



# Procedures to involve knowledge providers for capturing the state of knowledge in radioactive waste management: insights from the European Joint Programme on Radioactive Waste Management

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**Abstract.** Capturing the state of knowledge (SoK) in radioactive waste management (RWM) is a very important activity for supporting member states with the implementation of their national programmes towards the safe and effective management of radioactive waste. This requires the involvement of experts (i.e. persons widely recognised to be a reliable source of knowledge or have techniques or skills) who can share their expertise and knowledge with the wider community through the production of knowledge management (KM) documents (i.e. of domain insight (DI) and SoK; Knuuti et al., 2022). During the past 3 years, the European Joint Programme on Radioactive Waste Management (EURAD) has gained valuable insights into the procedures of involving experts and knowledge sharing. These lessons can be useful for other organisations who want to engage knowledge providers in capturing the SoK in the field of RWM. The process of expert involvement for the KM document production (i.e. authorship and review) can be divided into the following three different steps: (1) identification and selection, (2) engagement, and (3) support. The major challenges identified when involving the knowledge providers (i.e., authors and reviewers of the KM documents) are the limited resources and the motivation of experts. Experts are in high demand and therefore often have limited resources available for taking on additional work. Thus, it is important to provide a clear description of the work that needs to be done and to outline any potential incentives for the expert to take part (e.g. providing a real benefit to end-users). Other factors are to stay flexible in the scheduling and in the processes, as experts may have limited availability, and then there is also financial compensation. Often, experts' employers cannot allow them to work without compensation. Building personal connections and trust over time can also help to encourage experts to participate. If the expert is asked to contribute to the EURAD KM programme by an esteemed colleague of many years, then this may lead to a greater commitment than from an open call for volunteers. Feedback on the process was collected through interviews with the experts and reviewers, workshops, conferences (e.g. annual events), personal communication, questionnaires, from the mid-term review of the KM programme, and from personal observations of the authors.

Knowledge sharing encompasses various factors, including the organisational context, interpersonal and team characteristics, cultural and individual traits, and motivational factors (Wang and Noe, 2010). Identified motivational factors include recognition, building personal connections, building reputation, social obligation (e.g. request from a peer in the field, a friend, or a colleague), convenience (e.g. knowing the project), content of benefit (e.g. awareness), and social motivations (e.g. contributing to society). Moreover, experience has also shown that,

regardless of the personal connection, face-to-face support for the experts is indispensable. Effective communication, openness, and a sense of collegiality, in addition to a climate of trust, are key elements for the creation of an engaging environment promoting tacit knowledge sharing. Furthermore, the engagement of experts can also be facilitated by providing high-quality examples of DI and SoK documents (e.g. see the EURAD Roadmap; Beattie et al., 2022). As the number of published documents increases, it is reasonable to assume that expert involvement will become easier. Overall, a good connection to experts is an important benefit for the EURAD KM programme. Strengthening the connection to the EURAD research work packages by establishing KM ambassadors facilitates the involvement of experts. Expert participation in upcoming initiatives should involve activities to promote and disseminate knowledge, in addition to updating the KM documents, as this is required as new knowledge emerges. By maintaining a high level of output from top experts, interested end-users will be attracted and trust in EURAD will be strengthened.

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