

Foreword

The Directive Board

2005 was the third year of the present Directive Board in office. Despite the difficulties, as in the previous years, created by short financial resources, lack of financial autonomy and the legal impossibility of replacing a gradual loss of human resources (mainly due to retirement), it is felt that most of the set objectives have been reached.

This report presents a summary of the research activities of ITN during the year 2005 and 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, Technology 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.

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 2005 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 2005 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;
- strengthening of partnerships with universities and starting joint Master’s courses in the areas of Radiation Protection and Radiopharmacy;
- organization of several relevant scientific international conferences and workshops;
- reinforcement of scientific and technical infrastructures. In this respect it is worth referring that, in 2005, eight projects for large new infrastructures were started with financing provided by FCT.
- Opening of 14 researcher vacancies that resulted in the promotion of 12 ITN researchers and the enrolment of 2 new researchers.

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.

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

This Report presents the work carried out at ITN in 2005. The document highlights activities with results believed to be of particular relevance, and contains short descriptions of progress made in other activities, as well as references to publications and data concerning human, technical and financial resources.

The report reflects the unique nature of ITN among Portuguese public laboratories, due to the specific nature of the activities that make use or aim at the development and application of specialized multipurpose techniques, methods and instruments, in the general field of nuclear science and technology

Following the trends of the last few years, the report shows that the level of scientific production is consistently high, and that a large number of M.Sc, P.hD. and post-doctoral students participate in on-going research activities under the supervision or joint-supervision of members of the Institute's scientific staff. More generally, the degree of involvement of ITN with institutions of the Portuguese higher education system has been maintained at high level. Roughly 1/5 of the ITN research staff currently lecture as Invited Professors at Universities or Polytechnic Institutes, and M.Sc courses in two specialized areas where the Institute's know-how is outstanding – Inorganic and Radiopharmaceutical Chemistry and Radiological Protection, are run through partnerships with the University of Lisbon and the Technical University of Lisbon, respectively.

The commitment and quality of the scientific teams of the Institute enabled to maintain the scientific output at a high level in spite of important and already chronic personnel and budgetary constraints. In the last 5 years the number of researchers was reduced by 20% and the situation is even more serious in what concerns the technical staff and the workshops. The near impossibility of recruiting

personnel results in the fact that a growing fraction of the Institute's work including R&D, technical support and services depends on the work of temporary staff, which the institution trains but is unable to keep, thus frustrating the purpose of building solid, well trained teams.

This affects the institution as a whole and specially those activities in areas, such as radiological protection, where its contribution to the scientific, technological and regulatory system of the country is mandatory and unique, including the supply of services to meet specific public needs.

For the first time in many years the Institute was allowed to open positions for recruitment of research staff at the intermediate level of the research career – Principal Researcher. Fourteen positions were opened receiving 56 applications from candidates coming from the entire scientific community. Although this represents an important progress, insistently requested by the Scientific Council, it is certain that the final result of this particular process will not contribute to solve the urgent need for new staff in several different sectors.

New positions to recruit young researchers should be opened to renew the research teams, to maintain know-how that risks disappearing, and boost activities. In addition, the effort made this year should be continued and extended to the top level of the research career. This should be done in the framework of a plan establishing priorities and defining aims to be achieved in the medium and long term.

We recognize that for many years the operational budget of the Institute has been inadequate and that effective action requires the commitment of a higher authority. It is in this context that we look forward to the result of the reform process of the State laboratories currently under way.