

The International Normative Setting of EPR

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National nuclear EPR -- a matter of intrinsic international concern

- **In principle, EPR – like nuclear safety in general -- is a matter of national responsibility**
- However, EPR has also clear transnational ramifications:
 - In case of transboundary radiological impact potential, thus necessitating EPR measures for the protection of the public and the environment in areas beyond the installation State's jurisdiction and control.
 - if they are capable of undermining public confidence in EPR (nuclear safety) practices of
 - other States,
 - regionally or
 - globally

Thus, the post-Fukushima international “call to arms”

- **2011 Action Plan on Nuclear Safety** calls for a strengthening of nuclear safety through a wide range of measures including specific steps regarding EPR
- **2nd Extraordinary Meeting of the Contracting Parties to the CNS**
- **Vienna Declaration on Nuclear Safety, 2015**



deepening awareness of EPR’s critical function in nuclear accident management, generated *specific policy or institutional changes*



***notable regulatory action*, including the revision of IAEA Safety Requirements governing EPR**

The international normative landscape bearing on off-site EPR

- Customary international law
- **The IAEA-Centered Regulatory Framework**
- **Other International Efforts**
 - OECD/NEA
- **Regional EPR efforts**
 - EU
 - Nordic Countries
 - ASEAN, etc.
 - Foro Iberiamericano
 - Forum of Nuclear Regulatory Bodies in Africa
 - Arab Atomic Energy Agency; Cooperation Council for the Arab States of the Gulf.
- **Industry Initiatives**
 - E.g., WANO's EP and severe accident management program, post-Fukushima

The International EPR framework at the time of the Fukushima accident

(source: IAEA Fukushima Report, vol.3, 118)



Thus, the international legal setting of EPR is a mixture of:

- **conventional law**
- **formally non-binding safety standards, and**
- **institutional practices shaping normative expectations regarding EPR**

The Key Treaty Instruments

- Convention on Early Notification of a Nuclear Accident (CEN), 1994
- Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency (AC), 1986
- Convention on Nuclear Safety (CNS), 1986
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, 1997

CNS, Art.16 –Emergency Preparedness

(analogous provisions in the Joint Convention)

- Contracting Parties **with nuclear installations** must have EPR plans and routinely test them (para.1)
- Contracting Parties **without a nuclear installation** on their territory, **insofar as they are likely to be affected** in the event of a radiological emergency at a nuclear installation in the vicinity, must do the same (para.3)

Two cornerstones of the international EPR treaty framework

- the Convention on Early Notification of a Nuclear Accident and (CEN)
- the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency
 - **both adopted in the immediate aftermath of the Chernobyl accident.**

The CEN & the AC

- The CEN applies to nuclear accidents which have the potential for an ‘international transboundary release that could be of radiological safety significance for another State’.
- It requires States parties to notify affected States -- directly or through the IAEA, and the IAEA itself -- of any nuclear accident involving specifically enumerated facilities and activities.
- The AC assigns to the IAEA a critical central function in the management of nuclear emergency assistance.

A sample of relevant IAEA EPR-related safety standards

- **Fundamental Safety Principles**

- IAEA Safety Fundamentals, No. SF-1 (Principle 9: Emergency Preparedness and Response) 2006

- **Safety Requirements**

- Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards – General Safety Requirements, No. GSR-Part 7 (2015)
- Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, – General Safety Requirements, No. GSR Part 3 (2014)

- **Safety Guides**

- Arrangements for Preparedness for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-2.1 (2007)
- Criteria for Use in Preparedness and Response for a Nuclear or Radiological Emergency, IAEA Safety Standards Series No. GSG-2 (2011)
- Arrangements for the Termination of a Nuclear or Radiological Emergency, IAEA General Safety Guide No. GSG-11 (2018)

The Normative Pull of EPR standards (1)

- IAEA Safety standards (Safety Fundamentals, Safety Requirements and Safety Guides) are **not formally binding**
- ***However***, they are binding on ...
 - **the IAEA** in relation to its own operations
 - **International Organizations** sponsoring a safety standard; and
 - **States** in relation to operations assisted by the IAEA

The Normative Pull of EPR standards (2)

Secondly, IAEA safety standards **acquire *de facto normativity*** due to the dynamic nature of the periodic **review meetings of the parties** to the two nuclear safety conventions

- The safety conventions **incorporate by reference** *internationally formulated or endorsed standards and criteria* which
 - provide ‘guidance on contemporary means of achieving a high level of safety’ (CNS); or inform national safety legislation (JC)
- States Parties **report** – article-by-article -- on national implementation of/compliance with the conventions
- National reports **are peer reviewed ... in country group** discussions
 - although far from perfect (lack of full participation, etc.), this process enhances transparency, hence accountability

“Compliance control” in the context of the Early Notification and Assistance Conventions

C.P.’s EPR reporting to the **Meetings of the Representatives of Competent Authorities** under the Early Notification and Assistance Conventions *is less effective, less normative*

- more of a public forum for the discussion of EPR *generic issues* rather than a mechanism for ascertaining states’ compliance with their specific EPR-related conventional obligations
- Also, opposition against such reporting because:
 - no reporting requirements under the Early Notification or the Assistance Conventions; and
 - reporting would simply duplicate efforts given the existing reporting requirement under Art.16 of the CNS.

Operational Arrangements & Services (at the global level)

- **IAEA's (Secretariat) critical functions in EPR**
 - The Incident and Emergency Centre
 - IAEA Response and Assistance Network (RANET)
 - **IAEA Secretariat's Enhanced Function re Accident Assessment & Prognosis**
 - ConvEx-3 -- Convention Exercises
- **IAEA peer review services**
 - Integrated Regulatory Review Service (IRRS)
 - Emergency Preparedness Review (EPREV)
- **Inter-Agency Coordination**
 - Inter-Agency Committee on Radiological and Nuclear Emergencies (IACRNE)
 - Joint Radiation Emergency Management Plan of the International Organizations (JPLAN)

Specific EPR Policy Challenges & International Regulatory Responses, post-Fukushima

- **Greater cross-border harmonization of EPR, globally/regionally/bilaterally**
- **Improved transboundary event reporting and information exchanges**
- International peer review of EPR
- Periodic testing through emergency exercises at bilateral or regional Level
- Broader state participation in the international assistance arrangements (especially RANET) for the management of nuclear or radiological emergencies

The Need to Harmonize EPR

- **The Overriding Importance of Consistency of Response Action across different regions**
 - Inconsistent planning and responses between different regions will inevitably raise public concerns and stress with probable concomitant health effects
 - The warning examples of Chernobyl & Fukushima (US v. Japan)
- **Goal of harmonization:**

transboundary concertation of critical parameters, including reference levels, ‘observables’ that trigger specific protective action as well as criteria for the adjustment of emergency planning zones in response to evolving accident scenarios.

EPR at the 7th RM of the CNS, April 2017

Contracting Parties agreed on:

- the importance of developing **harmonized approaches for cross-border emergency planning zone definition and management.**
- the need to further develop EPR measures to take account of **multi-unit and external hazard events.**
- the **use of existing IAEA standards and guidance**, as well as multi- and bilateral arrangements to coordinate and exercise EPR capabilities.

Regional harmonization and primacy of global standards

- **Regionalization, if it leads to idiosyncratic solutions, can be at odds** with the very objective of harmonizing nuclear EPR measures internationally, a goal whose realization is essential for ensuring the credibility of the global nuclear safety regime
- Thus regional EPR standards will ultimately have to dovetail with global standards: ‘Broad compliance with...international safety standards in EPR [is]...a key step to achieving harmonization.’
- (International Conference on Global Emergency Preparedness and Response, 19-23 October 2015, Vienna Austria, Conference Report, Annex 2: President’s Summary)

The 2015 IAEA Safety Review thus emphasizes that:

- The Agency's **EPR safety standards** provide a **solid basis** for achieving such harmonization.
- Member States ought to utilize, as broadly as possible, the Agency's safety standards **to mitigate major inconsistencies between Member States during an emergency** and thereby avoid serious disruptions at the international level.

Event Reporting & Information Sharing

- **Information fiascos during/after Chernobyl & Fukushima accidents**
- The problematic nature of the Convention on Early Notification's **threshold triggering the notification obligation** requiring a triple affirmative determination by the installation state regarding the consequences of the emergency:
 - First, that a **release** of radioactive material **occurs or is likely to occur**;
 - second that it has resulted or may result in an **international transboundary release**;
 - lastly, that such a release would be **of radiological safety significance for another State**

Needed Improvements in notification/info sharing arrangements

Bilaterally/regionally

- Neighboring countries ought to provide each other automatically – i.e., without the need of intercession by installation state authorities – with **comprehensive real-time information on critical parameters reflecting the status of the nuclear installation concerned**, as well as conditions on-site and off-site.
- But: difficulty in reaching this goal: Agreement between Norwegian Radiation Protection Authority & Rosatom, 2015, further implementing the 1993 N-Russia Agreement on Early Notification

IAEA's Incident and Emergency System

- The lynchpin of the Convention-on-Early-Notification-based international emergency notification framework.
 - IEC: information clearing house
 - Unified System for Information Exchange in Incidents (USIE), the Agency's web-based communication platform for global exchanges & sharing of information
 - Operations Manual for IE Communication **recommends** expedited transboundary notifications
 - If EPZ extends extraterritorially, notification of neighboring countries' authorities contemporaneous with notification of domestic decision-makers
 - Otherwise 2 hours after declaration of nuclear emergency
- IAEA's expanded role in **accident assessment and prognosis**: reverse flow of information
 - Agency to “provide Member States, international organizations and the general public with **timely, clear, factually correct, objective and easily understandable information** during a nuclear emergency on its potential consequences, including analysis of available information and **prognosis of possible scenarios** based on evidence, scientific knowledge and the capabilities of Member States.”

What Conclusions?

- While notionally a national responsibility, **EPR is increasingly being internationalized, politically as well as legally**
- Regional EPR standards and solutions ought to be **consistent with global standards**
- **Concentration of EPR functions in the IAEA**
 - Example transboundary emergency notification
 - Is the dominant bilateral model being supplanted by a multilateral, IEC-based approach?
 - IAEA's role regarding assessment and prognosis of accidents --
- **‘More work still needs to be done** ‘to ensure and demonstrate ...that EPR arrangements, both on- and off-site, are more resilient to severe disruptions of the basic infrastructure’ (IAEA 2015 Nuclear Safety Review)