

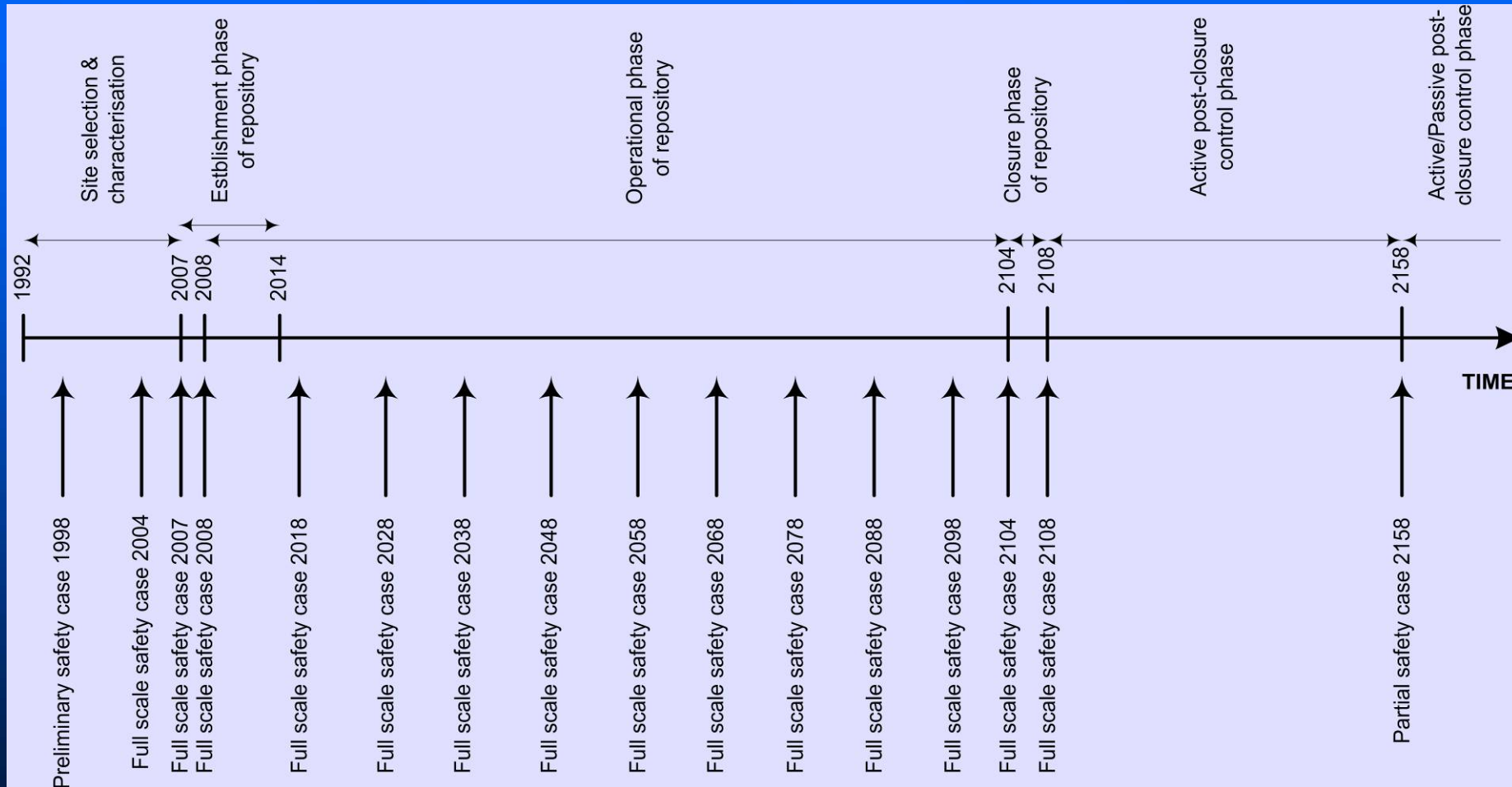
**OECD/NEA SYMPOSIUM  
SAFETY CASES FOR THE DEEP DISPOSAL OF RADIOACTIVE WASTE:  
WHERE DO WE STAND?  
23-25 JANUARY 2007, PARIS, FRANCE**

# **DATA GATHERING AND LONG-TERM MAINTENANCE OF CONFIDENCE**

**Zoltán Nagy  
PURAM (HUNGARY)**



# SAFETY CASES WITHIN THE LIFE TIME OF BĀTAAPĀTI REPOSITORY



# SOME QUESTIONS

- Will the data originated from many decades old assessments really be used as the basis of the new safety case?
- Does the confidence of many decades old „results” remain on the same level?
- If not, what are the causes and consequences of this confidence-level decrease,
- What can we do to prevent or to postpone the confidence-level decrease?



# THE ELEMENTS OF A TYPICAL STRUCTURED PROCEDURE FOR THE DEVELOPMENT AND COMPILATION OF A SAFETY CASE

- The establishment of an assessment basis
  - The safety strategy,
  - The system concept,
  - The assessment capability
    - Safety-relevant features, events and processes,
    - Assessments methods and models,
    - Site-characterization data and other information (e.g. proper application of the methodology, models, databases and codes),
- The application of the assessment basis in a performance assessment,
- The evaluation of confidence in the safety indicated by the assessment,
- The compilation of the safety case.



# SOME ELEMENTS OF THE DECISION & ASSESSMENT ENVIRONMENT

- People who participate in the decision-making and safety assessment processes,
- The scientific and technological background,
- Legislation background,
- Data (information) concerning the repository,
- Guidance from previous development stage,
- Practical and programme constraints.



# THE CHANGE OF DECISION-ASSESSMENT ENVIRONMENT

## *(n-1)<sup>th</sup> safety assessment*

In comparison to the previous stage:

- partly new participants
- partly different scientific and technological background
- the same or different legislation background
- partly new dataset
- new guidance from previous development stage
- the same or different practical and programme constraints

## *n<sup>th</sup> safety assessment*

In comparison to the previous stage:

- partly new participants
- partly different scientific and technological background
- the same or different legislation background
- partly new dataset
- new guidance from previous development stage
- the same or different practical and programme constraints

## *(n+1)<sup>th</sup> safety assessment*

In comparison to the previous stage:

- partly new participants
- partly different scientific and technological background
- the same or different legislation background
- partly new dataset
- new guidance from previous development stage
- the same or different practical and programme constraints

TIME →



# RE-EVALUATION PROCESS OF DATA

- The guiding question: “is there enough information to make a defensible safety case?”
- The re-evaluation process may conduct to data reduction as well as to data increase, too.
- The change of usable information for safety assessment is always induced by the change of decision & assessment environment.
- Data may be excluded from further works because of lacking some additional (auxiliary/meta) information related to this data and the information that could make the repeating of previous data processing or the adoption of a new method possible.



# CONCLUSION

- Data can easily lose their usefulness for the future generation if we do not retain, if we do not attach to them those information (metadata) which make their reproducibility, transparency and traceability possible.
- The lack of metadata can conduce to reduction of the assessment capability (by decreasing the amount of available data) and as a consequence some measurements, observation and calculation will be needed to repeat in one of the following safety assessment stages.



# WHAT DO WE NEED TO DO? (1)

- Every measured, observed or derived information has to be built in the database together with their so called metadata describing the attributes of information,
- Requirement of reproducibility, transparency and traceability need to be taken into consideration during the specification of metadata.
- These requirements need to be built in the data acquisition plan already in the very beginning of every project.
- The representative of waste management company has to participate always in the specification process of the metadata because the guarantee of the long-term considerations only thus are possible.



## WHAT DO WE NEED TO DO? (2)

- Each information need to be treated as individuality because it is not possible to find general rule for the specification of all metadata related to these information and needed by the future users.
- The relational database has to be preferred as a tool of information storage at present because a paper based information storage medium (e.g. reports) can appreciably reduce the chance of re-using of information.
- Deletion of any information from the database has to be forbidden.
- The information (and/or metadata) upload into the database has to be a data-supplier's duty.



# THE HUNGARIAN DATA-GATHERING PRACTICE (1)

- The place where data comes from (e.g. name(s), the type of location, coordinates, the type of coordinates and the accuracy of coordinates, etc.),
- The time/date of measurement, observation or derivation,
- Person, by whom the measurement (observation, derivation, data processing, verification, etc.) was carried out,
- The project, relating to the measurement, observation or derivation,
- Information about measuring tool (e.g. type, manufacturer, serial number, calibration information, accuracy, range, using method, measured parameter, measurement unit, etc.),



# THE HUNGARIAN DATA-GATHERING PRACTICE (2)

The observation/derivation method (e.g. representation, related uncertainties, etc.),

- The raw data of derived information, related uncertainties,
- The related documentations in electronic form,
- The measured substance (e.g. water, rock, gas, plant, amount, volume, used chemical treatment, etc.),
- The geological formation and era when applicable,
- Links to the FEP when applicable,
- Etc.



# PROPOSAL

- It would be useful to compile a guide about the interaction between data gathering and long-term maintenance of confidence in the reflect of the international practice.
- Within the scope of this work it would be expedient to sum up
  - the set of information used for the safety assessment,
  - how those information should be arranged in groups,
  - to determine metadata which are necessary for the long-term usefulness of those information in the safety assessment stages, and
  - how the wrong determination of metadata can influence the reproducibility, transparency and traceability of the information.



***THANK YOU FOR YOUR  
ATTENTION!***

