Group discussions on the long term
Synthesis for the plenary session
What is long term?

- long term – as defined by RK&M group – is not necessarily what comes after medium term:
  - Medium term should last as long as possible

⇒ In an ideal world, there is no RK&M long term, until « John Maynard Keynes’ long term » (when we are all dead)
What is long term?

- RK&M medium term can come again after RK&M long term!
  - RK&M long term is defined as the absence of oversight
  - If future generations succeed in initiating a new period of oversight, there will be again a medium term period!
What is long term?

- At least 3 possibilities for the long term period:
  - Lack of memory - « there’s something dangerous here »
  - No memory at all
  - Or even worse : distorted memory - « there’s a treasure here »

- Following the defence in depth principle, provisions for memory keeping should:
  - Prevent the lack of / decreasing memory-keeping:
    - Systemic approach -> group 5
    - Cultural heritage -> groups 4 and 6
  - In case of lack of /decreasing memory-keeping, favour the regeneration of awareness and avoid a distorted memory
    - Facilitating knowledge reconstruction -> groups 1 and 3
    - Means:
      - Cultural heritage -> group 4 and 6
      - Markers -> group 2
Systemic approach

• What should it include?
  – Provide a message aimed at the future
  – Interface with society; for example be educational
  – Cover other hazards (toxic waste, natural risks)
  – Metadata to provide the context of the data

• How can it be implemented?
  – International role is essential to give robustness
  – Disposal sites should be seen as monuments and cross refer to others disposal sites

• What areas need attention?
  – Keep « enough people in the race » so that someone gets to the end
  – Build a system of metadata that does not rely on present context. (Is it possible?)
  – Organization to regenerate information on a rolling basis

• Ethics: It is not our role to handle the responsibility for future generations but to enable them to find their own solutions
Cultural heritage

• Is it possible to make a cultural heritage from a repository?
  – Heritage is something alive, which contradict with the idea of final disposal.
• Overcoming this difficulty should be a priority:
  we need a cultural response to a technological problem
• Other difficulties:
  – Invisibility is a problem but on an other hand, industrial heritage has became common
  – The topic « radiation » is missing in the commonplace culture: measuring radiation has to become as measuring the weather.
• Proposals:
  – Cultural heritage must be combined with the systemic approach (redundancy)
  – We need the presence of local community to preserve the cultural memory. For that we need to change the image of repository:
    • Shall we stop to use the term « waste »?
    • Find opportunities around the disposal and combine with other interests (Ex: national archives)
  – Enforce with a national or international common cultural vision
• Step by step approach:
  – We can only construct culture for our cultural context, and then it has to be transmitted
  – Cultural heritage is also thinking about contemporary practices
  – Rituals are a good thing to ensure cross generation transmission
    • How to keep the rituals alive?
    • Think of using universal motivation (astronomic phenomena) or commemorating something
Facilitating knowledge reconstruction

- Redundancy is a key factor for robustness
- Who shall secure knowledge and facilitate knowledge reconstruction? Two options: Groups that have a personal interest or formal institution
- Develop synergies:
  - With conventional waste
  - More links between RK&M and IAEA
- Reflective approach: what is the value associated with preserving information and for who?
  - The strategy depends on this value: is it human, economic...?
- Maintaining massive records is less important than keeping key knowledge. We don’t know how sophisticated will future generations be.
- To organise, now, knowledge reconstruction in 10,000 years remains kind of utopian. Cross generation transmission remains the most robust:
  - Mediated transmission allows an adaptive approach
  - Education and integration of younger generation on radioactivity is essential
Markers and beyond

• Duality of markers because of contradictory tendency:
  – Risk of having markers -> curiosity to drill there. For example, at this stage, Sweden and Finland don’t plan to have markers on site
  – But Responsibility to inform people is a motivation to have markers

• Standardization has potential benefits:
  – Learn from each other
  – Ease the comprehension
  – But this rise a risk: if the selected common marker is not understood, this is a common mode failure among sites

• Markers have also a role for the medium term: they help us maintaining memory.