

2-1 Prototype Knowledge Management System – Challenges for Knowledge and Technology Transfer –

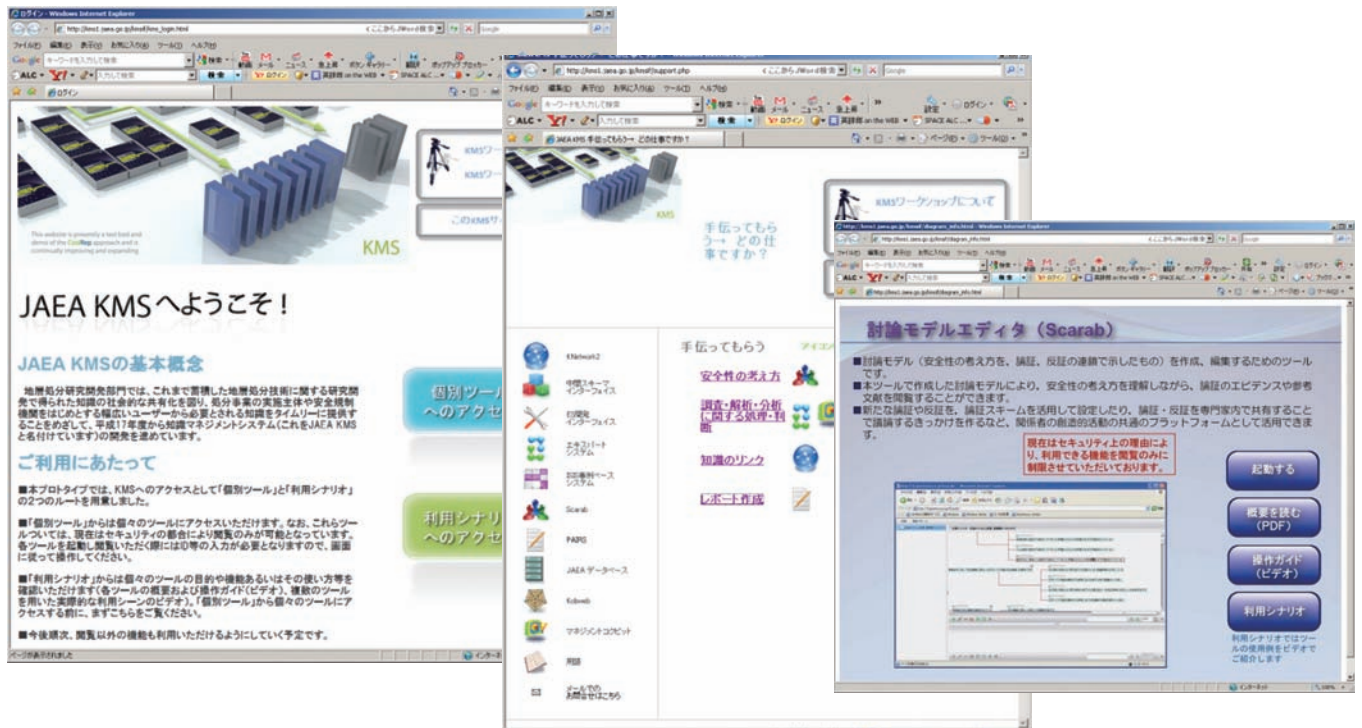


Fig.2-3 Examples of JAEA KMS screenshots

The help and guidance functions including tutorial videos provide support for users.

Because the safety of a geological disposal system cannot be validated by means of operating an actual facility for a long period, it must be verified using various kinds of knowledge. This knowledge includes both explicit and implicit knowledge. Explicit knowledge includes databases, literature, and software, and implicit knowledge includes the experience and know-how of experts, which is called tacit knowledge. As the disposal project progresses, the amount of knowledge is anticipated to continue to grow significantly.

In order to make the verification of safety reliable, all available knowledge needs to be deployed. It is necessary not only to extract and use particular items of knowledge from a vast pool of sources, but also to structure the knowledge on a novel platform so that users can understand the relationship between items of knowledge and share in the knowledge. Therefore the JAEA is developing a knowledge management system (JAEA KMS) that aims to appropriately manage the knowledge that is the key to the geological disposal project. Ten individual tools for the JAEA KMS have been prepared.

The tools include:

1. An argumentation model, which visualizes discussions about safety and the related evidence in the form of a chain

of warrants and rebuttals;

2. An expert system, which puts to practical use the implicit knowledge of experts;
3. A case-based system, where examples of past anomalies are retrievable; and
4. A performance assessment integrated report system, which assists users to prepare performance assessment reports.

The JAEA believes that the JAEA KMS can facilitate effective integration and utilization of the knowledge that supports the safety of geological disposal, and that it can be a means to support the steady promotion of the planned geological disposal program in Japan. The JAEA KMS has been publicly available on the JAEA website (<http://www.jaea.go.jp/04/tisou/toppage/top.html>) since March 2010. Examples of JAEA KMS screenshots are shown in Fig.2-3. The JAEA KMS is currently limited to read-only access, so the system should be regarded as a prototype. There are plans to further reinforce the knowledge base and improve the management function through the operation, maintenance, and management of the system, taking into consideration opinions and comments from a wide range of users.

Reference

Hioki, K. et al., Introduction of JAEA Knowledge Management System and JAEA Mid-Term Report on R&D for Deep Geological Disposal - CoolRep (H22), JAEA-Review 2009-049, 2010, p.24-41 (in Japanese).