

HIDRA

Human Intrusion in the context of Disposal of RadioActive waste

Closing Summary for Technical Meeting
28 September 2012

*Roger Seitz
Lucy Bailey*



IAEA

International Atomic Energy Agency

Background - Perspective

Radioactive waste management is conducted in a manner that considers factors not addressed in other industries in respect of potential impacts on future generations

- Consideration of future human actions after loss of institutional controls
- Consideration of very long time frames

“Concentrate and Contain” or Safety Index (isolation)

Need to maintain perspective regarding the overall benefits of the approach relative to the potentially greater hazards that could result from intrusion

Objectives

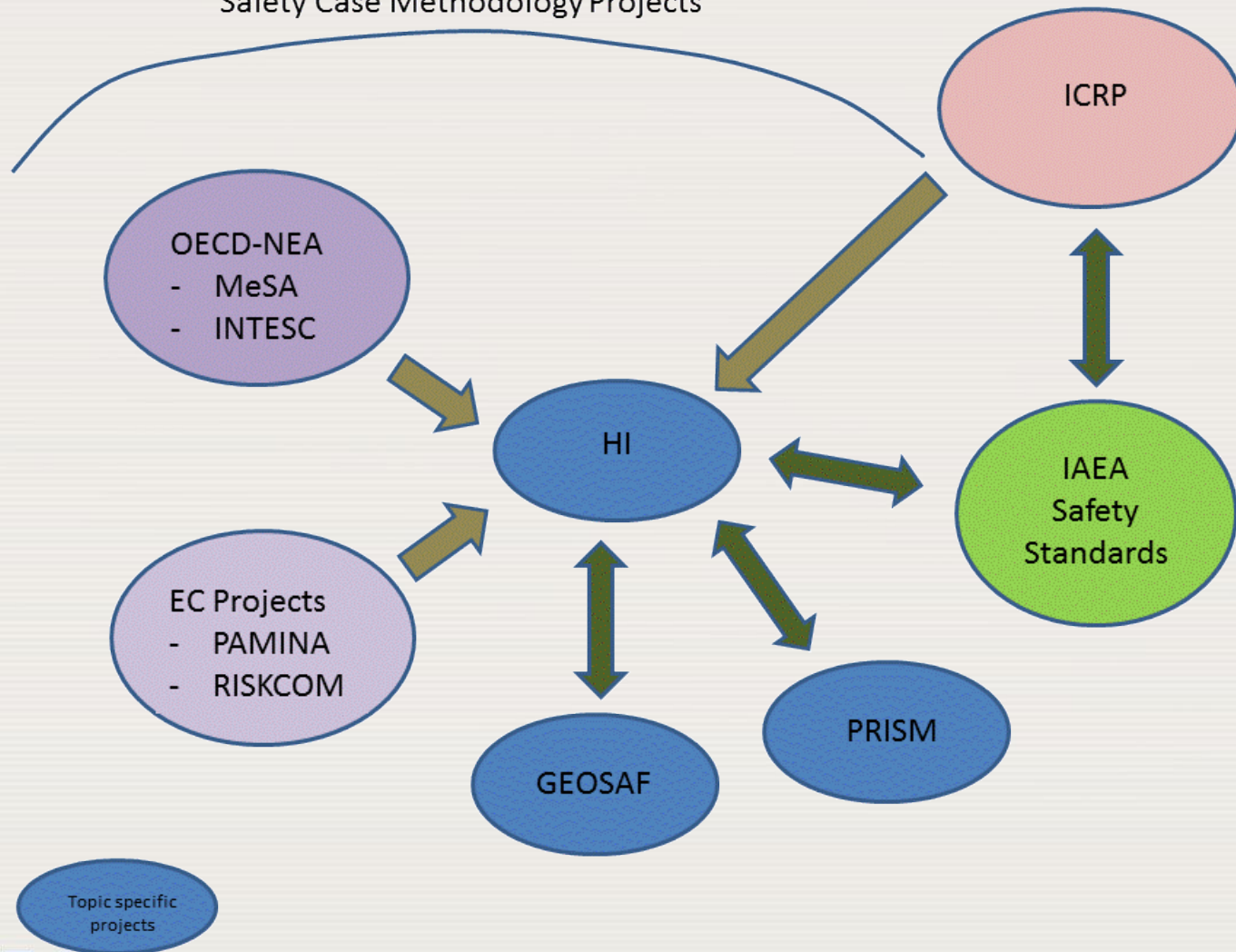
- Share experience and practical considerations for development and regulatory oversight of assessments of impacts of future human actions, primarily human intrusion, in the context of the safety case during the lifecycle for a disposal facility
- Provide specific information regarding technical, societal and design considerations to support development of a structured process or methodology for developing scenarios for site-specific application
- Describe the role of assessments of future human actions for siting, design and development of waste acceptance criteria in the context of the safety case

Objectives (Cont.)

- Provide suggestions for communication strategies to describe the rationale for assessments of future human actions and for interpretation of the results of those assessment for the public
- Provide recommendations for WASSC and RASSC, as appropriate, for clarification of existing IAEA requirements and guidance relevant to the assessment of future human actions and human intrusion.

Interfaces

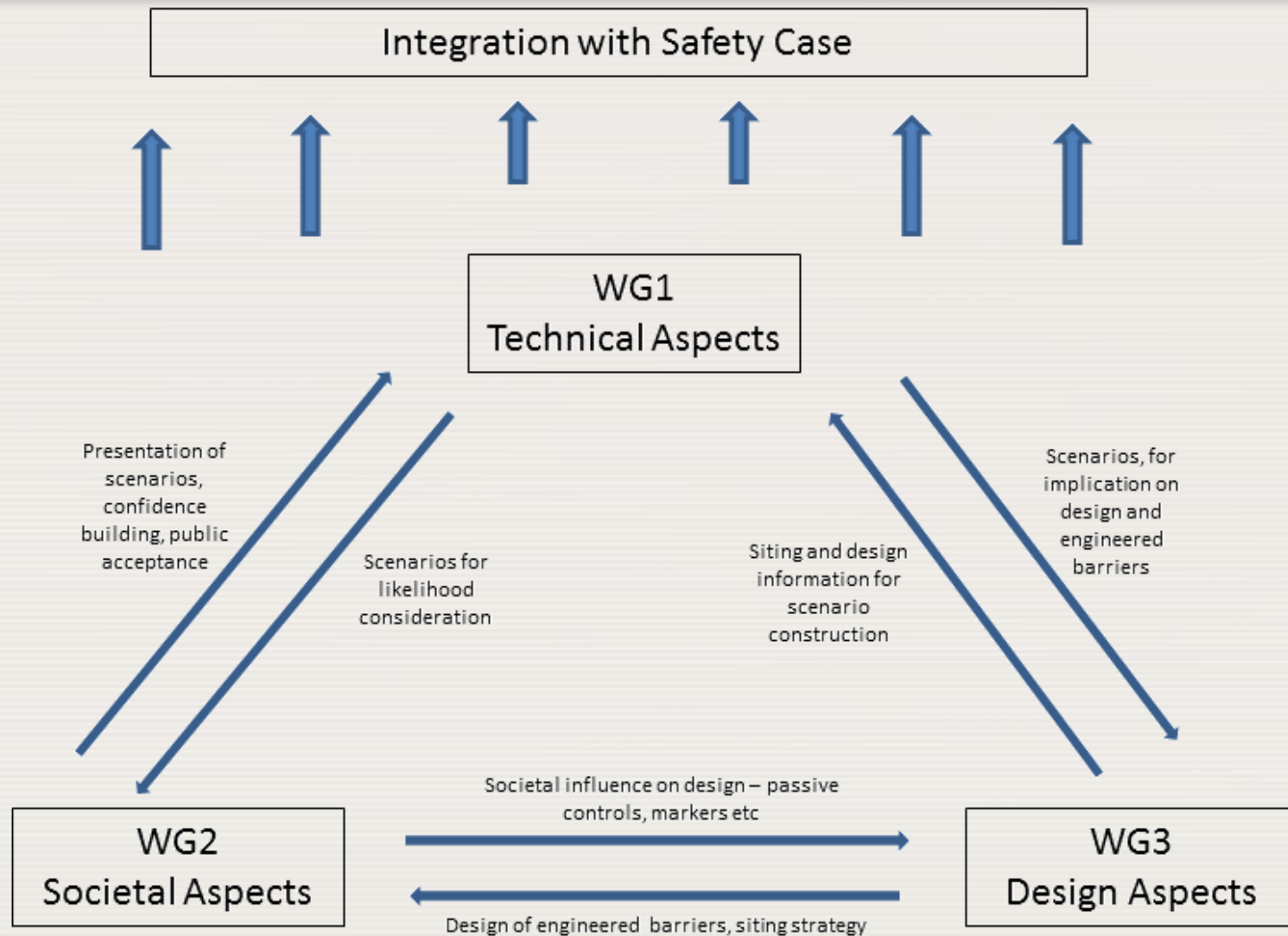
Safety Case Methodology Projects



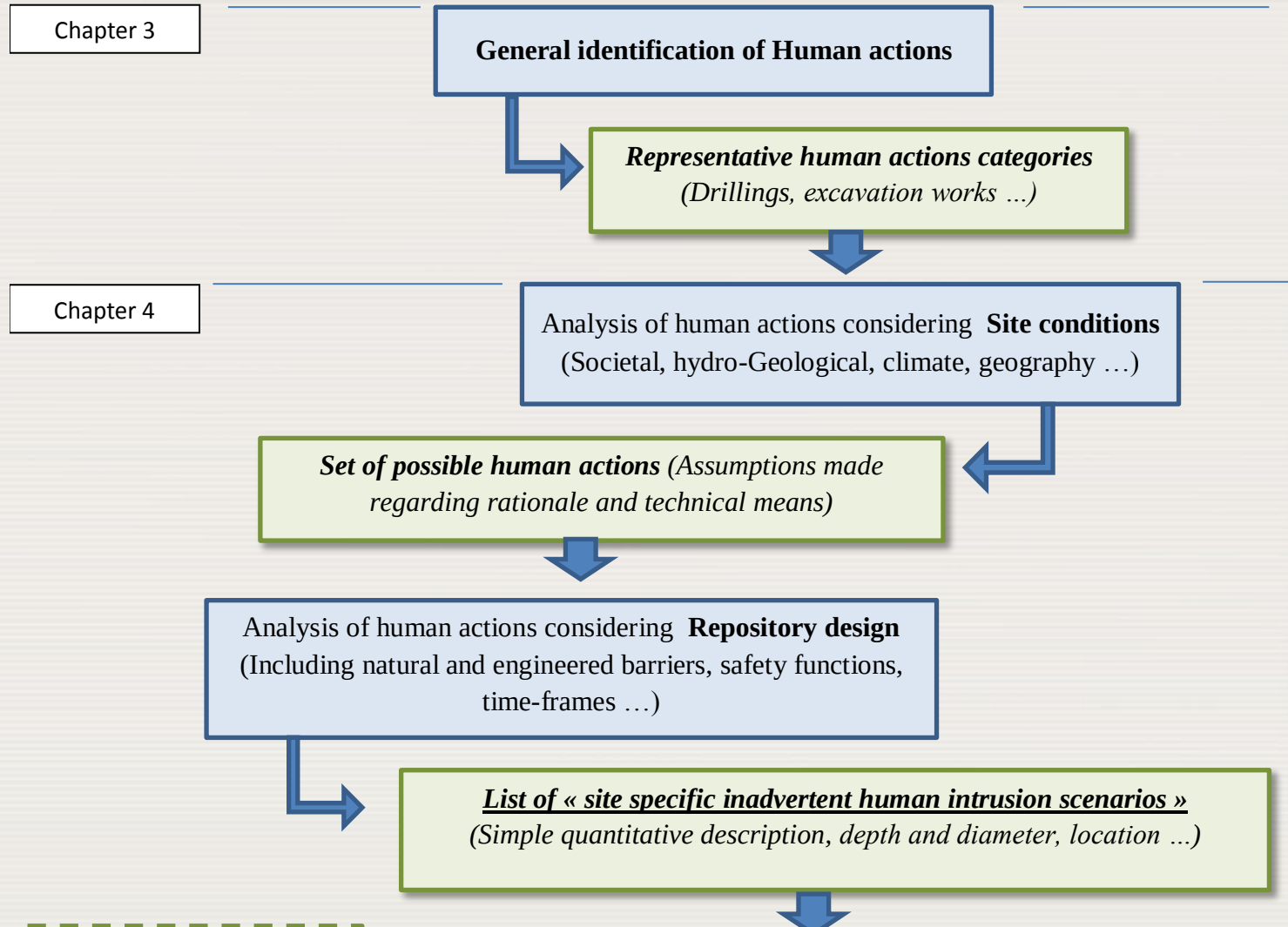
Scope

- Future human actions, emphasizing inadvertent human intrusion
- Post-Closure for a properly closed repository, assuming loss of passive and active institutional controls (consider optimization of design for potential partial closure)
- Consider factors that influence timing of loss of institutional controls
- Geologic and near-surface disposal facilities, including boreholes and intermediate depth facilities (VLLW, L/ILW, HLW, SF)

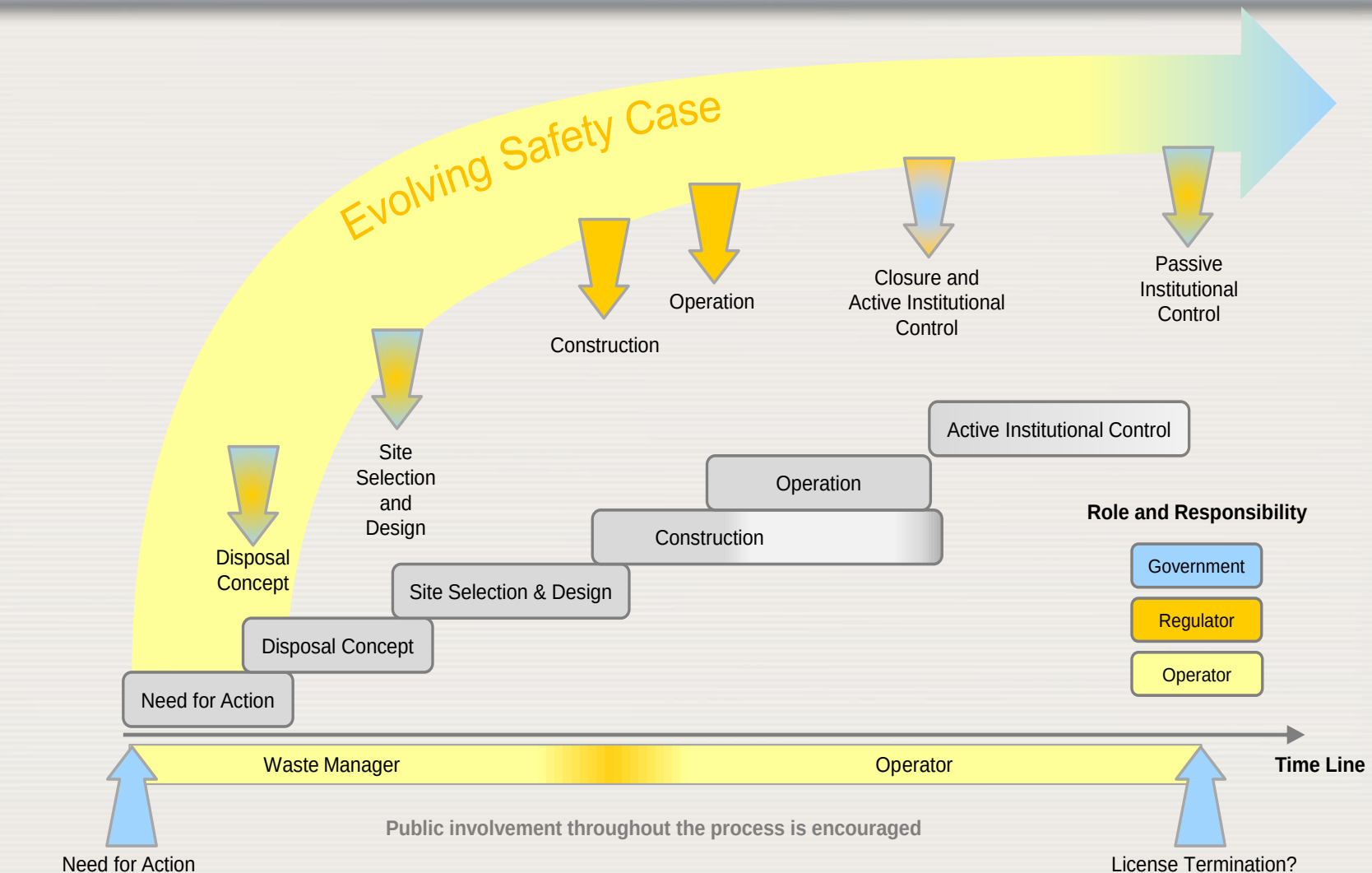
Integration



Potential Concept for Methodology



Safety Case Considerations (Life-cycle)



Story Line

- Phase 0: Operational Period
- Phase 1: Institutional Control
- Phase 2: Post-institutional Control, Knowledge of Facility
- Phase 3: Distant Future, Knowledge of Facility Hazard is lost

Cross-cutting Topics

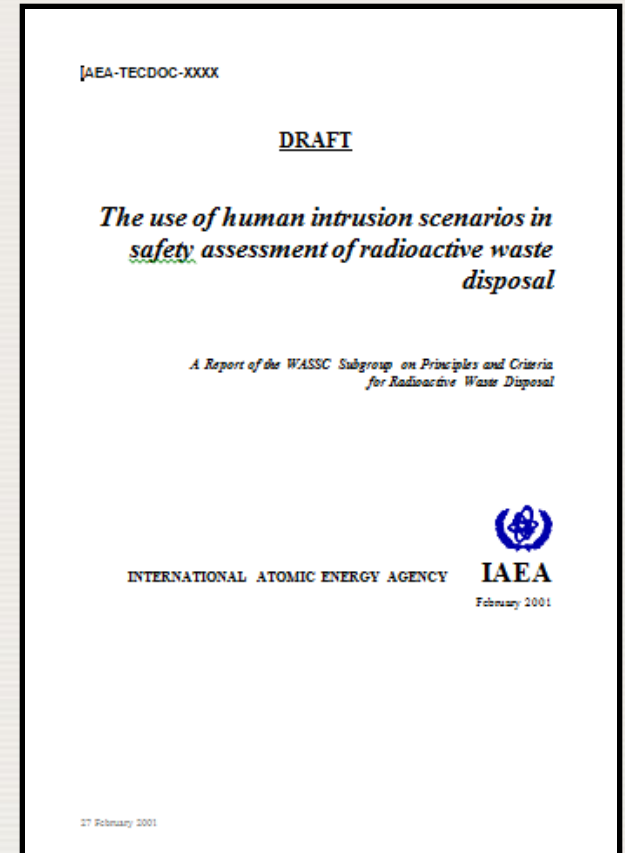
- Consider how scenarios regarding future human actions are used in the process of siting, designing and developing WAC (applications throughout lifecycle)
- Regulatory considerations – oversight/reviews and development of regulations and guidance
- Inclusion of probabilities/likelihoods
- Public perception of intrusion
 - Explain intrusion results in context of likelihood without using probabilities
 - Communicating the basis for considering human intrusion

Working Methods ?

- Project must address Member State needs, your input is helping to ensure this is accomplished
- This week we have tried to have a balance between discussion and independent smaller groups
- Important to formulate the plans for the project, but also to make progress towards a product while we are here
- Smaller groups help to consider details in the context of what can be accomplished to support development of the project plan
- Is this approach helping to meet your expectations?
- Initial topics have been identified, but can add more or adjust focus as work proceeds
- Advertising – Web site, Include participants and working groups

Draft Report from WASSC Subgroup

- Addressed many of the topics discussed in March and this week
 - Systematic approach, Stylized scenarios, Countermeasures
- Identified issues related to intrusion
- Included examples



Initial Concept for Report

- Background
- Integration with other activities
- Role of Human Intrusion in context of the Safety Case
- Methodology or Process
- Chapters for Each Working Group
- Examples