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Dialogue Session Contributing Paper: Learning from Fukushima - Institutional Isomorphism as Constraining and Contributing Nuclear Safety

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This paper is an analysis of the international institutional isomorphic pressures and lessons learned from the Fukushima accident. The recent upgrading of nuclear safety requirements at the international and national level, as well as harmonisation attempts of nuclear reactor safety by the Western European Nuclear Regulators' Association (WENRA), show serious efforts to improve nuclear safety and implement lessons learned from the Fukushima accident. However, learning from accidents is often affected by institutional factors, which may both contribute and hamper safety and learning.

The objective of this study is to gain insights into some institutional factors that have affected learning at international and national level. At the international level the IAEA and WENRA revisions of safety requirements are examined, whilst at the national level the focus is on the analysis of learning of the Radiation and Nuclear Safety Authority of Finland.

Synopsis

This paper is an analysis of the international institutional isomorphic pressures and lessons learned from the Fukushima accident. The recent upgrading of nuclear safety requirements at the international and national level, as well as harmonisation attempts of nuclear reactor safety by the Western European Nuclear Regulators' Association (WENRA), show serious efforts to improve nuclear safety and implement lessons learned from the Fukushima accident. After Fukushima new requirements for the new nuclear power plants were set, such as preparedness for natural hazards, multiple failure and core melt situations. In addition, improvement of safety culture was emphasised, as well as strengthening of independence of the regulatory body from external pressures, and increasing of independence between different levels of defence in depth safety. However, learning from accidents is often affected by institutional factors, which may both contribute and hamper safety and learning.

The objective of this study is to gain insights into some institutional factors that have affected learning at international and national level. At the international level the International Atomic Energy Agency (IAEA) and WENRA revisions of safety requirements are examined, whilst at the national level the focus is on the analysis of learning of the Radiation and Nuclear Safety Authority of Finland. Research questions are the following: What kind of learning has occurred at international and national level? What kinds of isomorphic mechanisms have contributed or constrained learning? What kinds of innovations are going on within the Finnish regulatory body as regards Fukushima and lessons learned?

The data consist of safety standards of the IAEA and the WENRA reference levels, interviews with 18 nuclear safety inspectors in Finland. Content analysis is deployed as the method of analysis. As a theoretical tool, the concept of institutional isomorphism is applied. Institutional isomorphism refers to the phenomenon by which organisations become structurally or strategically more homogeneous. Isomorphic pressures, stemming from international or national institutional patterns or professionalisation of certain sectors affect the what, the how and who of safety-related action, and thus preconditions for learning. Isomorphism is important to the extent that it may strengthen and spread effective understandings of, and approaches to, safety. However, it may also

engender an inability to detect specific needs and requirements or it may lead to contrasting understandings and approaches among bodies involved in nuclear safety that are exposed to different isomorphic pressures.

The findings show that institutional isomorphic mechanisms, such as close co-operation and exchange of knowledge between organisations, such as the IAEA, WENRA, and the national regulatory bodies have strengthened similar efficient understanding of safety. On the contrary, some institutional mechanisms have constrained learning by making it more schematic and this may mean that learning has not been as efficient as it could have been. The findings show that learning has been gradual. At the national level there are relevant innovations going on that are replies to the problem of proceduralisation and governance of safety requirements and safety culture.

Country or International Agency

Finland

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