Inspection

- ❖ No NPP is exposed to imminent risk
- ❖ But safety measures are needed against potential risk

❑ Based on Defense-in-Depth, safety improvement action items were identified.

❖ 1st Barrier against extreme natural disaster

- *Improve seismic resistance*
- *Minimize potential risk of flooding*

❖ 2nd Barrier to ensure core cooling capability

- *Make available A/C power at any anticipated events*
- *Make available cooling water and path at any unlikely event*

❖ 3rd Barrier to ensure C/B integrity and to improve Emergency response Capability

- *To eliminate the likelihood of severe accident and avoid hydrogen explosion*
- *To address multi-unit disaster*

II. Actions Taken in the light of International Recommendations

□ Draft IAEA Action Plan on Nuclear Safety

- ❖ MS to undertake an assessment of NPPs against natural hazards

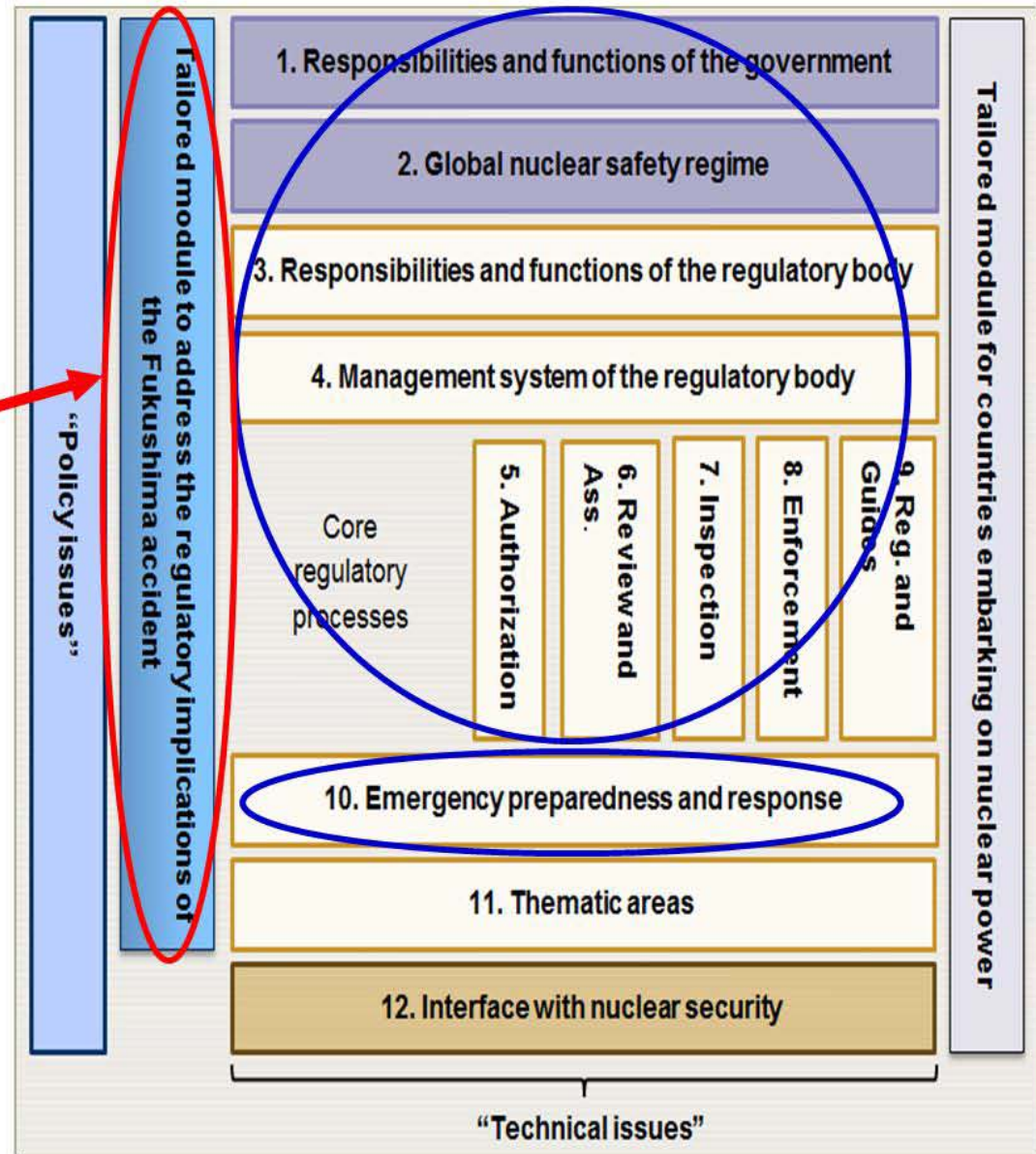
☞ Special Inspection and Safety Assessment

- ❖ MS to host IAEA peer review service
- ❖ MS to conduct review on emergency response capabilities
- ❖ MS to conduct review on regulatory effectiveness

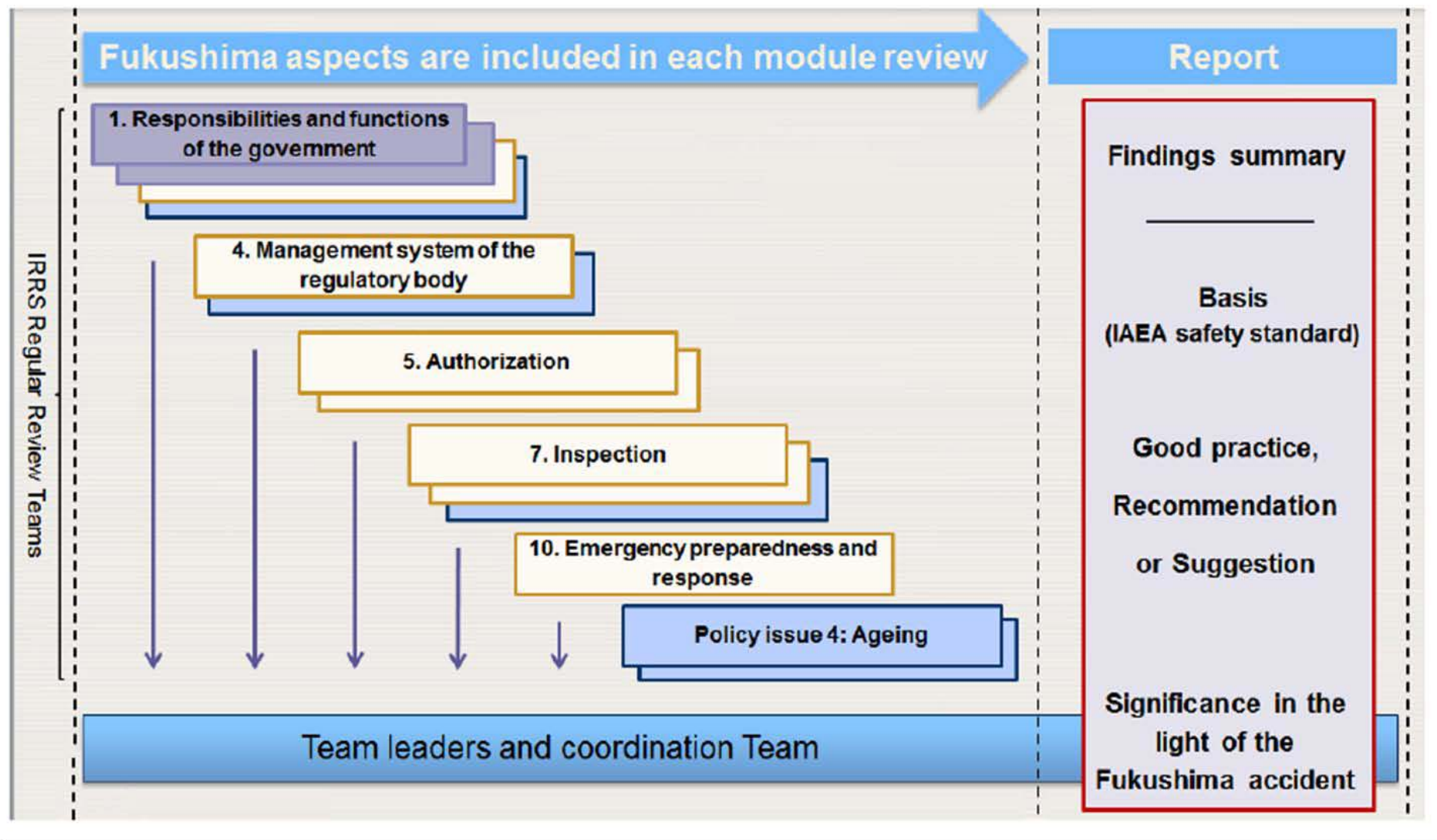
☞ IRRS Mission to Korea : First IRRS Mission after Fukushima

IRRS Mission to Korea

- Nuclear power Plants, Research Reactors, Emergency preparedness
- Module 1 ~ 10
- 5 Policy issues
 - Fukushima Issues
 - Independence
 - Transparency/Openness
 - Long Term Operation
 - Ageing Management
- 2 Thematic areas
 - PSR
 - OEF program



IRRS Mission to Korea-Fukushima aspect included



IRRS Mission to Korea-Fukushima aspect included

1.2 Establishment of a Framework for Safety

GSR Part 1 – R2: The government shall establish and maintain an appropriate governmental, legal and regulatory framework for safety within which responsibilities are clearly allocated.

Areas requesting appropriate attention in the light of the Fukushima accident	Elements for review <i>Basis for review: IAEA Safety Standards</i>	Notes
<ul style="list-style-type: none"> • Are responsibilities clearly allocated in the governmental legal and regulatory framework for safety? • If several authorities are involved, are the responsibilities and functions of each authority clearly specified within the governmental, legal and regulatory framework for safety, even in the case of emergency situations? 	<p>GSR Part 1 - 2.6 Where several authorities are involved, the government shall specify clearly the responsibilities and functions of each authority within the governmental, legal and regulatory framework for safety.</p>	<p>Japan report to the IAEA Ministerial Conference (p. XII-12): “[between NISA and the Nuclear Safety Commission of the Cabinet Office] it was not clear who has the primary responsibility for providing sufficient activities to ensure citizens’ safety in emergency.”</p>
<ul style="list-style-type: none"> • Are provisions for the involvement of interested parties and for preparedness for, and response to, a nuclear or radiological emergency appropriately stated in the framework for safety? • In particular, is the role of the authorized party in such areas clearly specified in the framework for safety? 	<p>GSR Part 1 - 2.5 [...] This framework for safety shall state the following: [...] (5) Provisions for the involvement of interested parties and for their input to decision making; [...] (12) Provisions for preparedness for, and response to, a nuclear or radiological emergency; [...]</p> <p>GSR Part 1 - 2.14 The legal framework for safety shall be established in such a way that the authorized party retains the prime responsibility for safety throughout the lifetime of facilities and the duration of activities, and shall not delegate this prime responsibility. [...]</p> <p>GSR Part 1 - 2.15 The prime responsibility for safety shall extend to all stages in the lifetime of facilities and the duration of activities, until their release from regulatory control; [...] This prime responsibility for safety includes, as</p>	<p>Japan report to the IAEA Ministerial Conference (p. XII-4): “the accident management measures are basically regarded as voluntary efforts by TEPCO, not legislative requirements, and so the details of improvement lacks strictness. [...] We will be committed to position the accident management measures as legislative requirements.”</p>

Summary of IRRS Mission to Korea

- The Korean government, through the activities of MEST and KINS has implemented a technically capable and effective nuclear safety regulatory program.
- Transition to a new regulatory framework has the potential to enhance regulatory independence, expertise and transparency; however implementation details have yet to be finalized.
 - Suggest valuable advices to enhance the effectiveness of the new Regulatory Organization
- Korea's response to the accident at Fukushima has been prompt and effective. Communications with the public, development of actions for improvement and coordination with international stakeholders was of high quality. Further lessons learned should be adequately addressed.
- 15 good practices, 12 suggestions and 10 recommendations

Good Practices

- The regulatory body of Korea has a clear and structured national approach for nuclear safety,
- Korea strongly supports the global nuclear safety regime and provides training at national and international level,
- KINS has a high level of technical competence and has implemented an effective human capital program, etc.

Suggestions

- Develop selection criteria for members of new NSC,
- Prepare human resources plan for the secretariat of new NSC,
- Establish an advisory committee for new NSC, etc.

Recommendations

- The regulatory framework require decommissioning plans,
- Clearly define the responsibilities between new NSC and KINS,
- Develop a management system for new organization, etc.

III. Implementation Plan for Nuclear Safety

□ Safety Measures for Nuclear Power Plants

❖ Short term

- *Identification of Action Items to address Fukushima Accident through special inspection*

❖ Mid term

- *Evaluation on the Action Items*
- *Implementation Plan for Identified Action Items*
- *Harmonization with International Safety Standards and Practices*

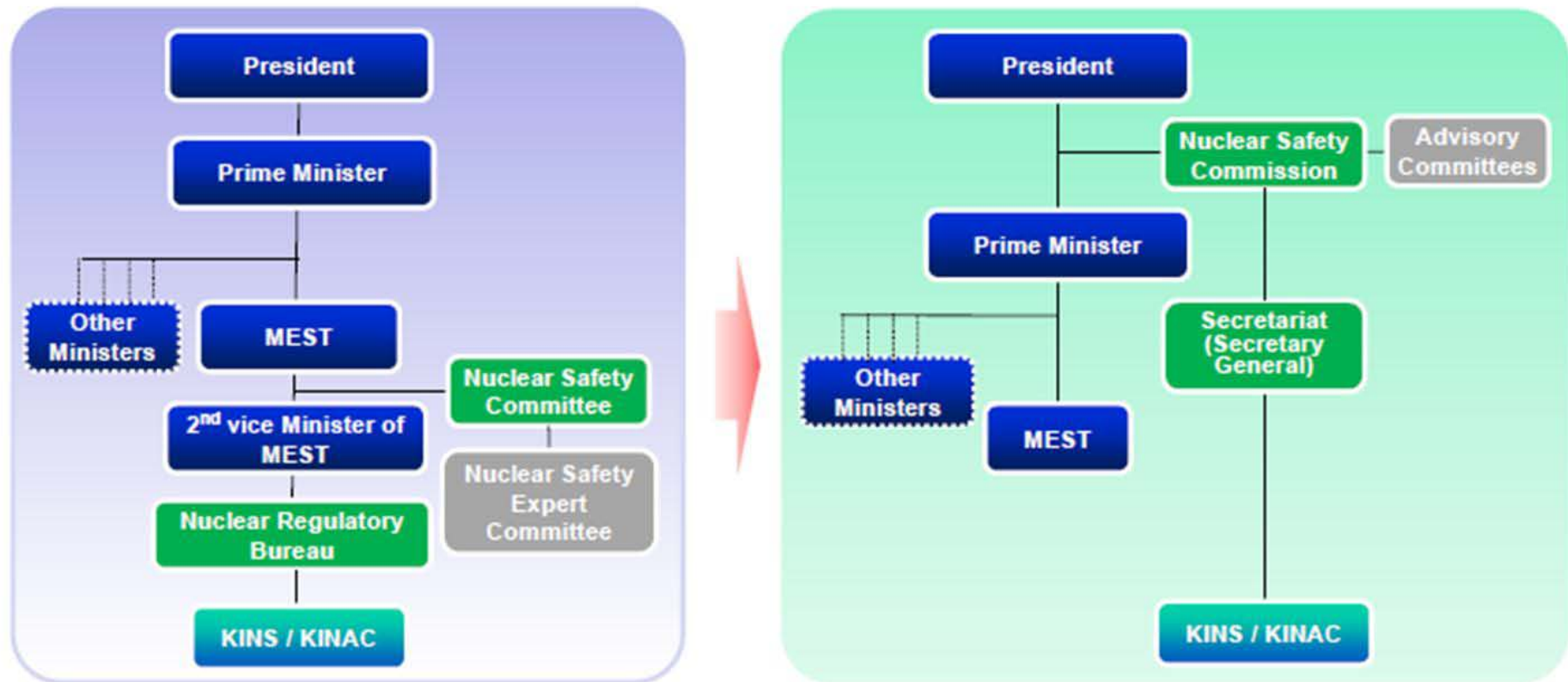
❖ Long term

- *Rulemaking taking into account DEC's*

□ Nuclear Regulatory Framework

- ❖ Establishment of Nuclear Safety and Security Commission

Change of Nuclear Regulatory Framework



- Nuclear Safety Commission (NSC) under President, as standalone regulatory authority
- KINS/KINAC remain as regulatory expert organizations, now to support the NSC
- MEST's role to be restricted to promoting the utilization of nuclear energy

IV. MDEP activities in view of Fukushima

- ❑ MDEP is a unique International Safety Evaluation Instrument for specific reactor designs and also for specific safety issues.
- ❑ In relation with Fukushima accident, MDEP to address more on the Harmonization with International Safety Standards and to feed the outcomes of different MDEP activities back into international standards.
- ❑ Korea, even after the establishment of NSSC, will continue to participate in MDEP activities, ISWG as well as DSWG.