

Foreword

The Department of Atomic Energy (DAE) is a multifaceted organization comprising research institutions and closely linked industrial units providing an excellent environment for both scientific enquiry as well as technology development. This framework has enabled pursuit of programmes in a manner, which has promoted synergy between science & technology development through appropriate linkages between the laboratories carrying out research and development of the technology on one hand and the recipient industrial units exploiting the fruits of such developments on the other. A hallmark of the programme, founded half a century ago under the leadership of Dr. Homi Jehangir Bhabha, has been to achieve self-sufficiency in all aspects of applications of nuclear energy in the country. Through concerted efforts made by successive leaders over the years, we today possess know-how in almost all aspects of nuclear science and technology, which include the entire gamut of operations relating to the nuclear fuel cycle i.e., prospecting, ore mining, fuel fabrication, reprocessing and waste management, as well as comprehensive capability in design and construction of nuclear reactors of different types, production and applications of radioisotopes for industrial and medical purposes, materials development, electronics & instrumentation and many other uses of atomic energy.

In 1948, when the Government of India decided to initiate the above programme, the scientific, technological and industrial base available in the country was far from adequate. To achieve the aims and objectives of the programme, a great amount of effort had to be made to develop the infrastructure in the just-independent India, especially for the pursuit of frontline research in nuclear science and technology. The formation of DAE in 1954 gave impetus to build on the basic research in nuclear and atomic physics, already initiated by Dr. Bhabha at the Tata Institute of Fundamental Research (established in 1945 at Mumbai). The work was soon expanded and led to the setting up of Atomic Energy Establishment, Trombay (later renamed as Bhabha Atomic Research Centre (BARC) in 1967). APSARA, the first Indian and also the first Asian nuclear research reactor, was built in 1956. The nuclear

energy programme of India took off from this, and has never looked back ever since.

Over the years, the activities of the DAE have grown in strength and coverage, encompassing a wide spectrum, ranging from basic research in mathematics, physics, chemistry and biology on the one hand, to the construction and operation of nuclear power reactors on the other. The DAE family now comprises five R&D organisations, eight industrial units and seven grant-in aid institutions and three service organisations. Advanced and futuristic technologies involving accelerators, lasers, plasma are being pursued within DAE. The mandates of various DAE Centres are to execute comprehensive programmes in the areas of their respective specializations, to spot science and technology opportunities and to develop appropriate capabilities so that these technologies can be deployed through the industrial units, and thus technologically advance our country. DAE has also been working closely with other industries and academic institutions for the development of a mature industrial base within the country for the high-tech areas. This synergism has led to industrial competence to achieve leadership quality in core sectors. For instance, DAE has developed research reactors, covering all the three fuel technologies namely, uranium, plutonium and thorium, which is an unique distinction. India has been exemplary in closing the fuel cycle with its steadfast pursuit of sustainable nuclear power programme. So far, DAE has constructed and has been successfully operating fifteen power reactors. Efforts are on to improve the share of nuclear power to the national grid, with seven thermal and one fast reactors currently under construction and more power reactors planned for the coming years. The laudable performance of power reactors, built and operated by NPCIL, and the societal impact accruing from the use of the radiation and isotopes in agriculture and medicine stand testimony to the core competence of the organisation. As we celebrate the success of the first stage of nuclear power programme, the commercial phase of the second stage viz., fast breeder reactors has been launched by the Honorable Prime Minister Dr. Manmohan Singh, during the Golden Jubilee

Atoms with Mission

A Golden Jubilee Commemorative Volume

(1954 – 2004)



Government of India
Department of Atomic Energy

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