



## Development Program of the Advanced HANARO Reactor in Korea

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The development program of an advanced HANARO (AHR) reactor started in Korea to keep abreast of the increasing future demand, from both home and abroad, for research activities. This paper provides a review of the status of research reactors in Korea, the operating experience of the HANARO, the design principles and preliminary features of an advanced HANARO reactor, and the specific strategy of an advanced HANARO reactor development program.

The design principles were established in order to design a new multi-purpose research reactor that is safe, economically competitive and technically feasible. These include the adaptation of the HANARO design concept, its operating experience, a high ratio of flux to power, a high degree of safety, improved economic efficiency, improved operability and maintainability, increased space and expandability, and ALARA design optimization. The strategy of an advanced HANARO reactor development program considers items such as providing a digital advanced HANARO reactor in cyber space, a method for the improving the design quality and economy of research reactors by using Computer Integrated Engineering, and more effective advertising using diverse virtual reality.

This development program will be useful for promoting the understanding of and interest in the operating HANARO as well as an advanced HANARO reactor under development in Korea. It will provide very useful information to a country that may need a research reactor in the near future for the promotion of public health, bio-technology, drug design, pharmacology, material processing, and the development of new materials.

**Keywords:** Advanced HANARO Reactor (AHR), HANARO, design principle, operation experience, Computer Integrated Engineering (CIE)