NEA's Approach to Human Aspects of Nuclear Safety

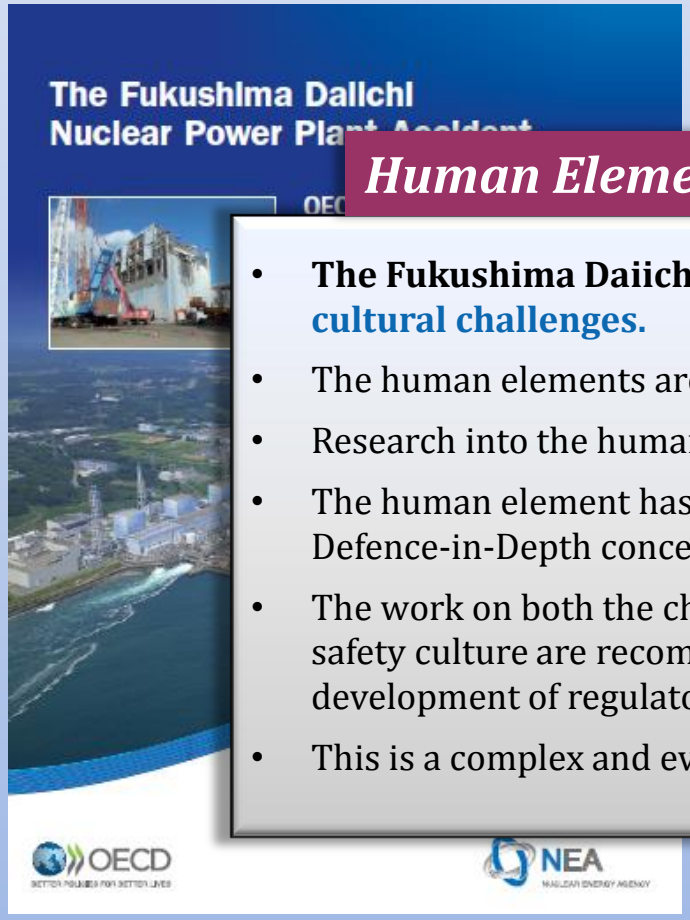
Yeonhee Hah

Nuclear Energy Agency

22-26 February, 2016
Vienna, IAEA

Learning the Lessons from Past Accidents and Moving Forward

Fukushima Daiichi:
Key NEA Conclusions After the Accident



Human Elements are Essential to Safety.

- **The Fukushima Daiichi NPP accident revealed significant human, organisational and cultural challenges.**
- The human elements are essential considerations to all aspects of nuclear safety.
- Research into the human factors involved in severe accident response continue.
- The human element has, amongst other things, a considerable impact on all levels of the Defence-in-Depth concept
- The work on both the characteristics of an effective nuclear regulator and on the regulatory safety culture are recommended for benchmarking, peer review and training and development of regulatory staff.
- This is a complex and evolving area where much work and exploration remains to be done.

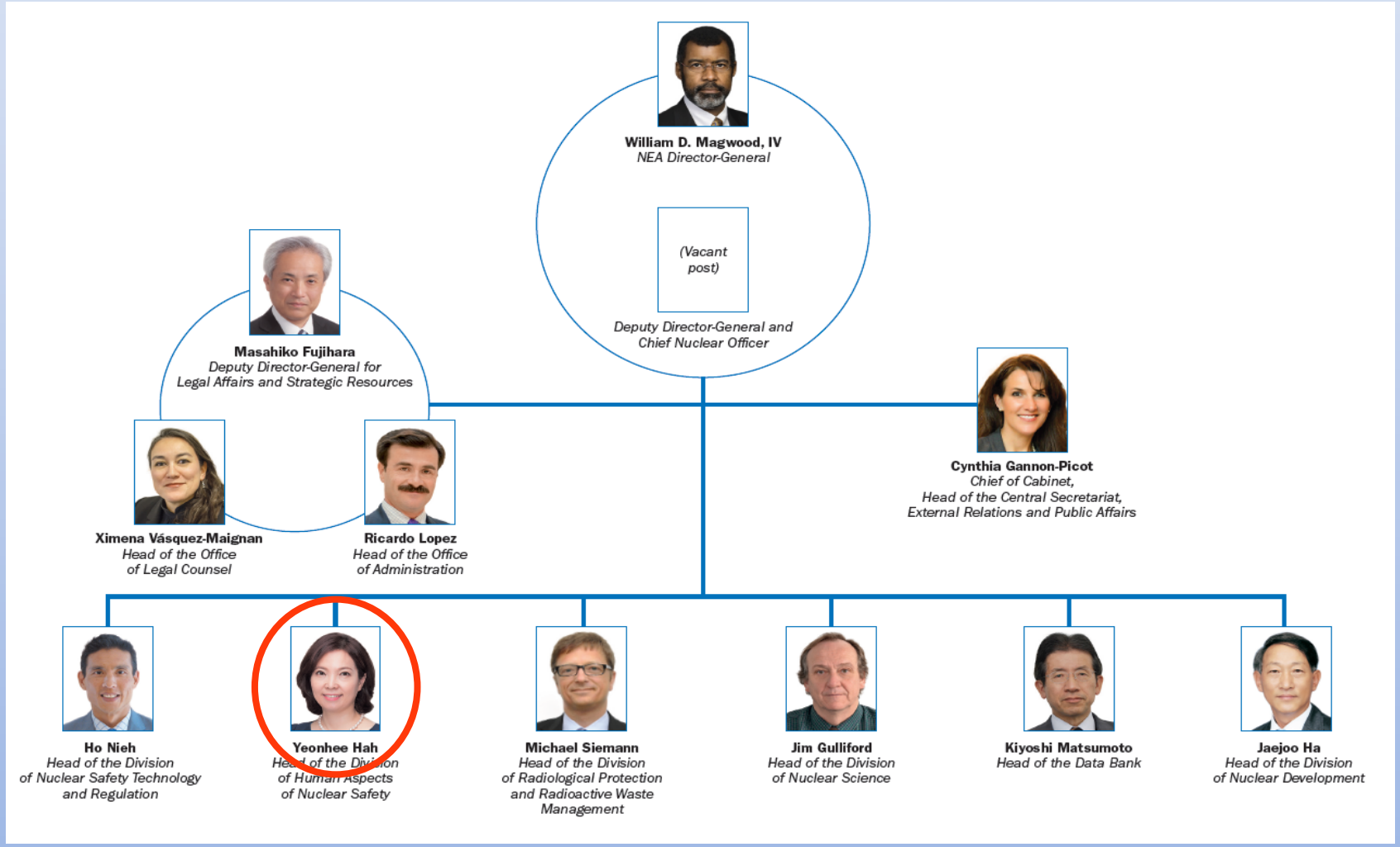
Improving Human Factors are crucial

> ***" Ensuring nuclear safety is not only a question of improving technical safety, but also improving human related factors"*** **(NEA DG Magwood, 2015).**

- Organizational decision making
- Safety culture of the plant staff and the regulator
- Training to assure that operators are well prepared for a wide range of possible challenges

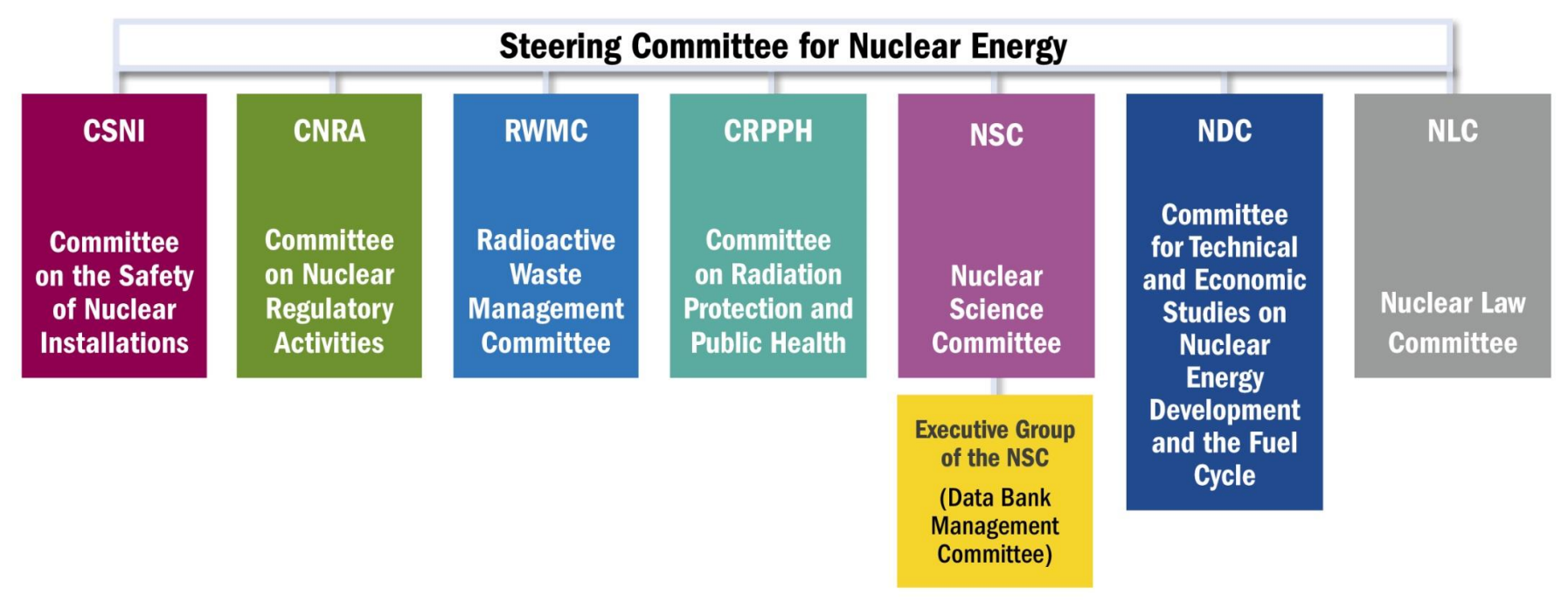
- **NEA** created ***Human Aspects of Nuclear Safety Division*** to help member states to deal with those vital issues

NEA Management Structure



Work Scope of Human Aspects of Nuclear Safety

NEA Committee Structure

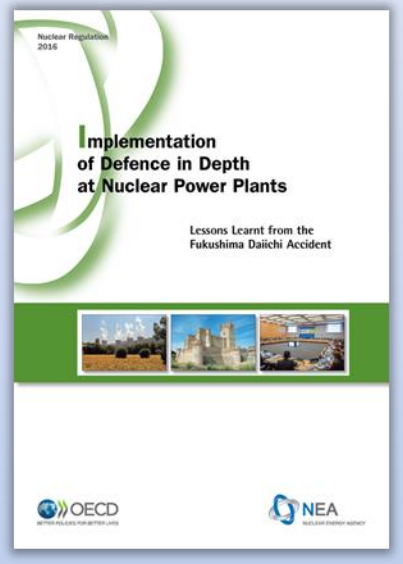


The Division of Human Aspects of Nuclear Safety integrates related areas of work from across the entire agency.

NEA Green booklet:
The Characteristics of an Effective Nuclear Regulator

- Independence
- Regulator Decision Making
- Competence, Leadership, Resources
- Regulatory Framework
- Regulatory Approaches
- **Safety Culture**
- Credibility, Trust & Reputation
- Openness & Transparency
- Continuous Improvement
- International Activities, Cooperation & Peer Review

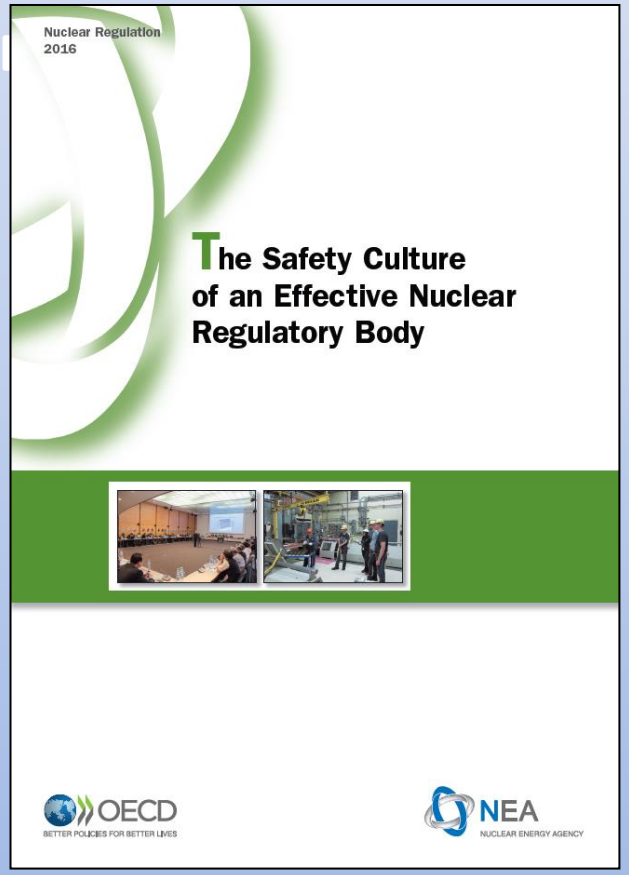
NEA Report: Defence In Depth



- Concept Remains Valid
  - Implementation is Key

- Provides advice for regulators on:
  - the need for independent effectiveness of levels
  - common cause and common mode failures not breaching provisions at several DiD levels;
  - prevention and mitigation at the various levels, particularly level 4 severe accidents;
  - the concept of practical elimination;
  - the impact of human and organisational factors;
  - the issues associated with level 5 emergency arrangements

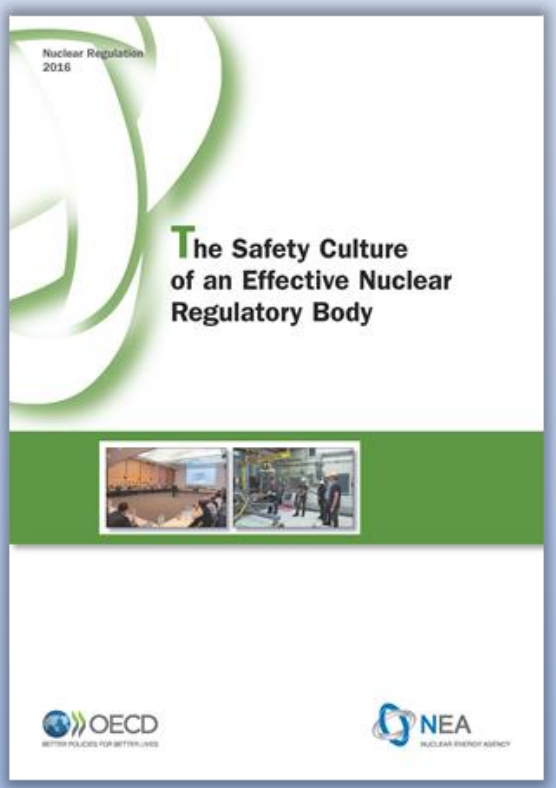
NEA Green booklet:
Safety Culture of the Regulatory Body



- Leadership for safety
- individual responsibility and accountability.
- co-operation and open communication.
- a holistic approach to safety
- Continuous improvement, learning and self-assessment

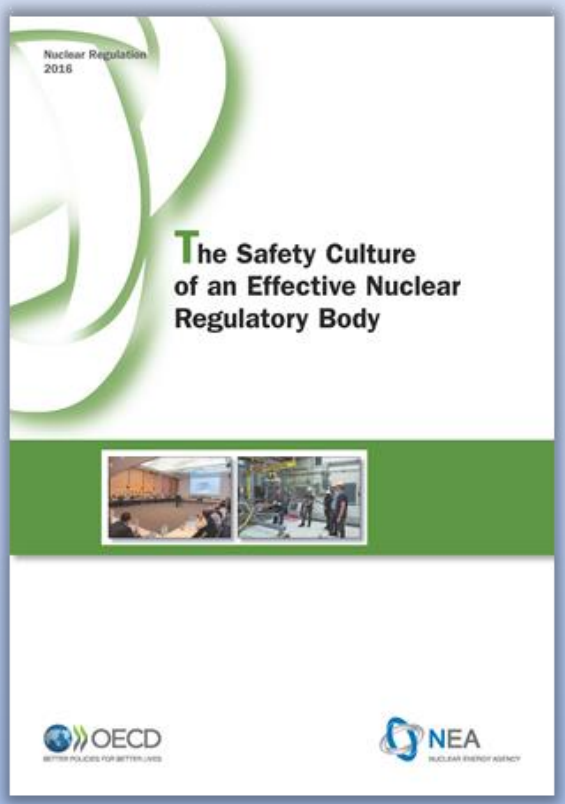
Safety Culture in Regulatory Body

- It is important for regulatory bodies to have a healthy safety culture and to recognise the impact of their culture, actions and attitudes on the licensees and operator.
- By directly and indirectly interacting with each other, regulators and licensees/operators mutually influence their respective safety cultures.
- The safety culture of the regulatory body is important for the effect it can have (both positive and negative) on the industry and those responsible for safety.



Safety Culture vs National Culture

- Safety Culture exists within, and is influenced by, the broader context of national culture.
- The characteristics of national culture should **not** be viewed as an impediment to safety culture but rather as characteristics and cultural strengths to be aware of and to be used and fostered in developing safety culture.



CSNI Human and Organisational Factors

To improve the understanding and treatment of human and organizational factors in order to support the continued safety performance of nuclear installations and improve the effectiveness of regulatory practices:

- Human Performance in Extreme Conditions
- Human Reliability Assessment Techniques in Nuclear Risk Assessment
- Integrated System Performance for Nuclear Power Plants Main Control Rooms

CSNI: Committee on the Safety of Nuclear Installations

CNRA WGPC Stakeholder Involvement Workshop

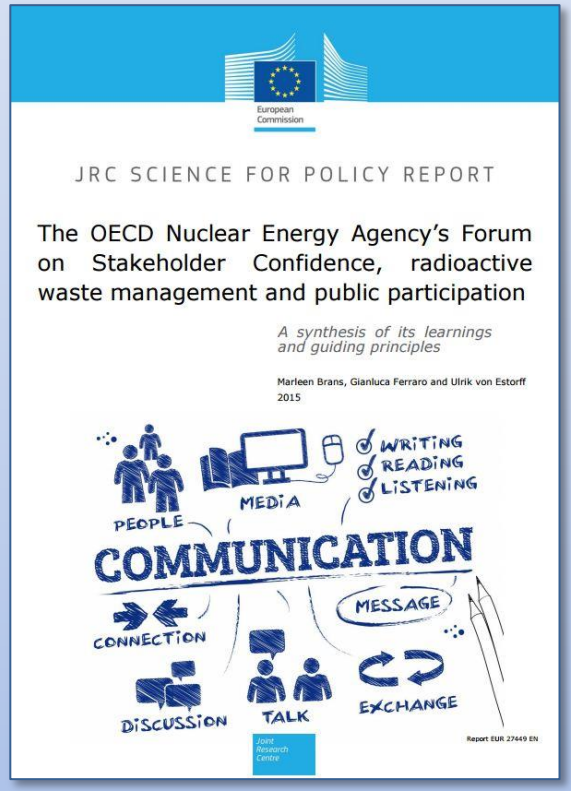
Working Group on Public Communication of Nuclear Regulatory Organisations

- Date: **5 April, 2016**
- Place: NRA, Japan
- Audience: WGPC members, Invited stakeholders (Japan, Korea, India) and NRA staff
- Format: One day workshop spilt into 2 sessions

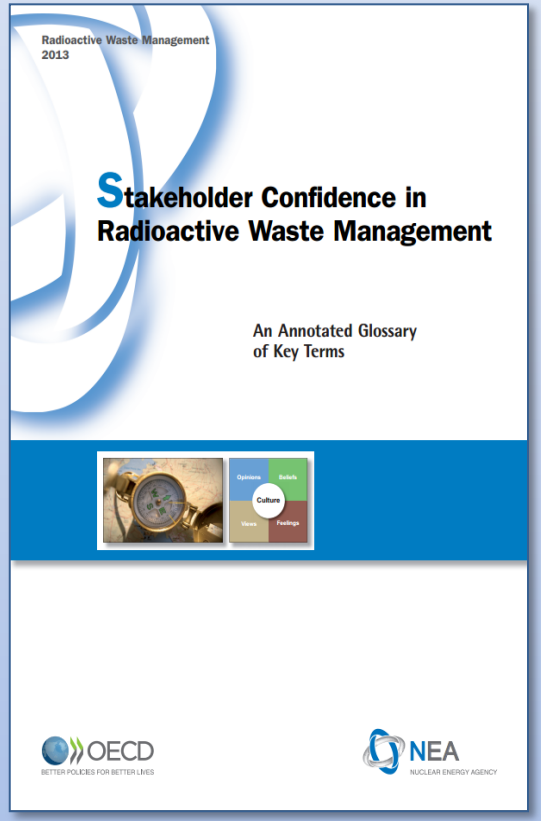
  Expectations of the stakeholder' expectations toward regulators
- Moderator: Mr. Eliot Brenner, USNRC, WGPC Chair
  Mr. Aaron Sheldrick, Thomson Reuters, Japan

CNRA: Committee on Nuclear Regulatory Activities

RWMC Forum on Stakeholder Confidence



The OECD Nuclear Energy Agency's Forum on Stakeholder Confidence, radioactive waste management and public participation. A synthesis of its learnings and guiding principles (2015)



Stakeholder Confidence in Radioactive Waste Management: An Annotated Glossary of Key Terms (2013)

RWMC: Radioactive Waste Management Committee

To Conclude

- Improving technical systems is not enough! Improving safety culture and other human factors are also needed.
- Openness, transparency, stakeholder involvement are vital.
- National culture characteristics and cultural strengths should be used and fostered in developing safety culture.
- The NEA created the ***Division of Human Aspects of Nuclear Safety*** to help member states to deal with those vital issues.

Thank you for your attention

More information @ www.oecd-nea.org

All NEA reports are available for download free of charge.

Follow us: