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DEVELOPMENT OF GUIDANCE DOCUMENTS IN THE EURAD AND PREDIS PROJECTS

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- Who are End users
- Pilot guide – experience EURAD WP12
 - Topic selection process
 - Guide preparation and
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- Reflection of pilot guide LL and literature analysis
- Conclusions

EURAD and PREDIS

Current EC programmes dealing with RWM:

- European Joint Programme on Radioactive Waste Management (EURAD)
 - June 2019 – May 2024
 - 3 KM WPs – 11,12 and 13; WP12 - Guidance

- PREDIS (Pre-disposal management of radioactive waste)
 - September 2020 – August 2024
 - KM in single WP



Radioactive Waste Management and Knowledge Management

- RWM consists of a large multidisciplinary set of different tasks
- RWM has a large time span overarching many decades
- RWM promote the importance of a systematic approach to identify, manage, share knowledge, and enable groups of people to create new knowledge collectively to help achieve safe RWM
- Knowledge management (KM) – including knowledge consolidation – is recognized as a key part of the RWM implementation process and has gained increasing interest in the past 10 years

End-users who need to manage knowledge in a relatively narrow area, usually within an established framework

- detailed topics
- higher level of details
- the level of detail and variance in national circumstances often make it difficult to provide guidance that is valid for multiple programmes.

Often applied for knowledge transfer between generations.

End-users who need to start (or substantially change) a disposal programme implementation

- characterized by low experience in a particular area (*sometimes not recognize importance of the topic for future development of the programme*)
- examples may be effective but should not be used without taking into account national circumstances.

Typical for the exchange and sharing of knowledge between advanced programmes and newcomers to the topics.

Topic selection

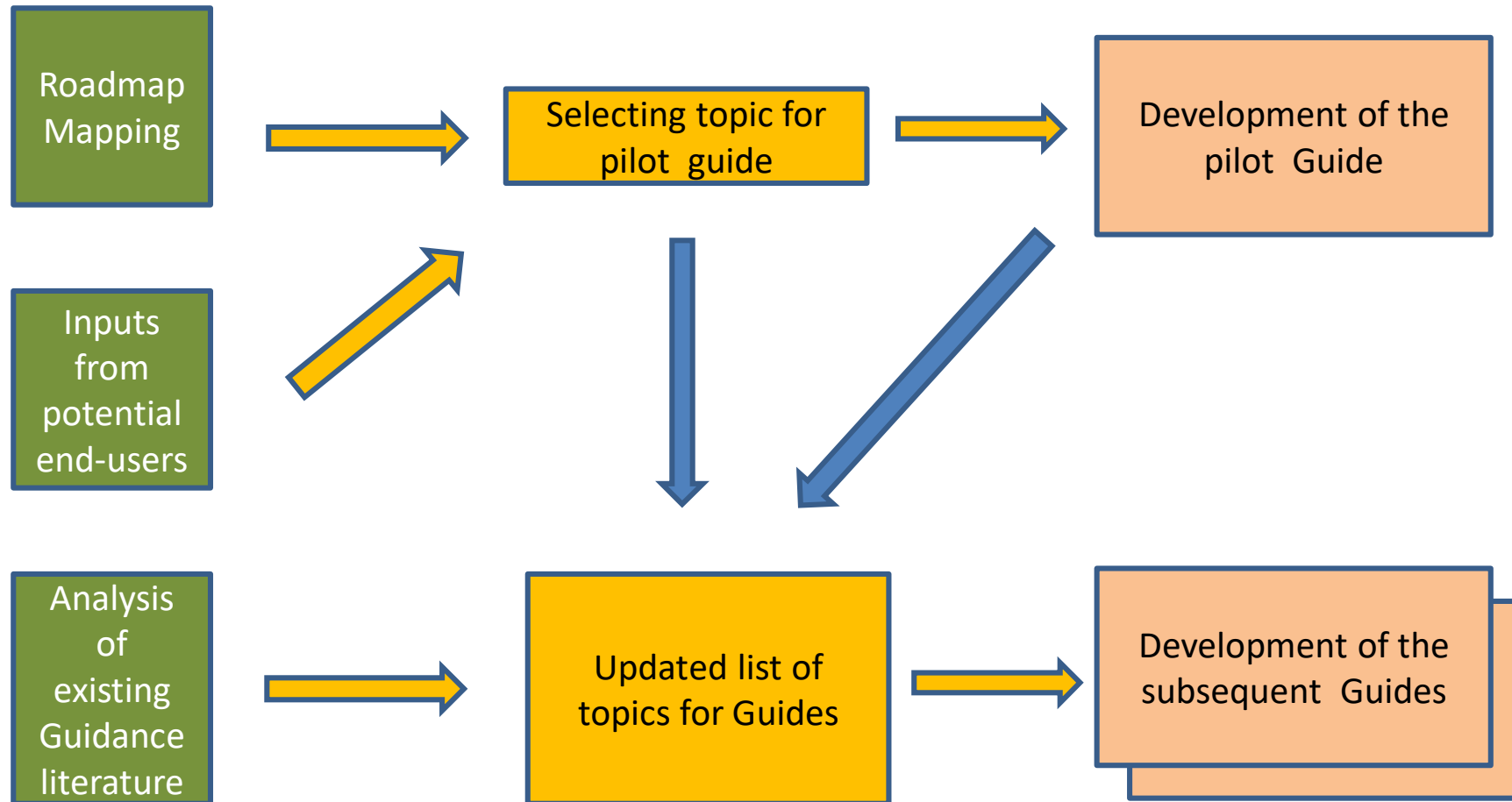
- Close relation to Strategic Research Agenda
- Approaches:
 - Top-down : combination of identification of gaps using the Roadmap and Experts
 - Bottom-up: specific needs raised directly by the wider community of potential end-users or stakeholders
- Sources
 - Experts suggestion (SRA teams, Editorial board,....)
 - Analysis of existing guidance literature
 - Programme partners

Analysis of existing guidance literature

Mapping of the available guidance and guide-like technical documents

- International regulation documents (ICRP and WENRA)
- International guides (IAEA)
- International guide-like technical documents (IAEA, OECD NEA, EC Projects)
- National guides
- National guide-like technical documents

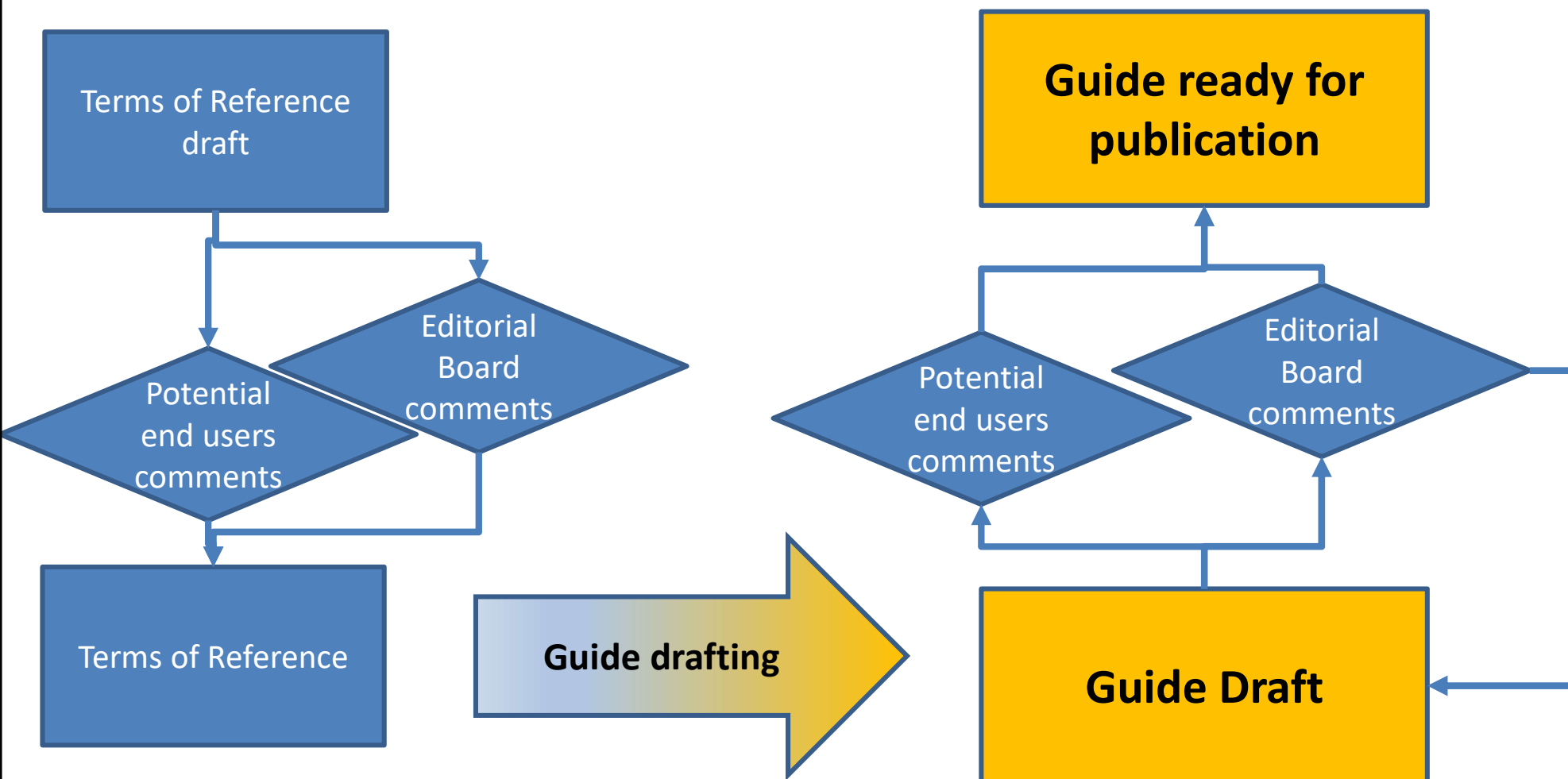
Plans for Guidelines development



Pilot guide preparation - initiation

- Long list of topics (based on suggestions from EURAD Roadmap Advisory Committee)
- Selection criteria definition
- Short list
- Topics proposal
- Evaluation and pilot guide topic proposal
- Approval the topic by GA
- Pilot guide drafting, review and publication

Pilot guide preparation – pilot guide drafting and publication



Initial long list

- Practical issues encountered while establishing a geological disposal facility siting programme,
- Factors encountered when waste management organisation (WMO) interface with government (and EU directives),
- Managing interactions in multidisciplinary teams (engineers, sociologists, geologists, physicists, modellers and lawyers),
- Means to ensure a constructive interaction between implementer (mostly WMO) and regulator, as well as other stakeholders, to ensure progress in the repository programme without jeopardising the roles and independence between them, when optimising the regulatory interface,
- Managing organisational and mind set transition on the road from research to implementation, i.e. repository construction and operation without losing track of the uniqueness of nuclear waste repositories compared to other kind of nuclear facilities,
- Ensuring success in communication,
- establishing and managing programme requirements and how these need to be is linked to the findings of the research development and demonstration (RD&D) programme,
- Optimising RD&D spending when budgets are limited,
- Approaches to repository optimisation, when should it be done and where should it focus,
- Getting the most out of international collaboration and participation in international organisations.

Short list

- Funding and Financing Aspects of Radioactive Waste Disposal
- Optimization of Disposal of Radioactive Waste
- Derivation of Requirements for the Disposal System
- Waste Acceptance Criteria



Cost Assessment and Financing Schemes of Radioactive Waste Management Programmes

Lessons learned from Pilot guide development

- Potential end users involvement
 - Their involvement is voluntary, number of issues from different programmes may be high
 - Often target experts are not reached
 - We received more reactions for defining ToR than for final draft
- Estimation of end users needs
 - Hard to define depth of guide and level of details
- High coverage need to careful avoidance of repetition by signposting existing documents and suggest how to orient in existing literature.

Preliminary findings from literature analysis

- The analysis of existing guidance literature (guides and guide-like docs) shows that most areas are covered
 - The highly covered fields need guidelines helping in orientation in existing documents
- **The lowest coverage we found in description how to manage requirements and implement them into the disposal programme**

Suggested topic

Suggestions

1. Using the safety assessment as a tool to derive requirements for the disposal system elements;
2. Role of implementer in planning and managing repository development programme;
3. Developing strategy for data management and preservation of records and knowledge in the context of radioactive disposal programme;
4. Using the safety case (and safety functions) to prioritize geological disposal RD&D;
5. Developer/ implementer and regulator interactions during the planning, siting, engineering design, RD&D and construction of disposal facilities;
6. Managing interactions in multidisciplinary teams (engineers, geoscientists, sociologists; physicists; modellers, lawyers etc.);
7. Establishing and managing programme requirements and how these need to be is linked to the findings of the RD&D programme;
8. Developing the design basis for a geological repository;
9. Assessing the acceptability of site conditions for the location of a geological repository
10. Characterization of high-level waste at different management stages.

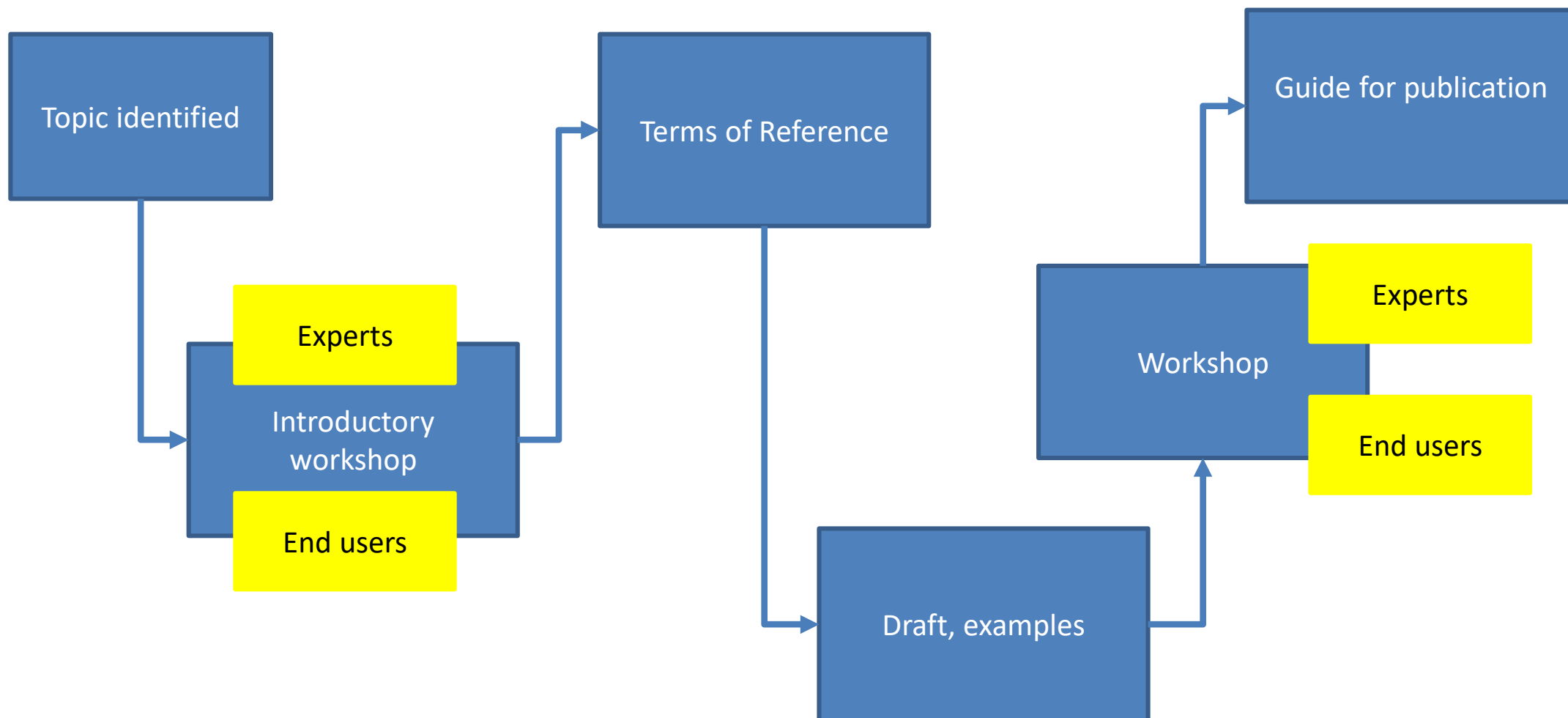
Review comments:

- Country specific policy
- Management issues
- Covered by other bodies
- Not issue for EURAD
- To be combined in RQM

RQM

- Requirements management defines
 - design basis: spectrum of 'loads on system' are reasonably likely & layout should provide sufficient safety -> requirements on system elements
 - beyond 'design basis' loads only for very unlikely evolutions (alternative scenarios) -> alternative judgement
 - Requirements management looks at understanding available for safety functions & corresponding uncertainties -> input to RDD
 - Requirements management is at the heart of many programs
 - early stage programs: at a high level -> site conditions & disposal concepts
 - advanced programs: site chosen -> detailed repository / EBS lay-out & (for heterogeneous geological situations) rock suitability classification
- ... will also involve requirements related to implementation
- > most likely of broad interest to many programs; want to be involved

Adaptation of the Guide production process



Conclusions

- KM should represent an integral part of all RWM programmes in order to support their efficient establishment and successful implementation during all programme phases.
- Both joint programmes are supporting each other in KM issues and Joint Statement on knowledge management has been signed in 2021.
- The KM is close to strategic issues as to implementation.
- In adaptation of guide production process, we are trying to mobilize real end users to exact targeting the knowledge to be put into the guide and bring the end user close to guide production.





THANK YOU FOR YOUR ATTENTION

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