

Framing of safety and social license to operate (SLO) in nuclear waste management

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Introduction

Objective: comparing risk and safety argumentation, and the framing of final disposal, by leading newspapers in Finland and France

- particular focus on social license to operate (SLO) and trust in NWM institutions

The Finnish ‘high-trust society’: passive safety – no monitoring is required in the future after the closure of the repository, yet **retrievability** must be ensured.

France, a ‘society of distrust’: legislation stipulates that the project must be **reversible** – the repository and its environment remain under monitoring over several centuries.

Distinct means of building trust in

- the waste disposal solution and
- the organisations responsible for RWM

Trust in the media

Finland

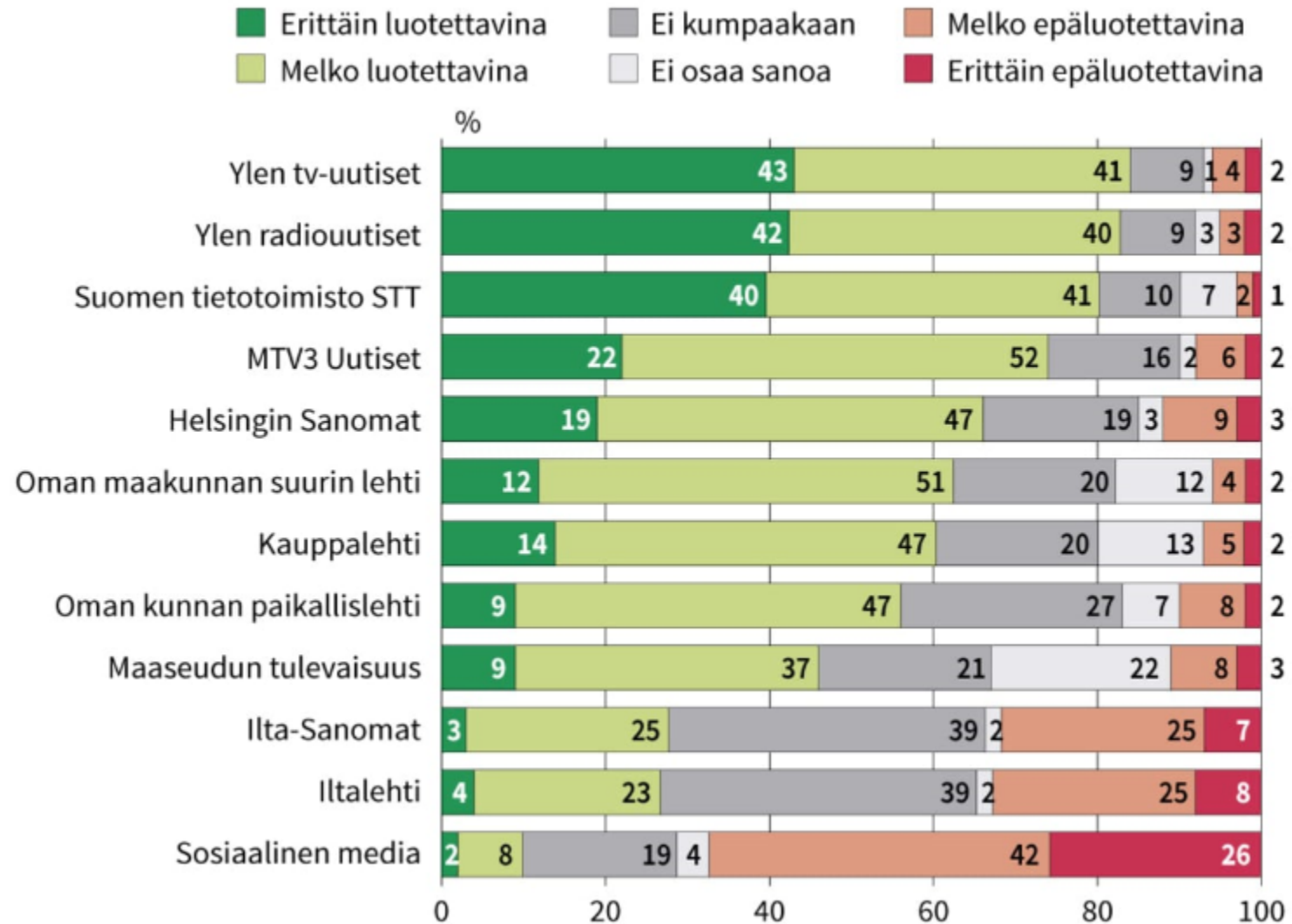
- The country with the most trusted news media
- Overall trust in the news 59%
- Trust in 'news I use' 70%

France

- Weak trust in the news media
- Overall trust in the news 24% (2018 35%, Yellow vest –protest)
- Trust in 'news I use' 34% (2018 41%)
- 22% have high or relatively high trust in the media (35% have no trust at all, and 38% only little trust the media)

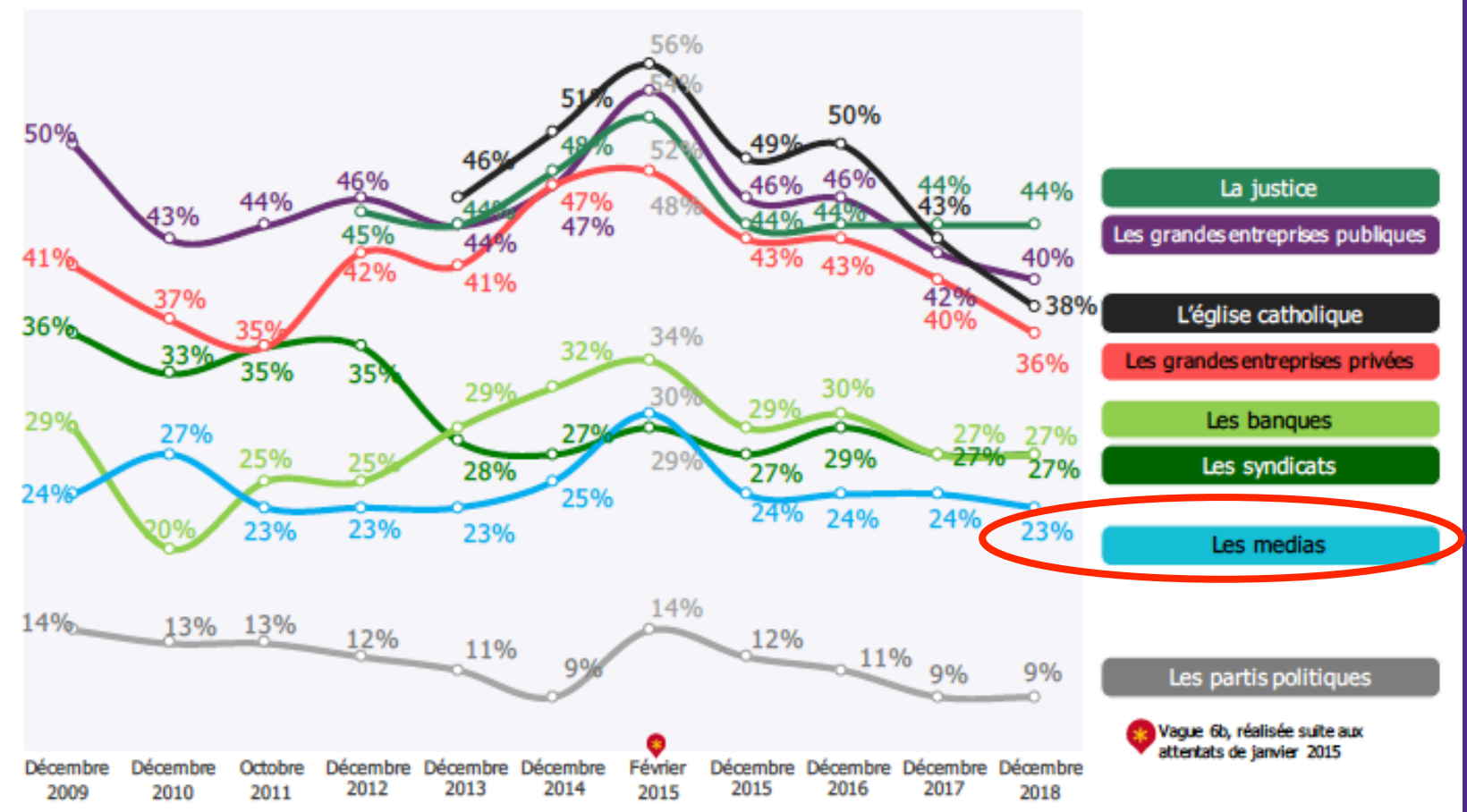
(Sources: Reuters Institute Digital News Report 2019; CEVIPOF 2019, p. 34)

Kuinka luotettavina pidät eri tiedotusvälineiden uutisointeja?



Trust in institutions - France

2116 individus
Q25. Avez-vous très confiance, plutôt confiance, plutôt pas confiance ou pas confiance du tout dans chacune des organisations suivantes... ? Réponse 'Très confiance' + 'Plutôt confiance'

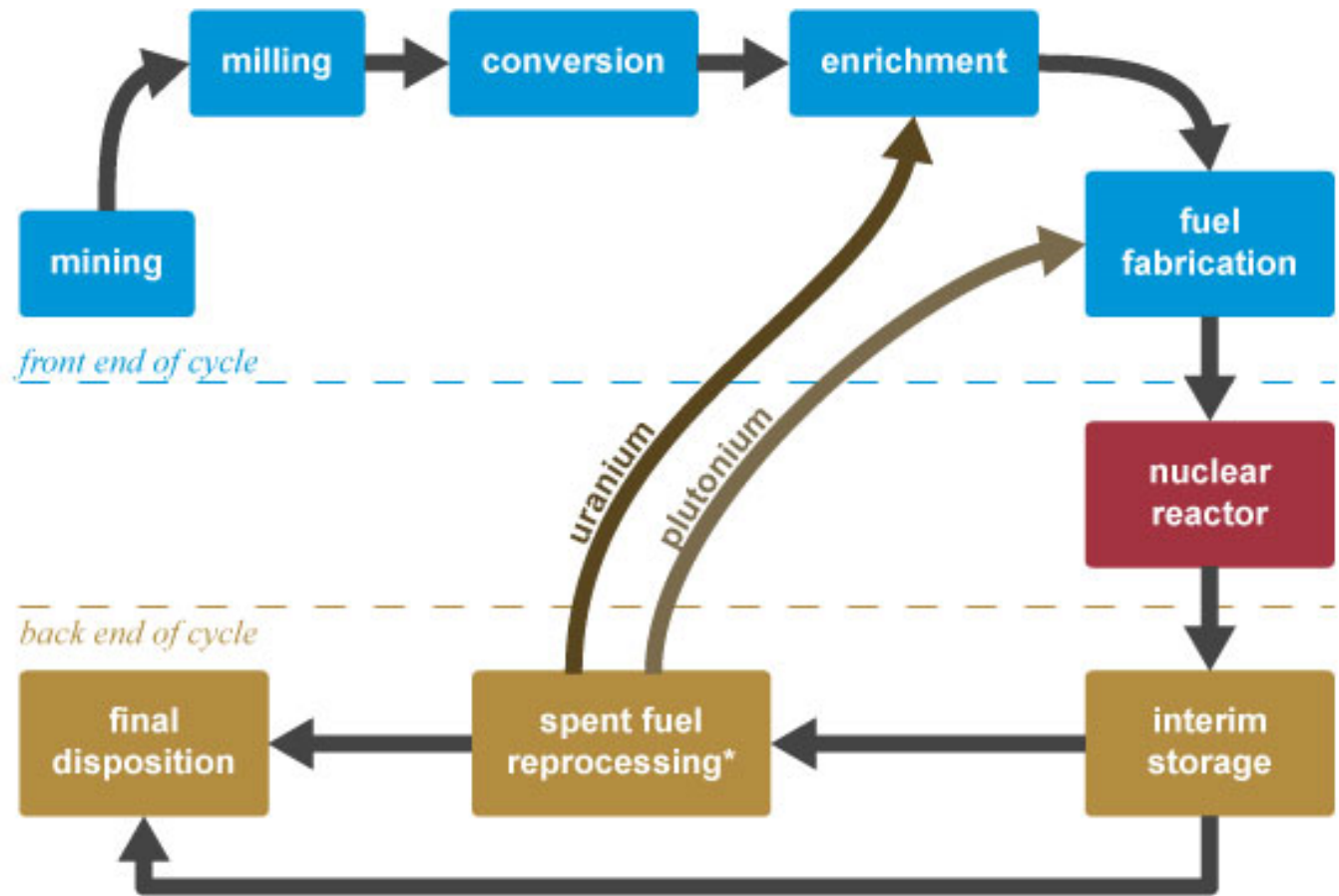


Nuclear waste management in Finland and France

France:
reprocessing +
final disposal

Finland:
direct final disposal

Nuclear fuel cycle



*Spent fuel reprocessing is omitted from the cycle in most countries, including the United States.

Nuclear waste management in Finland and France

France:

58 nuclear reactors

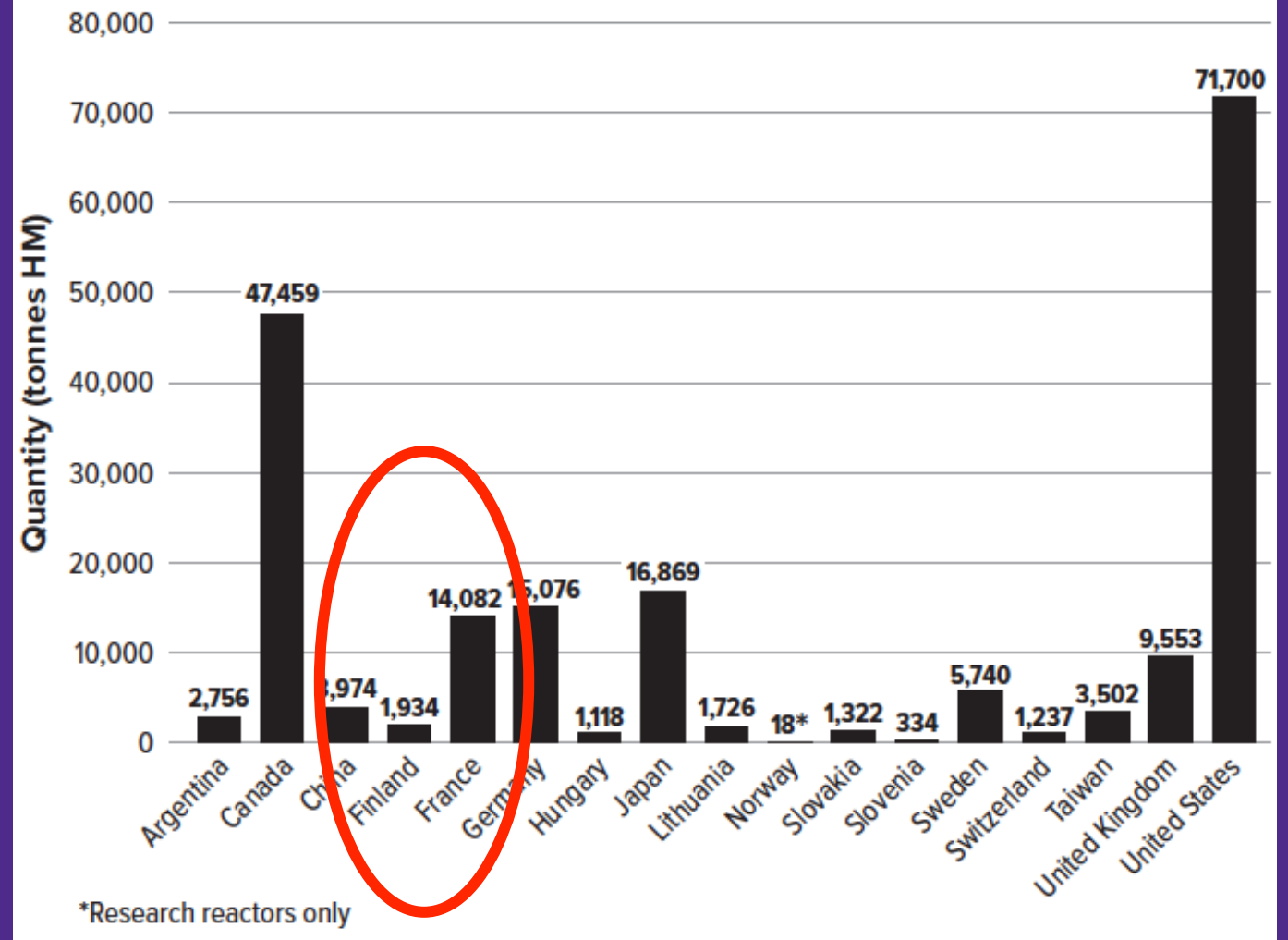
> 70% of electricity

Finland:

4 nuclear reactors

~ 30% of electricity

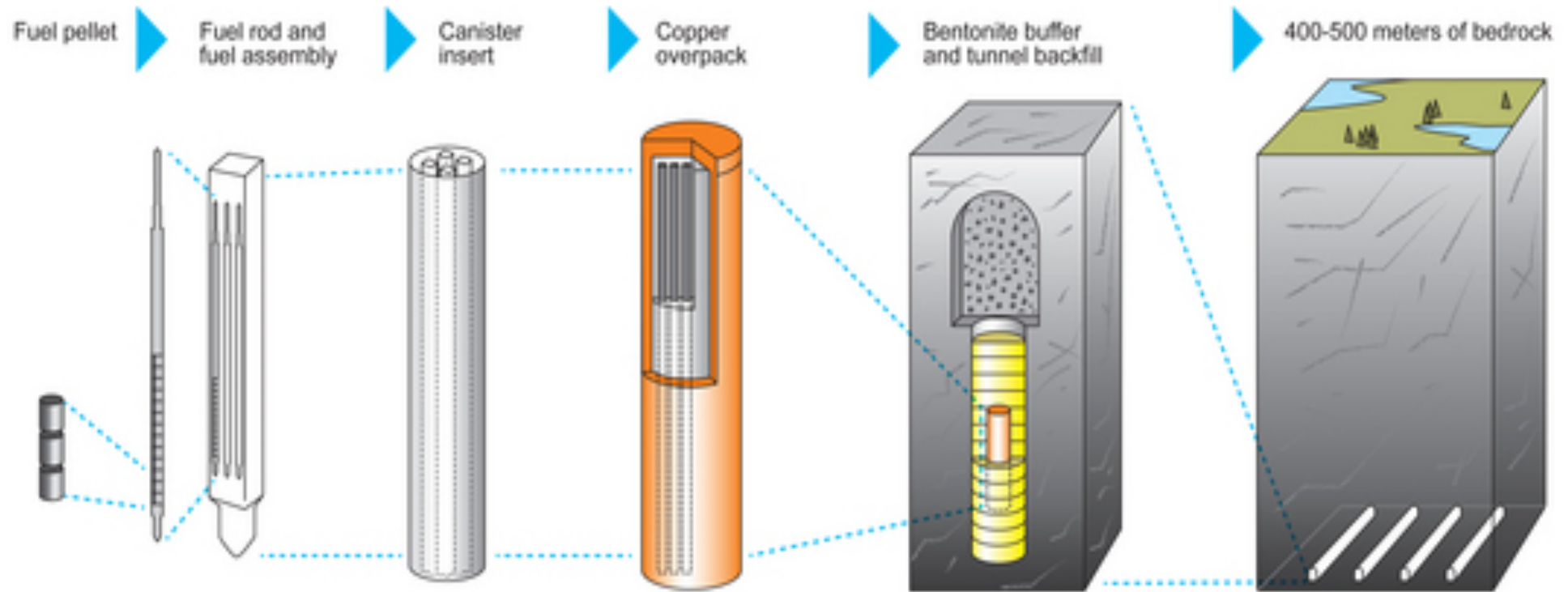
Selected Spent Nuclear Fuel Inventories



Source: Sloan 2017

Finland: passive safety instead of monitoring

KBS-3 multibarrier system (Source: Posiva)



Major milestones of Finnish nuclear waste management

2000: The government issued the Decision-in-Principle for final disposal of SNF

2001: Parliament ratified the DiP (votes 159–3). Safety was discussed but final disposal was seen as “better” and “safer” option than interim storage

2004: Posiva started the construction of the underground rock characterisation facility (ONKALO)

2008: Government decree on safety of final disposal: no requirements related to opening of the disposal facility

2010: Extension of the final disposal facility approved by the government and Parliament

2012: Posiva submitted the construction licence application for repository, including a legally mandatory statement on retrievability

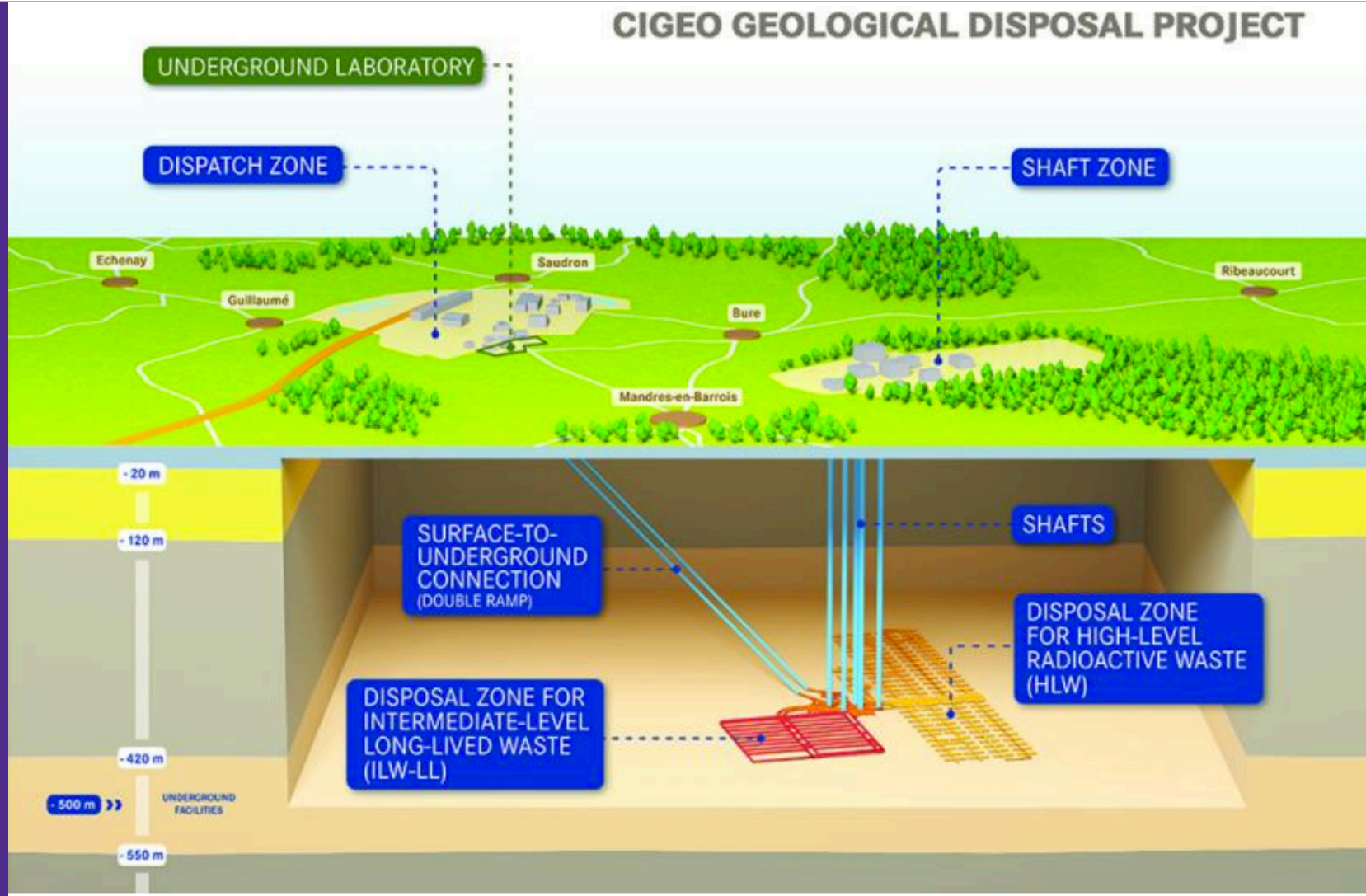
STUK: retrievability shall not impair post-closure safety

2015: The government granted the construction licence, the Minister of Economy considered retrievability as a key criterion for the disposal solution

2018: Excavation of the first tunnels for Posiva's final disposal facility started

2019: Posiva started the construction of the encapsulation plant

France: reversibility to build trust



Réversibility: “the ability, by successive future generations, to either pursue the path defined by choices made earlier or to re-examine the choices and further develop the management solution accordingly.” (The Planning Act, 28 June 2006)

Major milestones of French nuclear waste management

1991 Waste Act (loi Bataille): introduces the idea of reversible geological disposal – 15-year research on 1) reversible or irreversible disposal, 2) long-term interim storage, 3) partitioning and transmutation

- Reversibility emerged as a demand from the ‘civil society’

1998 government declaration: reversible disposal as a prerequisite for public acceptance of the project

2005-06 public debate (CNDP): advocates research on long-term interim storage (earlier suggested e.g. by Barthe, 2001)

2006: Planning Act and TSN Act

- **reversible geological disposal** the reference option
- distinction between **retrievability** of waste and **reversibility** of decisions
- independent **regulator** (ASN)
- High committee on nuclear **transparency**, information and safety (HCTISN)

2016: Reversibility Act defines reversibility in greater detail

Frames and framing

'Frame' is a schema of interpreting reality

- Tools we use to make sense of 'raw' information regarding the situation, giving them meaning and coherence (Kendall)

'Framing' stresses agency

- Active construction and articulation of frames

Framing by the media

- shapes the ways in which the involved actors and stakeholders understand and address the issues

Functions of frames/framing

- "the text contains frames [...] that provide thematically reinforcing clusters of facts or judgments" which have certain functions (Entman)

Frame functions / Framing processes

- Define problems
- Diagnose causes
- Entail moral judgement (of actors, situations)
- Suggest remedies and ways forward

(Entman; Benford and Snow)

The Newspapers



HS



Le Monde

Helsingin Sanomat

- the only major national daily newspaper
- 17% of Finns read the paper, and 27% HS.fi online weekly
- Country's second-most trusted news producer (1st = public broadcaster YLE)

Le Monde

- The most read daily newspaper in France (8% of French read the paper, and 13% the online version weekly)
- The most trusted news producer in France
- Independent – but often qualified as politically centre-left (64% left-wing readers according to a reader poll in 2014)

(Sources: Reuters Institute Digital News Report 2019; Wikipedia)

Data collection **(work in progress)**

The research period: 1 January 2005 – 31 December 2018

Helsingin Sanomat, Finland:

Keywords

- ydinjät,
- loppusij,
- Posiva,
- STUK,
- radioaktiiv

Total: 1624 articles

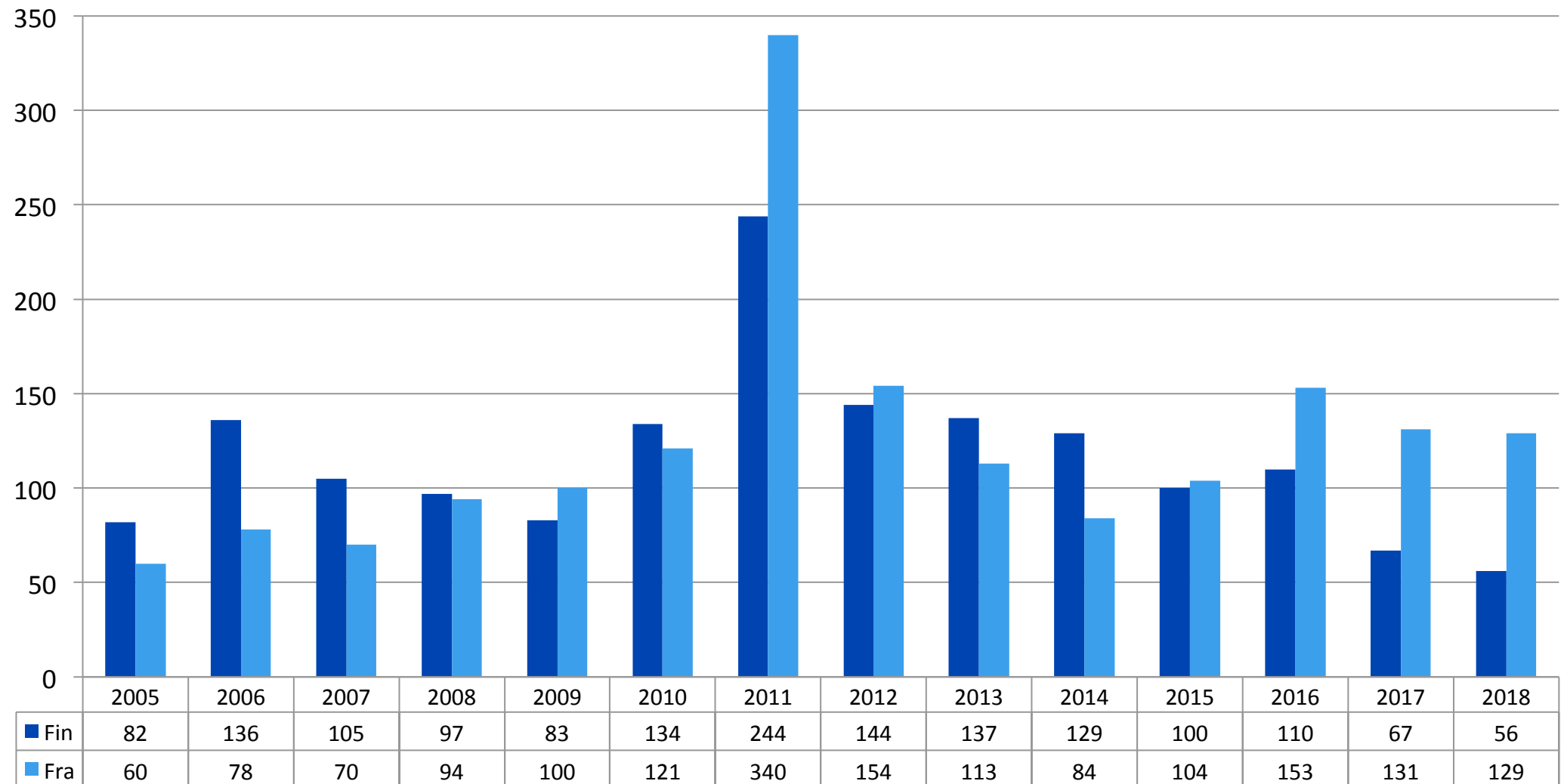
Le Monde, France:

Keywords

- Déchets radioactifs OR
- Déchets nucléaires OR
- Andra OR
- Stockage géologique OR
- Enfouissement des déchets AND
- (ASN OR IRSN)

Total: 1731 articles

Figure 1: Annual number of news items in corpus in 2005-2018



Narrowing down: *HS*

1st stage – the following items were removed from the data set:

- Items other than news items (chronicles, etc.)
- Items not referring to waste or referring to other than high-level waste
- Items referring to transport, storage, reprocessing or dumping of waste, unless item itself referred to final disposal in Finland

2nd stage – remaining items were divided into two categories

- final disposal of SNF/HLW in Finland
 - in a significant role (n= 147)
 - in a secondary role (n=90)

Narrowing down: *Le Monde*

Selection via the Prospéro software, from the initial corpus of 1731 articles

All articles in which "principal actors" included RADIOACTIVE-WASTE@, ANDRA@ or Cigéo

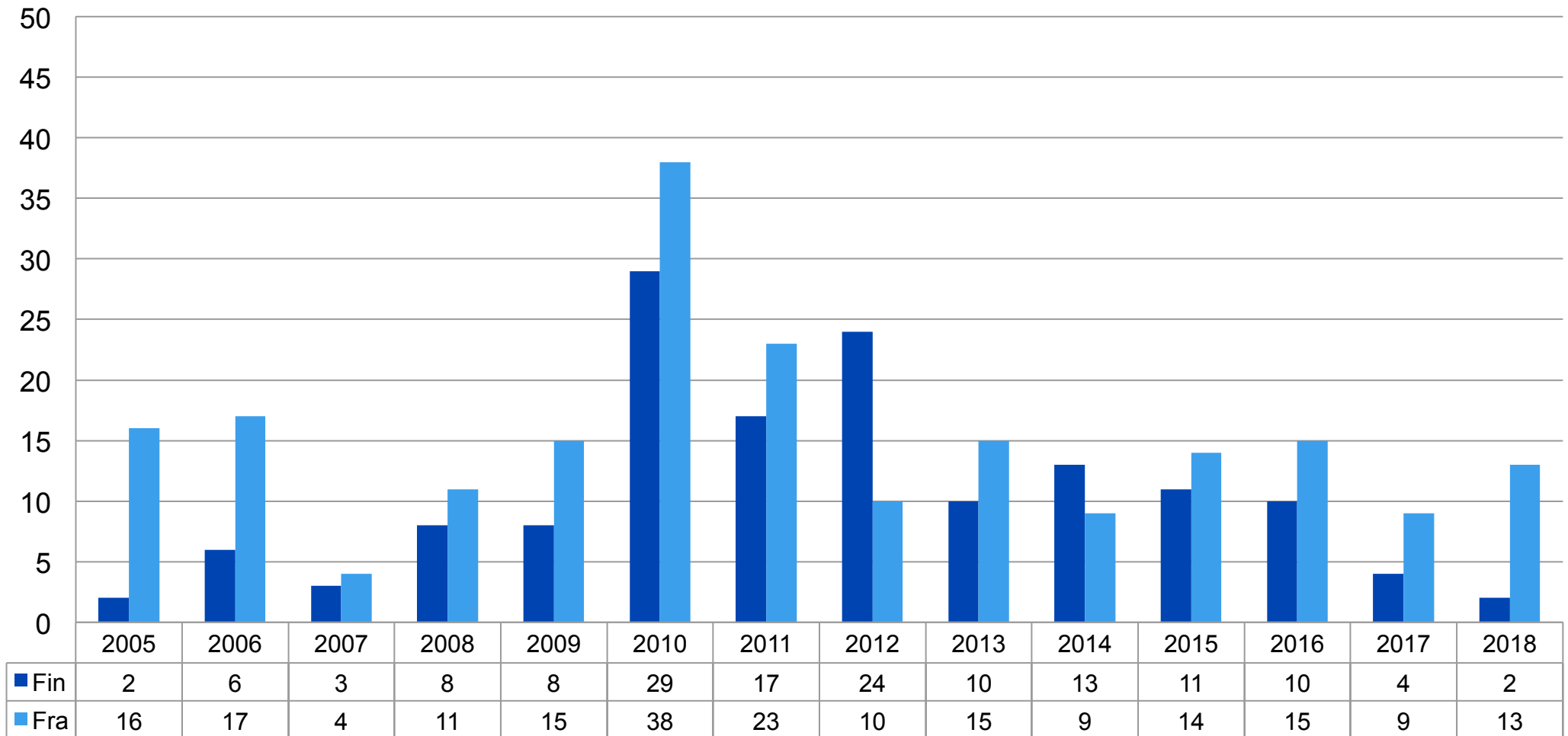
Articles in which the following actors were simultaneously present:

- Safety authority (ASN-DSIN@) and RADIOACTIVE-WASTE@
- Technical support organisation (IRSN@) and RADIOACTIVE-WASTE@
- Technical support organisation (IRSN@) and ANDRA@

Result = 434 articles

In this corpus, **209 articles** had RADIOACTIVE-WASTE@ as a principal actor

Figure 2: Narrowed-down data sets



Preliminary analysis of *Helsingin Sanomat*: issues associated with nuclear waste

- Licensing of new nuclear power plants
 - especially SNF management of the new nuclear power company Fennovoima
- Progress of final disposal (Onkalo / licensing / whole project)
- Description of the ONKALO underground rock characterisation facility and the work undertaken in/for the facility
 - *What will be done* in the future (and not just what is *planned*)
- Finland's position as a forerunner country

Some safety issues raised (*HS*)

Frames

- The project is advancing more or less within the schedule / there is plenty of time to deal with possible complications
 - Safety is attainable. There is time to 'iron out the wrinkles' and for technological development
- Collaboration between companies is recommended (even demanded) but not considered a necessity
 - There is no reason why two repositories would be less safe than one. (Additionally Onkalo could reach its safe limits.)

Preliminary analysis of *Le Monde*

Enduring controversy over nuclear policy and (lack of) transparency

Reprocessing => use of MOX fuel in some reactors; SNF transports; uncertain waste inventory; definitions of “waste”, “material”, “substance”...

Controversies over the **costs** of the repository project: rival estimates by Andra and waste producers (EDF, Areva, CEA) – end of reprocessing?

Opponents, Greenpeace, the Green Party (in government 2012-14)

Safety and risks

- desire by the safety authority (ASN) and its expert arm (IRSN) to assert and demonstrate their independence
- both the advocates and the critics rely on ASN/IRSN in their argumentation
- « impossible safety demonstration »
- broad range of risks – not just health and environment

Reversibility and trust

Initially, in early 1990s, a means of unblocking the stalemate and respond to demands from civil society

Institutionalisation and codification of reversibility in legislation

Balancing between objectives: avoiding burdening future generations, keeping options open, trust in science & technology, the principle of passive safety...

Reversibility now viewed with suspicion by the civil society & project opponents: “is the Cigéo project reversible or irreversible?”

Key role of Parliament and its committees on science & technology and SD

Law defining reversibility (July 2016): several attempts by parliamentarians to sneak in the repository project in bills of law unrelated to NWM => trust undermined?

Trust in the planning and decision-making **processes** a key topic of contention (more than, or to an equal extent as, safety)

Some preliminary conclusions

- Editorial differences between *Helsingin Sanomat* and *Le Monde* towards nuclear power and nuclear waste management
 - *Le Monde*: critical environmental journalism on NWM (and nuclear)
 - *Helsingin Sanomat*: more neutral tone towards NWM
- Framing differences between and within the newspapers:
 - *Le Monde*:
Promoters of the project embrace and underline the continuously evolving nature of the repository project (hence, reversibility), whereas the opponents argue against a project they describe as irreversible
 - *Helsingin Sanomat*:
The SNF project is progressing as planned (and therefore there is no need for any extra measures)

Thank you for your attention!

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