During the 1990’s, concurrent with approaching the end of the Tehran Research Reactor (TRR) lifetime and in order to attain the nuclear reactors technology, the Islamic Republic of Iran planned for the design and construction of a 40 MWth multi-purpose heavy water research reactor with the strategy of utilizing the local resource potential capabilities.

At that time, the selection of heavy water both as coolant and moderator had been justified for the reason of unavailability of domestic enrichment technology and the necessity for the use of natural Uranium as nuclear fuel. The followings can be regarded as some of the many aims for the utilization the said reactor:

* To gain experience and acquire technological knowhow in design and construction of nuclear reactors
* Mobilization and training of specialized human resources
* Production of radioisotopes for medical, industrial and agricultural applications, as much as possible
* Providing research and development facilities in the following fields:
* Neutron physics and nuclear engineering
* Thermo hydraulics, metallurgy and corrosion engineering
* Health physics and neutron therapy
* Reactor chemistry and quantitative and qualitative control of structural material
* …

Despite the incomplete implementation of the project, it has obviously promoted the technological knowhow and expertise in the Atomic Energy Organization of Iran (AEOI) and the consultant engineering companies in design, equipment supply, Installation and construction sectors and also entailed an improvement in the domestic capabilities for the manufacturing of nuclear and non-nuclear equipment and also construction of special buildings and structures.

The Implementation of the Arak 40 MW reactor progressed to the final stages of equipment supply and construction. By concluding the nuclear agreement between Iran and the 6 countries (E3/EU+3) in 2015 (JCPOA), an opportunity was provided in order to make the necessary modifications in the reactor core along with provisions for its modernization via an extensive international cooperation with the aforementioned countries and according to their commitments on this issue. Based on the modernized reactor initial design, due to the flux increase in the reactor, its applications have been considerably broadened including an increase in the production of a variety of radioisotopes used for industrial, medical and nuclear fuel and material test purposes.

The redesign of Arak modernized reactor with a power of 20 MW (KHRR) is in process and the basic design stage has been implemented.

The KHRR design, construction and equipment supply shall promptly be implemented with the cooperation of the experienced companies in the following fields:

* First loop equipment supply
* Design and manufacturing of control rod drive mechanism
* Participation in the supply of nuclear instrumentation and control equipment and components
* Design, equipment supply and manufacturing of fuel test loop
* ...