



## INTRODUCTION

The BR2 reactor is still SCK•CEN's most important nuclear facility. After an extensive refurbishment of 22 months to compensate for the ageing of the installation, to enhance the reliability of operation and to comply with modern safety standards, it was restarted for its first irradiation cycle in April 1997. In 1999, the availability of the installation was maintained at a level of 99.97 % demonstrating the success of the refurbishment action plan without any occurrence of significant safety incidents.

At the request of the Belgian Authorities a safety audit (INSARR) was conducted by the International Atomic Energy Agency, the conclusions of which demonstrated the excellent performance of the plant in terms of operational safety.

The CALLISTO facility was extensively used for various programmes involving LWR pressure vessel materials, IASCC of LWR structural materials, fusion reactor materials and martensitic steels for use in ADS systems.

The development of new irradiation devices was focussed on emerging needs. Most of the work concerned multipurpose reusable rigs for material irradiation under high fast neutron fluxes, a dedicated irradiation rig for the qualification of advanced MTR fuels and the design of dedicated rigs for testing various fusion reactor materials under combined neutron and gamma fluxes.

For the year 2000 and beyond, new irradiations on IASCC, fusion materials and advanced LWR fuels will be started. Also experimental devices will be prepared in the framework of the 5th European R&D programme, regarding in particular IASCC issues and ADS materials.

An internal R&D programme is currently aimed at improving BR2 utilisation. This is focussed on the development of adapted neutronics/hydraulics computer models and the improvement of the in-core instrumentation and data acquisition.

BR2's commercial programmes are of prime importance because they help to finance the costs of running the reactor. The income from radioisotope production has increased by a factor of 3 since the restart of BR2 in 1997 mainly because irradiation capacity was expanded for producing  $^{99}\text{Mo}/^{99\text{m}}\text{Tc}$ . It is expected that the commercial income will continue to grow following the addition of a new irradiation device for this particular radioisotope early in the year 2000. At the same time, BR2's position in the world market is being enhanced by the introduction of new, high added value products, which take advantage of the unique and extremely favourable characteristics of the reactor. However, for various reasons, the production of NTD-silicon for the semiconductor industry has been very low since 1997. Nevertheless, recent discussions with several customers indicate that the prospects for 2000 and later now look very much more favourable.