

Report of the Advisory Committee on the activities of the Instituto Tecnológico e Nuclear 2010

The Advisory Committee (Unidade de Acompanhamento) of I.T.N. met at Sacavém from the 7th till the 9th of April 2010. The first day was devoted to a meeting with the Directive Board and a first presentation of the activities of the Institute and of its scientific policy. The second day, the Committee visited the different Departments, interacted with several members and focused its attention on the research activities and main instrumentation. A final meeting of the Committee took place in the morning of the last day.

One year after its first visit, a large part of the activities of the Institute was known to the members of the Committee who focused their attention mostly on internal collaborations, managing problems and scientific strategy.

As noticed already last year, the general impression is that there is a large fragmentation of the activities of the Institute partly resulting from a too large number of relatively small grants. In a sense, this situation reflects the enthusiasm of many staff members and the recognition of their activity. Overall, the ratio between external and internal funding is quite favourable. However, the related consequence is the difficulty of the establishment of a general policy of the Institute and a not optimised budget.

Most of the structural problems are not yet solved. Among them, the Committee notes the important need of an independent budget for the activity of Services, which represents a legal obligation of the Institute, in particular, a large part of the activity of the Department of Radiological Protection and Safety. Service activities should be priced against cost plus a reasonable overhead so that they do not need to be co-financed by the budgets allocated for research.

The part of the total budget allocated to General Services of the Institute is too low as well, which makes it very difficult to manage the Institute. This problem should be solved either by an increase of the general budget or by a larger overhead debiting.

The ratio of researchers with to those without a definitive position at the Institute is also too small to generate a long term research strategy.

Since the last year, some relatively large instruments have been installed. The installation of a total renewed control room of the reactor is under way, mostly performed by in house resources, both human and in instrumentation. This operation represents a remarkable activity, with regard to training of the team working in the reactor.

Two mass spectrometers (ICP-MS) have been acquired for the Institute. One of them is already operating in a clean room of the Chemistry Department while a second one will be installed at the Department of Radiological Protection and Safety in a room that is as yet not adapted for its installation. The two instruments, bought from two different suppliers, will be used for different purposes and with different personnel in different buildings. Interaction between both research teams is uncertain. Nevertheless, the Committee believes that the sharing of the two instruments or, at least, of the associated equipment (room, argon supply, etc.) would be possible with a significant reduction of costs, eventually of human resources. In any case, a program for the use of the equipment to be installed in the Department of Radiological Protection and Safety must be established as soon as possible. At present it remains unclear for what purposes the instrument will be used for, ideas as put forward are unclear. The same remark applies to the cryogenic detector for X-ray spectrometry that is installed in the Physics Department. One year after its installation it remains unclear for what projects it will be used.

The final consequence of this situation is the relatively low utilisation of some instruments. We encourage very strongly the coordination of scientific projects which use the

good instrumental resources of the Institute in a more rational way. Concretely, the operation can be done through the establishment of a few "transversal" projects involving people and instruments from different groups and Departments. For example, a domain that can be stimulating is that of Environment. Clearly, several Departments are implied in a few projects that belong to this general sector. Interaction of groups, sharing of instruments and ideas are certainly a positive method to generate a scientific strategy which is presently almost absent, or at least unclear. Such an approach and such procedures should be the main goal of the Direction because they represent the only way for a good "visibility" of the Institute and a better efficiency of the utilisation of the budget.

It is advised that, in the future, instrumentation should only be acquired on the basis of *a priori* scientific program; this even if the funding could come from external sources.

Among the new activities and new equipment it is worth mentioning the installation of a neutron beam dedicated to tomography. The first results, obtained with porous tiles, are very promising. Such activities that, moreover, don't imply high costs, should be encouraged. With other activities of the Institute it can constitute another collaborative pole in relation with Cultural Heritage.

The activity of the ion beam laboratory, particularly, its activity of collaboration with Universities justifies the existence of a ^{14}C source at the accelerator.

Finally, as in the last year, we insist on the writing of a short document emphasizing a few highlights of the Institute. This document should include a more clear and detailed presentation of the human and funding resources, in particular a clear separation between research and service activities. The present report is interesting because of its comprehensive character which makes it useful; but only as a complementary document.

To summarize, the Committee recognizes the good level of most of the research activities of the members of the Institute, as well as their successful continuous demand of new grants and resources. However, the Committee recommends in parallel a general effort of convergence of the domains of research, the sharing of equipment and the establishment of transversal actions, which will be the only way to generate a global strategy and optimise the total budget.

We thank the Directive Board and all the members of the Institute for their collaboration all along our visit.

Saclay, May 14, 2010



José Teixeira

A) Members of the Advisory Board

- Emeritus Professor Freddy C. V. Adams (director of Micro-Trace Analysis Centre - Mitac, Belgium)
- Engenheiro Manuel Cruz (Vice-Presidente do Conselho de Administração do ISQ, Portugal)
- Professor Carlos Frederico G. Campos Geraldes (Prof. Cat. da Univ. de Coimbra - Dep. Bioquímica, Portugal)
- Dr. Hans-Georg Menzel (Responsible for the Radiological Safety at CERN, Switzerland)
- Dr. José Teixeira (Directeur de Recherche no CNRS - Saclay, France) (president)

B) Recommendations:

- 1) The cooperation between members, groups and Departments must be promoted and organised. A small Scientific Committee should be created to help the Directive Board in the establishment of a scientific strategy and optimization of the resources.
- 2) The ensemble of the members of the Institute should think about all possible transversal actions within some general topics.
- 3) Each year, an internal symposium should be organised with the main goal of establishing common research activities.
- 4) As far as possible, courses for graduated students should be organised inside the Institute.
- 5) Seminars and lectures should be organised with a periodicity of a few times per month. Such seminars should be provided by members of the Institute or invited lecturers and the participation of the members should be mandatory.
- 6) A better connection with Universities is encouraged.
- 7) Concerning new equipments, the priorities are: a) the carbon source; b) the infra-structure for the new ICP-MS (with a research program) and c) a scanning electronic microscope to be shared by all the Departments of the Institute.
- 8) Continuation of the refurbishment of the electronics of the reactor, of the neutron tomography and of an installation for lauegraphy.