Foreword

The Directive Board

A summary of the research activities of ITN during the year 2004 is presented in this report. It also includes details of the evolution in management, human resources, publications and budget of the last years of activity of ITN under authority of the Ministry of Science and Higher Education (later the Ministry of Science, Innovation and Higher Education). The research activity is presented for each sector (Reactor, Radiological Protection and Nuclear Safety, Chemistry and Physics) and the scientific output is grouped under the different areas of activity.

ITN is a State Laboratory and its main objective is the development of nuclear sciences and techniques, providing the country with advanced capabilities in the domain of peaceful applications of radiations and radioisotopes. The strategies adopted by the Directive Board (in office since December 2002) were to fulfil this objective through:

- **Research,**
  - establishing ITN as a key partner in research networks and projects involving the application of nuclear and non nuclear techniques to the areas of materials sciences, environment and life/health sciences;
  - maintaining and developing unique infrastructures (such as the Portuguese Research Reactor, Van de Graaf accelerator, Dating Laboratories, Cryogenic and High Magnetic Fields Laboratory, etc.) and making them available to scientific community;
- **Education and training,**
  - adopting and implementing an organized institutional policy, via the establishment of a Training Centre, with the purpose of ensuring stronger cooperation with higher education institutions, both at the graduation and post-graduation levels, and supplying the community with other training and education activities at all levels;
- **Cooperation,**
  - establishing research partnerships with higher education institutions and other research centres, favouring the development of common interest activities in laboratories to be located within the "campus" of ITN;
  - creating better cooperation conditions with industrial sectors, health sectors, environment sectors, services, etc. ,favouring the establishment of partnerships and technology transfer activities;
  - creating the necessary conditions for the transformation of part of the ITN "campus" into a Technology Centre;
- **Protection and Safety,**
  - reinforcing research activities in the areas of Radiation Protection and Nuclear Safety;
  - promoting training and education;
  - supplying services of public interest;
  - ensuring the fulfilment of international treaties obligations assumed by the Portuguese State and providing it with technical support.

It must be said that, like in the previous year, the Directive Board was confronted with a number of difficulties namely those created by short financial resources, no financial autonomy and the legal impossibility of replacing a gradual loss of human resources (mainly due to retirement).

A word of praise is due to the scientific and non scientific staff of ITN that never failed helping the Directive Board maintaining the tradition of excellence of this institution. All the work that was carried out in 2004 could not be possible without the quality and motivation of ITN staff.

In summary and according to the previously defined ITN strategies, the work carried out in 2004 was dedicated to continue implementing the policies started in 2003 namely:

- reorganization of the Department of Radiation Protection and Nuclear safety, in order to improve its response readiness, service supply capabilities and research activity;
- reorganization of ITN administrative services and improvement of the applications of information technologies to management and accounting;
- improvement of the management and operation of the institute's Intranet;
- strengthening of partnerships with universities and starting joint Master's courses in the areas of Radiation Protection and Radiopharmacy;
- establishment of a partnership for technology transfer with an industry which recovered, modernized and exploits the institute's Radiation Technology Unit;
- organization of several relevant scientific international conferences and workshops;
- reinforcement of scientific and technical infrastructures.

These achievements must be considered together with a successful year as far as research and service activities are concerned. Reading through this report is the best proof of this statement.

Finally, ITN acknowledges the ready and constant support of the Ministry of Science and Higher Education that helped solve some of the main problems faced by the Directive Board during 2004. Despite all the human resources and budgetary difficulties, ITN looks forward to further establishing its importance and excellence.

Foreword

The Scientific Council Co-ordinating Committee

As its predecessors the 2004 Annual Report is essentially a repository of factual information about the work carried out at ITN or with the involvement of the Institute's staff, including references to publications and an overview of the human, technical and financial resources that were available.
There is no marked difference between the image transmitted to the reader of the present report and that emerging from previous reports from the point of view of either quality or volume of means and results. This does not mean that everything is plain sailing the opposite being nearer to the truth. Regular operational and investment (PIDDAC) budgets have decreased while operational costs tend to increase for the same level of activity. Also new investment is required to compensate for the decay or obsolescence of buildings, equipments and infrastructures in general. The numerous retirements uncompensated by the recruitment of new staff impoverish the pool of skills that are indispensable to ensure the continuation of the Institute's activities in areas where its contribution to the scientific and technological system of the country is unique including the supply of services to meet public needs as in the special fields of radiological protection and nuclear analytical techniques. A growing fraction of the Institute's work including R&D, services and technical support depends on the presence of non-permanent staff, mainly students and apprentices, essentially unstable.

Again during 2004, no opportunities of career development for the scientific staff were implemented. Rigid administrative rules that centralize the management of financial resources in the Treasury and restrain the autonomy of the national laboratories were kept in force damaging the productivity and competitiveness of the Institute.

The desired modification of the *status quo* requires a new definition of public priorities and a new understanding of the relevance of the R&D sector in the general context of the Administration.

Not everything is negative, however. Positive developments in 2004 should be recorded.

Three members of the scientific staff of the Institute were among the 73 researchers at national level that were awarded a special research grant in recognition for outstanding scientific performance according to the criteria set by the Science Ministry.
A multi-annual budget authorization amounting to 3.4 million euro for expanding and renovating laboratory facilities was obtained on a competitive basis on the framework of a government program for promoting R&D infrastructures in the country. The Physics and the Chemistry Departments and the Research Reactor are to benefit from this development.
Partnerships were established with the University of Lisbon, and the Technical University of Lisbon, with the purpose of organizing and holding in collaboration new Master courses in two specialized areas where the Institute's know-how is outstanding – Inorganic and Radiopharmaceutical Chemistry and Radiological Protection and Nuclear Safety.

The two year mandate of the President and the Scientific Council Coordinating Committee expired in January 2005. In December 15, 2004, a new President and Committee were elected. The election was held under the new statutory rules of the Scientific Council adopted earlier in 2004.