

## Design of Atomic Energy Information Network System

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### 1. Introduction

As the 21<sup>st</sup> century is expected to induce a Knowledge based society, responding to this kind of change on our own initiative could be achieved by establishing networks among atomic energy agencies with the Atomic Energy Portal Site in a pivotal role. Thus, enabling the knowledge information from each agency to be easily shared and utilized. Furthermore, it can contribute to further researches by providing accumulated knowledge in the atomic energy, such as research output and past achievements, and by avoiding the repetition of researches on the same subjects. It could also provide remote educational data to researchers and industrial experts in atomic energy, as well as atomic energy information for general public consistently, so that we can promote our confidence in atomic energy.

### 2. Construction of Atomic Energy Knowledge Information System

#### 1) Atomic Energy Information Portal Site

The Atomic Energy Portal Site features Site Map which systemically categorizes atomic energy related websites, a Search Engine for searching information on the internet, Q&A Board for knowledge exchange among users, and Virtual Conference Room within Closed User Group for discussions among experts. (<http://www.atomic.or.kr/>)



- The total number of visitors to the Atomic Energy Portal Site in the year 2003 was approximately 36500, about 100 visitors per day

#### 2) Atomic Energy Knowledge Information Data Base system

The Atomic Energy Knowledge Information Data Base System consists of “Atomic Energy Encyclopedia” translated from Japanese version; “Newspaper Clippings Database” providing atomic energy news and information from the News media using an automated clipping agent program; “Computer Code Database” providing the list of Nuclear engineering codes; “Nuclear Plant Incident/Accident Information” for on-line information on accidents or malfunctions in nuclear power plants, and “Bibliographic Information Search” for information search in collaborative databases of KAERI, KINS & KEPRI. Statistics of operation in the year 2003 is as follows:

Categories	Contents	Usage	Remarks
Site Lists	744	400 times / M	Addition & Sup.
Bibliographic Infor.	1 million		
Nuclear Encyclopedia Titles/Glossaries/Charts	2071/1413/5522	1200 times / M	
Computer Code	2688	150 times / M	NEA DB & Lab. Code
Newspaper Clippings	30564	150 times / M	
Training Material	11 subjects	5904 times / M	
Incident/Accident Information	500 Case(D)		
Domestic / Overseas	3000 Case(O)		
Virtual Conference Room	33	880 times / M	

#### 3) Development of Platform and Courseware for Professional Education in Atomic Energy

##### - Training material

A multi-media teaching material provided on-line to atomic energy experts working for atomic energy industry, providing knowledge information on 10 different subject such as Basic Theory on Atomic Energy or Introduction to Nuclear Fuel using the internet access.

##### - Courseware of Atomic energy engineering dept. in University

Atomic Energy Courseware has been developed due to limitations in experiment for radiation management or visitation to nuclear reactor, which enables computer simulations in computer labs over 6 universities. Platforms for Atomic Energy Courseware have also

been developed for quizzes for students, course status check, output check, and Q&As.

### 3. Composition of Atomic Energy Information System Network

There are about 100 organizations in S. Korea related to the atomic energy, in the areas of the government (i.e. Ministry of Science And Technology), research institutions, industries, and educational organizations. Each organization provides atomic energy information using its own websites, and operates internal databases as well. This scattered information in each organization can be easily shared and provided to the users by utilizing mirroring function and automated agent software. It is required that a system for sub-networks in each fields, which will be integrated into the Atomic Energy Portal System, should be built at each organizations in order to construct an overall network system. Also, operations committee needs to be summoned for each sub-network to discuss on what information to share and how to operate the system.

- Composition of sub-network system in each field & construction of the network integrated into the Atomic Energy Portal System (number of organizations)

\* Industrial network (29) \* Research network (20)

\* Educational network (6) \* Nuclear Safety network (12)

\* Medical network (2)

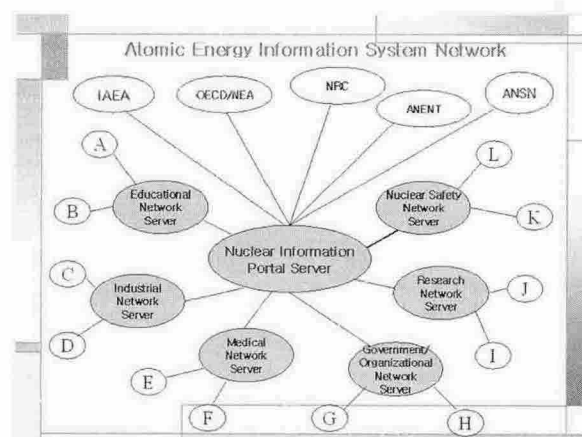
\* Government/organizational network (36)

(Reference : Atomic Energy White Book 2003)

Each organization and sub-network develops a database for share, using automated agent program to collect various information created by organizations on a daily basis and process required information and input the database. Inputted data will be automatically registered to the Atomic Energy Portal System by mirroring software for immediate utilization by database users.

### 4. Expansion of the Database

Including reports on the output from research and development process of each organization, database of industry-university study reports such as multi-media sources and human resource database in each organization need to be shared. Domestic and overseas newsletters regarding the subject of the atomic energy need to be collected and archived in the database so that it could be filtered and provided to users on a regular basis. At the same time, English database of information



- Nuclear Information Portal Server  $\leftrightarrow$  Each Subnetwork Server : Mirroring Function

- Subnetwork Server  $\leftrightarrow$  Each organization : Automated clipping Function

- Nuclear Information Portal Server  $\leftrightarrow$  IAEA, OECD/NEA, NRC : Automated clipping Function and technology on atomic energy needs to be built so that it can contribute to the industry and to the developing countries in need of information, improving the image of S. Korea.

### 5. Conclusion

Countries all over the world as well as the IAEA are committed to numerous activities in preservation of knowledge in atomic energy. As for the education and training on atomic energy, education network in Asian region has been constructed and is in test run. Therefore, domestic information on atomic energy should be integrated into the Atomic Energy Portal System which is already operational, and into the sub-networks in each field which is yet to be constructed, in preservation of the knowledge.

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