The Self-reflecting Process – a New Challenge (?)

Work performed under WP 3 of the SOTEC-radio research project

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Agenda

1 The demand for a self-reflecting process

2 The reversibility concept as a potential parallel

3 Experience with Safety Culture and –Management

4 Preliminary Conclusions

The demand for a self-reflecting process

German Siting Law 2017, § 1 :

The purpose of the law is to define a *"participatory, science-based, transparent, **self-reflecting and learning procedure"*** for the siting process.

German Disposal Commission 2016:

*"The whole process must be transparent, with significant participation of the public and the regions affected and must be designed as a **self-reflecting system**."*

The demand for a self-reflecting process

Goals of "*self-critical and alert structu*res" according to the German Disposal Commission (2016):

- Avoid undesirable developments

- Identify non expected developments as early as possible

- Initiate open communication and actions to deal with these developments

- Detect any signs of organisational blindness and nip them in the bud

- Perform the long term, sensible task continuously on highest level of safety

The demand for a self-reflecting process

A self-reflecting process requires organisational considerations on three levels:

- **Individual level**, e.g.
  - vigilance in perceiving and dealing with information
  - the ability of self-questioning
  - openness towards dissenting opinions

  Organisational psychology offers suitable support tools

- **Institutional level** (of all institutions involved), e.g.
  - commitment to a culture of reflexivity: high safety culture
  - exchange oriented behaviour: avoiding a "circle-the-wagons mentality"
  - active participation in scientific dialogue to further develop own positions
  - consideration of societal expectations
  - establishing adequate organisational structures

The demand for a self-reflecting process

- **Intra-institutional level**, e.g.
  - Avoid competence monopoly of a single institution
  - Foster continuous exchange between institutions and active support of diversity of views
  - Clear distribution of roles and responsibilities
  - Constant "surveillance" by the National Support Body

  (extract from German Disposal Commission 2016)

How can these requirements be fulfilled?

Which practical experience can be transferred to make this theoretical model more tangible?

Looking for parallels in the context of

- The reversibility concept

- Safety culture and safety management approaches

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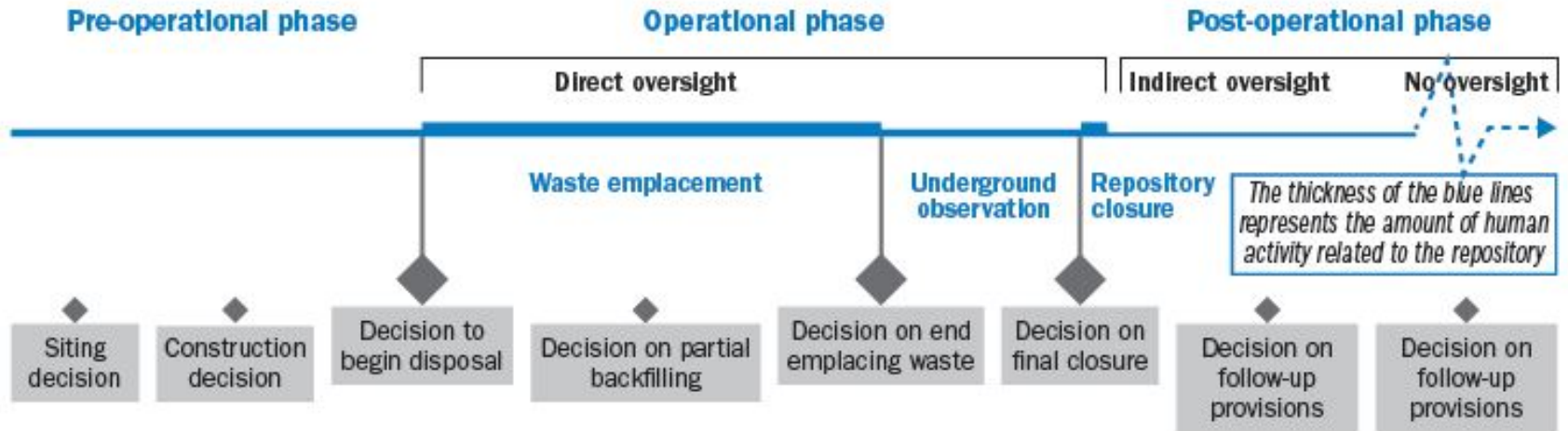# The reversibility concept as a potential parallel

OECD-NEA: Understanding of Reversibility and Retrievability:

„Reversibility implies a willingness to question previous ***decisions*** *and a culture that encourages such* ***a questioning attitude****.”*
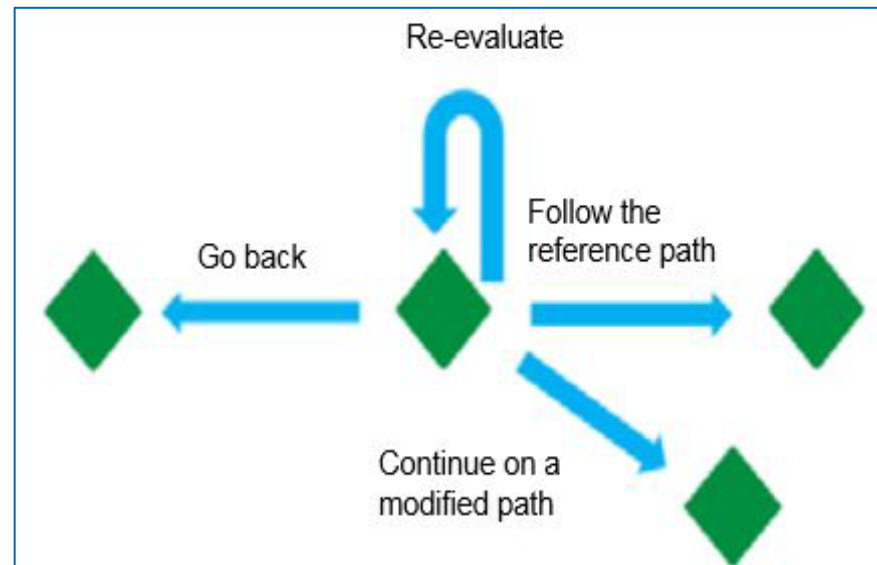
Potential outcomes of option assessments Including reversal (NEA 2011)

The reversibility concept as a potential parallel

Pre-operational phase   **Operational phase**   **Post-operational phase**

Direct oversight   Indirect oversight   No oversight

Waste emplacement   Underground observation   Repository closure

The thickness of the blue lines represents the amount of human activity related to the repository

| Siting decision | Construction decision | Decision to begin disposal | Decision on partial backfilling | Decision on end emplacing waste | Decision on final closure | Decision on follow-up provisions | Decision on follow-up provisions |

NEA 7085 (2012)

Reversible decision making according to OECD-NEA (2012)

*For stepwise **regulatory and policy decisions** to be credible, they must be reversible or at least modifiable in the light of new information.*

*… reversibility of decisions implies, for the **organisations implementing disposal**, to build in waste **retrievability provisions**…*

*…the **flexibility** introduced by reversibility **decreases with time***

The reversibility concept as a potential parallel

Some main parallels to the self-reflecting process:

ü Flexibility

ü Openness

ü Questioning attitude

✖ Adapted to major decisions

✖ Political and regulatory decision makers = main actors

✖ **Re**action as the main driver

● No detailed recommendations for implementation

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Experience with Safety Culture and –Management

Safety Culture:

- A concept with a long tradition in nuclear and other hazardous industries

- First international recommendations date back to 1991:
  IAEA INSAG 4 „Safety Culture"

- Traditionally safety culture recommendations address the operator
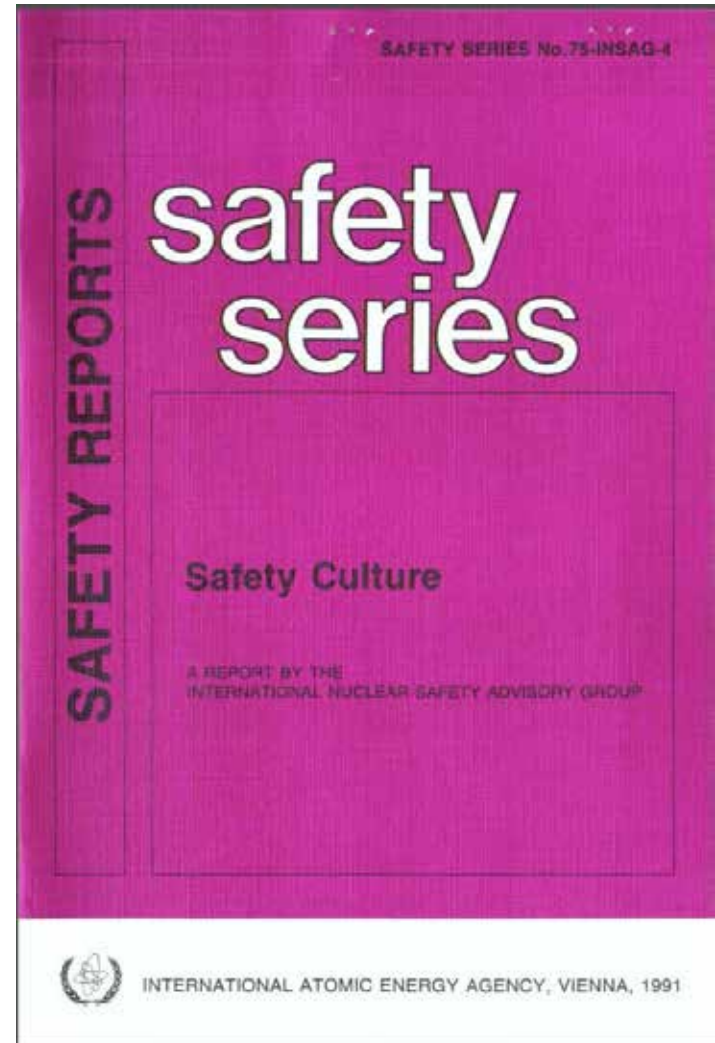
Experience with Safety Culture and –Management

Safety Culture:

- Latest publication NEA 2016* refers to regulators' safety culture:

  *"it is paramount that the regulatory body not only consider safety culture as **a matter of oversight**, but also as **a matter of self-reflection**"*

- Self-reflection should cover i.a.:

  – the impacts on the licensees' safety culture

  – the regulator's role in the system of actors and its interactions with the licensees and stakeholders

  – striving for an open and learning attitude towards the technical, regulatory and organizational approaches

 * OECD/NEA: The Safety Culture of an Effective Regulatory Body,
   NEA No. 7247

Experience with Safety Culture and –Management

Safety Management:

- … is a well-established method for facilitating safety culture objectives in implementing /operating organisations *):

- The 'Plan – Do – Check – Act' – management circle shall contribute to continuous improvement of safety

- Managers set safety goals and demonstrate commitment to safety

- Questioning attitude of individuals is supported

- Learning from experience

*) see e.g.:
IAEA General Safety Requirements GSR-Part 2, 2016
BMU Safety Requirements for Disposal, 2010
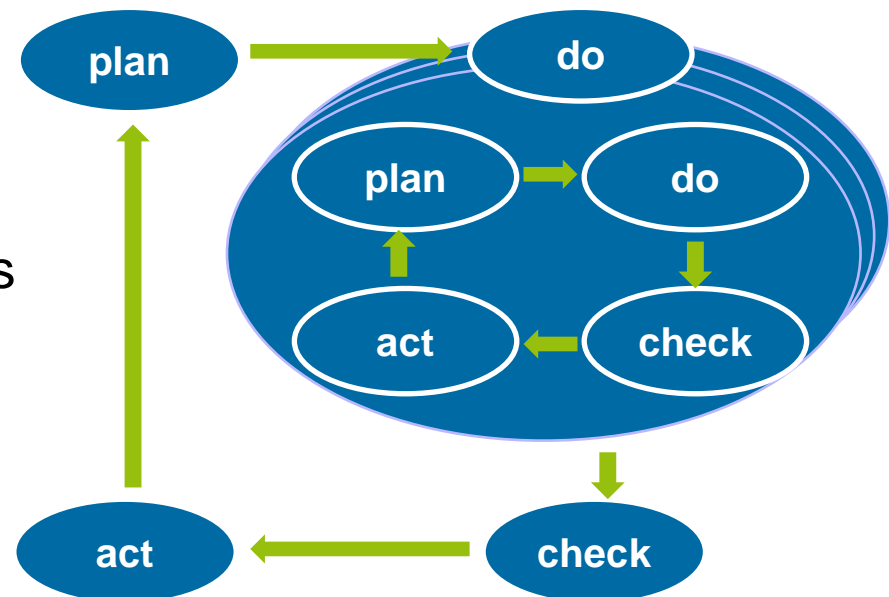
Experience with Safety Culture and –Management

Some main parallels to the self-reflecting process:

ü Questioning and learning attitude

ü Organisational measures for inner-institutional self-reflection

ü Commitment to safety

✖ Mainly focusing on the implementer / operator

✖ Safety goals and measurable indicators as a basis for checking actions and performance

✖ Experience plays a central role for individual and organisational learning

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Preliminary Conclusions

- The self-reflecting process introduced by the German Disposal Commission is a very comprehensive concept

- It shall respond to specific requirements of disposal:
  - long duration,
  - high safety significance,
  - limited number of experts involved

- The reversibility concept and the safety culture / safety management approach provide some parallels, e.g.
  - a commitment to safety and continuous improvement
  - supporting an open and questioning attitude of individuals
  - striving for organisational structures that promote inner-institutional self-reflection

- But they do not cover the full scope

Preliminary Conclusions (2)

- Individual and institutional learning has to deal with disposal conditions that impede "learning-from-experience":
  - singularity of the process
  - lack of easily measurable safety indicators during the long-lasting siting phase
  - lack of "countable" mistakes or near-misses like maloperation or system failures which constitute a basis of experience

- Demands on intra-institutional relations including the role of the independent oversight body pose new challenges
  ➨ a common culture of openness and exchange has to be developed

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Thank you for your attention!

Do you have any questions?