

A Powerless Classification System? When the Geological Disposal Option (re)defines Radioactive Waste Categories

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Background



2018

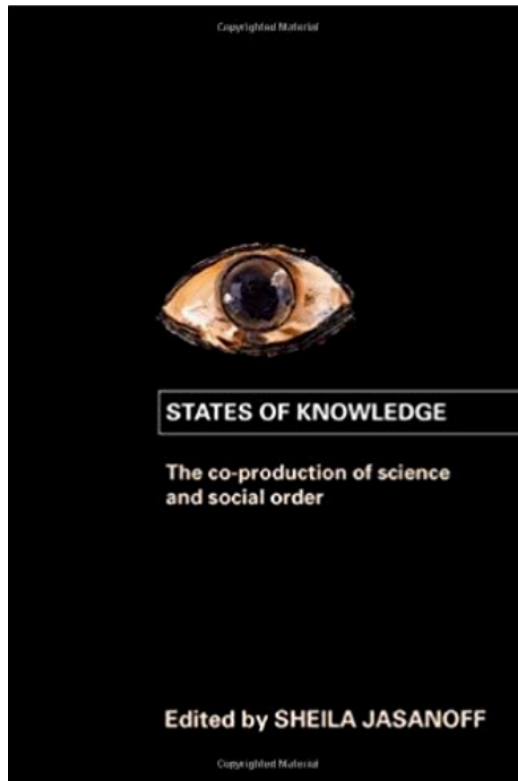
- Political Scientist
- Science and Technology Studies Approach.
- Comparative Analysis



Outline

1. STS Theoretically Insights (Jasanoff 2014 and Bowker and Star 2000)
2. Characteristics of Every Nuclear Classification System (Bowker and Star 2000)
3. Top-down Classification System and their imperfections
4. Reversing the dynamic: the management option to redefine the radioactive waste category?

1. STS Theoretically Insights

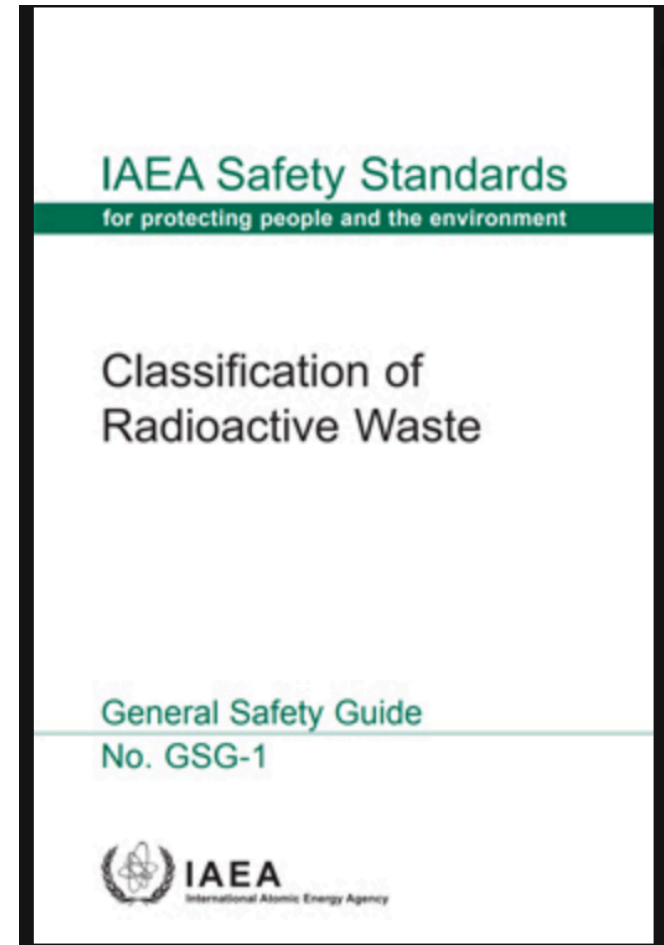


2. Characteristics of Every Nuclear Classification System

“The classification of radioactive waste is considered a **prerequisite for the development of a strategy to manage these wastes**” (IAEA, 2009b, p. 19).

They **enable bureaucratic action and cooperation** between different actors *“across different social worlds”* (Bowker and Star 2000: 10). The classification has it done, it coordinates, it includes, and it excludes

They also **affect** the technological **design**, the size of the repository, the **conditioning of the waste** and its management period over time (IAEA, 1994), **the economic** and **geological** dimensions of a management project (Miller and Wong, 2013) or the **volumes** to be considered.



2. Top-down Nuclear Classification System to manage

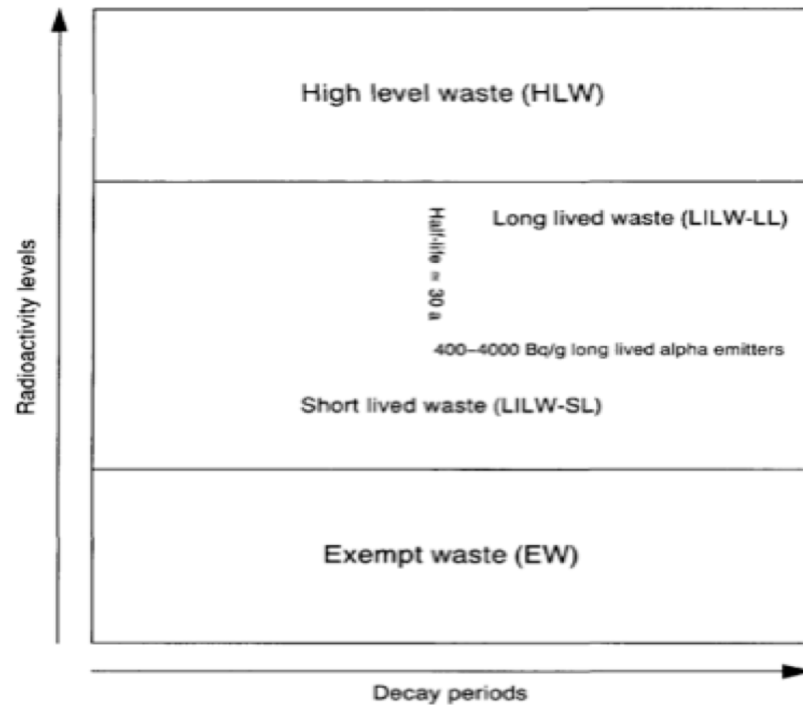


FIG. 1. Revised waste classification system.

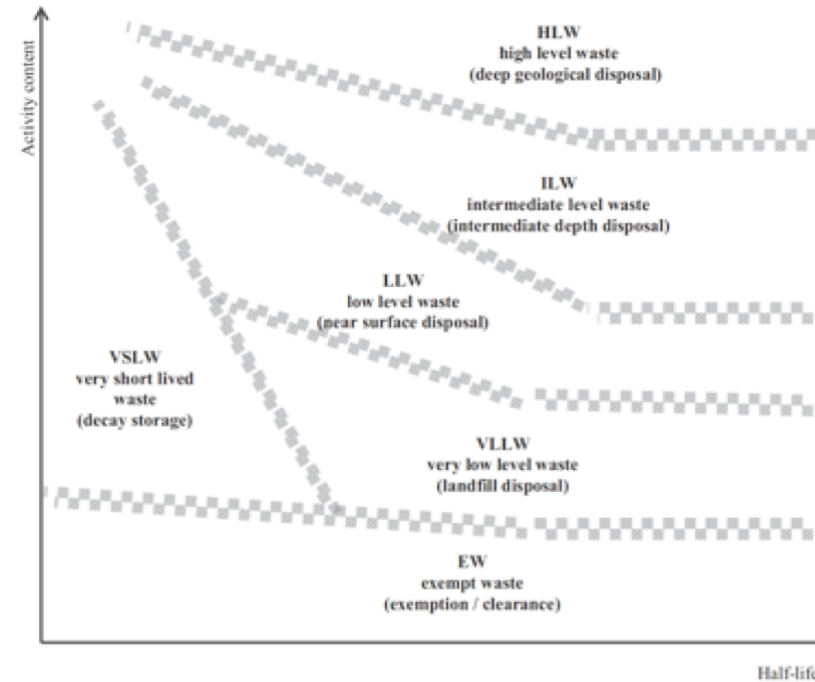


FIG. 1. Conceptual illustration of the waste classification scheme.

Figure 1 — Suggested classifications of IAEA in 1994 and in 2009, source: IAEA.

2. Characteristics of Every Nuclear Classification System

In principle;

- Consistent and operational
- Mutually exclusive
- Total coverage

In practice; **imperfections remain!**



3. Top-down Classification System and their imperfections

- The « blurring » categories

*“The boundaries between the classes are not intended to be seen as hard lines, but rather as **transition zones** [emphasis added] whose precise determination will depend on the particular situation in each State” (IAEA, 2009b, p. 20).*



CECI N'EST PAS UN OBJET-FRONTIÈRE !

Réflexions sur l'origine d'un concept

Susan Leigh Star

S.A.C. | « [Revue d'anthropologie des connaissances](#) »

2010/1 Vol 4, n° 1 | pages 18 à 35

Article disponible en ligne à l'adresse :

<https://www.cairn.info/revue-anthropologie-des-connaissances-2010-1-page-18.htm>

3. Top-down Classification System: imperfections

- Powerless of classification system

	Belgium	France	Canada
Number of defined categories	3 categories	6 categories	4 categories
Classification according to half-life and level of activity	<ul style="list-style-type: none"> · B (equiv. ILW IAEA 2009) · C (equiv. HLW IAEA 2009) 	<ul style="list-style-type: none"> · MA-VL (equiv. ILW IAEA 2009) · HA-VL (equiv. HLW 2009) 	<ul style="list-style-type: none"> · HLW (equiv. IAEA 2009) including spent fuel
“ Blurring categories ”	<ul style="list-style-type: none"> · NORM, T-NORM · radium-bearing waste · Waste for Future Remediation · Spent Fuel · Spent Fuel MOX 	<ul style="list-style-type: none"> · NORM · Waste without “ filières ” · residues left over from uranium mines · Spent Fuel MOX 	/
Category combination for management	<ul style="list-style-type: none"> · Categories B and C managed together 	<ul style="list-style-type: none"> · MA-VL and HAVL categories managed together (Cigeo Project) 	<ul style="list-style-type: none"> · HLW: full-fledged project (APM project of NWMO)

4. Reversing the dynamic: the management option to redefine classification system?

- “a disposal site’s waste acceptance criteria are the final words on disposition of wastes at that site and are therefore effectively the final words on waste classification at that location” (Lowenthal, 1997, p. 13)”

4. Reversing the dynamic: the management option to redefine classification system?

(...) what is the current definition of low-level waste? It is not the waste of such and such activity, the definition is, it is the waste that can go to the [French] Morvilliers Center. We reverse the mechanics. Ultimately, what is high-level waste? Those wastes that can go to the storage. You reverse the mechanics by a match between the categorization and the reception center (French Regulatory Body interview 2014).

- **Then, the question is: according to a predefined long-term management solution, which categories should be included or excluded?**

Conclusions

- Powerless of top down nuclear classification system and its consequences
- Interest for revealing uncertainties and imperfections for
 1. First, shifting the focus of attention away: from HLR categories to geological repository
 2. Opening up the building of nuclear classification system

Thank you for your attention

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