

## Framework of Risk Assessment of CO<sub>2</sub> Geological Storage

# Atsuko Tanaka[1]

[1] GREEN, AIST

<http://staff.aist.go.jp/a.tanaka/>

### 1. Introduction

A lot of research and development efforts has been paid on for carbon capture and geological storage, as one of effective measure for deducing greenhouse gas release to the atmosphere. To establish robust technology of carbon geological storage, they are expanding efforts for not only within the range of technology itself but forming public acceptance. Concerning to Japanese state of arts, kinds of risk elements has been analyzed to prove the possible robustness of the technology. Nevertheless, there are small number of reports on combining and integrating of scope and framework of risk assessment about the carbon geological storage.

In this poster, the author present Frame work of Risk assessment of carbon geological storage, then, categorize purposes, endpoints and hazards of risk assessment of around the technology.

### 2. Framework

There are three categories of expectation to risk assessment for essential decision making in practical application of carbon geological storage.

- 1) Screening assessment of Site selection
- 2) Environmental impact assessment
- 3) Detailed risk and safety assessment total stages of the operation: Planning, opening, injection, closing, post-closing.

### 3. Purpose of risk assessment, and its endpoints and mentioning hazards

In utilize the carbon geological storage technology, there are questions to be answered .

- Will geological storage reservoirs leak?
- If leakage occurs, what are the health, safety, and environmental risks?
- Can leakage be predicted, detected, and quantified?
- What can be done to stop or slow a leak, should it occur, and how much would it cost?

These questions are the purposes of risk assessment themselves.

- 1) Property assessment for site selection
- 2) Environmental impact assessment
- 3) Safety and Environmental Management
- 4) Cost evaluation

As regard with the endpoints and mentioning hazards of the risk assessment of the technology, there are for elements.

- 1) Impact on human
- 2) Impact on ecosystem
- 3) Impact on geological formation
- 4) Impact on georesources.

### 4. Conclusion

The author review state of arts of CO<sub>2</sub> geological storage risk assessment. In the poster, the author will presents framework, purpose of risk assessment, and its endpoints and mentioning hazards of carbon geological storage.

### Reference

1. Benson, S., et.al.: Carbon Dioxide Capture and Storage, 5.7 Risk management, risk assessment and remediation, Cambridge University Press, pp. 242-252, 2005.1
2. Tanaka, Komai, MMIJ 2009.3
3. Tanaak, Tosha, MMIJ [P], p.13, 2008.10
4. Benson,Sally M. et.al: Mine.Soc of Am, v.4, n.5, pp.325-331,2008.10
5. Kumagai, et.al. J of Soc.Machinery 2007(3),pp.101-102,2007.9

