

Report of the
International Working Group on the Reform of the
State Laboratories
“Redesigning the Governance of the State Laboratories’ System”

Lisbon, May 19th, 2006

Dear Minister,

In accordance with Resolution 198/2005 of the Council of Ministers, an International Working Group was constituted. As members of this International Working Group, we have reviewed the entire system of State Laboratories, through visits and meetings with the relevant stakeholders. We have also maintained the contact with PRACE within the framework of the overall reform initiated by the Government.

We have the pleasure to transmit to you our report containing the analysis of the current state of the system and our recommendations for improving its overall impact and efficiency.

We remain at your disposal for any enquiry which might arise from the reading of the report

Yours Sincerely,

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Introduction

a. From the evaluations of 1997, 1998 and 2001 to the current assessment and proposals for reform

State Laboratories were a significant component of the Portuguese S&T system during the second half of the 20th Century and, together with the Gulbenkian Institute of Science, constituted the main instruments for cooperation when Portugal joined the European Community. LNEC, LNETI, IM, IPIMAR were at the forefront of such early cooperation while Portuguese Universities gradually reinforced their position over the years.

Supporting Portuguese government position in European instances, participating in European networks focused on public service issues, notably norms and regulations and competing for European research projects with partners of other nations stimulated the development of a new dimension in the activities of the State Laboratories, which until then were traditionally oriented towards the internal Portuguese scene or its links with Portuguese-speaking countries.

This evolution in the framework in which they operated, as well as the radical questioning and strong scrutiny of the role, functions and performance of the public research establishments in all OECD countries, led to the launch by the Government, in 1996, of a major exercise of evaluation of all State Laboratories performed by international experts; this evaluation, originated by Resolution 5/96 of the Council of Ministers, was the first comprehensive and multi-annual institutional assessment of the State Laboratories. The exercise was coordinated by IAC (International Advisory Committee) which presented its conclusions in July 1997, notably a set of recommendations that were endorsed by the Portuguese authorities and became the basis for Resolution 133/97 by the Council of Ministers.

Subsequently, the International Advisory Committee performed two follow-up exercises. An exercise of monitoring of the evolution of the situation took place in 1998 and again a major evaluation took place in 2001 noting the progress made in the reform of the State Laboratories but also pointing out the delays in implementing some essential elements of Resolution 133/97. The three Decree-Laws 123/99, 124/99 and 125/99, worked as a stimulus and greatly contributed to the acceleration of the reform. This was widely recognised by the senior

management of State Laboratories. Nevertheless, further efforts were needed before reaching a full implementation of the measures that could guarantee an optimal use of the State Laboratories.

Five years have passed since the publication of the last report and in December 2005, through Resolution 198/2005 of the Council of Ministers, the Government decided to launch a new exercise not focused on the assessment of individual State Laboratories but rather on the governance of the overall system.

The current report presents the results of this new exercise. As it shows, not all developments that occurred took a positive turn. While underlining some positive elements of the evolution in the last five years, notably commending the efforts of individual State Laboratories, this report also focuses on those aspects that still require further action not only from the Laboratories themselves but also from the relevant Ministries. The latter should act promptly in order to ensure the best conditions for the operation of the Laboratories under their responsibility.

It should be underlined that there is an element of continuity between this exercise and the previous evaluations, even if they have different goals, as most of the members of the current International Working Group have been associated with this process from its very beginning in 1997. Some of its members were even involved in the early steps of cooperation between European research institutions and Portuguese State Laboratories. Hence, the assessments and proposals contained in this report constitute a balanced combination between a long experience of the system and a fresh perspective on its current situation.

The International Working Group had the opportunity to meet, within the limited timeframe available, a wide spectrum of persons either working directly in the State Laboratories or in other ways connected with these institutions. The list of persons contacted is given in Annex 2.

b. The continued interest for operating a system of State Laboratories

In a world increasingly dominated by science and technology, a modern government will have to base its decisions on sound scientific advice and will always have the need to enlarge its choices and policy making alternatives by an active R&D policy. 21st century governance requires more than ever a reliable knowledge base for the development of the country and for the implementation of appropriate strategies of response to new challenges. While research at universities has to remain free of governmental influences, a special scientific work-force is required. This work-force should be oriented towards the great challenges the government currently faces and should be capable of providing solutions or science-based orientation at the best level of international science and technology standards. In this perspective, State Laboratories should remain an important cornerstone of modern policy decision-making, even if they are in a transitional phase in many countries around the world. While several traditional tasks fade away, new challenges arise: climate change and extreme weather conditions, the need to renovate energy supply and utilization, new diseases, new natural or human made threats, or the need to create new jobs on the basis of an innovative industry.

As a consequence of being steered by state authorities, all national laboratories are currently faced with problems originated by a high bureaucratic impact and insufficient scientific flexibility. New governance schemes are necessary if they are to meet current and future needs.

c. The evolution of the Science & Technology framework in the last decades

The Higher Education system, and in particular the University, has taken on an increasingly important role on the science scene, becoming the cornerstone of R&D activities. The presence of young researchers, the interdisciplinary spectrum associated with cutting-edge science in specific domains and the tradition of international collaboration all contribute to this dominance. The Higher Education system becomes an unavoidable partner for State Laboratories.

A significant evolution has also been registered on the connection between the S&T base and the industry, creating the need to radically change the role of S&T institutions in direct support of the industry. The template experimented during the past decades can't be used anymore. Increasingly, companies with an in-house R&D capability tend to privilege links with the Higher Education system and the University itself has become, through the mechanism of spin-offs, a source of creation of new businesses. On several instances, Polytechnics have developed activities in applied R&D that became relevant for the industry. Companies with no R&D capability experience great difficulty in reaping the benefits of innovation; for these companies, the professional technical centres constitute a better solution than State laboratories, as these centres can provide integrated solutions responding to the exact needs of their members. Professional technical centres should act as interface between companies and institutions, generating new knowledge. What is then the role of State Laboratories in support of the industry? They should concentrate on tasks where their greatest strengths lie i.e.:

- Operating specialized infrastructures, test facilities, metrology laboratories, etc. for industrial customers
- Providing specialized knowledge developed through their core activities
- Maintaining in some fields of applied research a knowledge base that could be directly by the industry or indirectly through the recourse to technical centres. This activity should be clearly demand-driven and a better transfer of this knowledge should be organized by reinforcing interfaces with potential beneficiaries, professional technical centres and industrial operators.
- Conducting demonstration/pilot projects in close cooperation with industrial partners

The future role of Portuguese State Laboratories should be examined keeping in mind two factors that have driven the evolution of the R&D scene in these last decades, namely the increasing role played in R&D by the Higher Education Institutions, which has created a huge potential for enhanced cooperation between State Laboratories and these institutions, as well as the change in paradigm in the relationship between State Laboratories and the industry.

The emergence of new themes for research of public interest

Themes in the field of Science & Technology which are relevant for the formulation and implementation of public policies have evolved greatly since the 1950s. It is then necessary to analyse the current spectrum of competencies deployed within the system of Portuguese State Laboratories in order to detect any gaps that might hinder a comprehensive response to the needs of the Government.

After performing such analysis, the International Working Group has noted that while in general the themes were adequately covered, some existing areas might need reinforcing in view of the evolving policy context, and others currently lacking would possibly require new initiatives.

Among the areas requiring increased attention, energy comes at the forefront; it dominates the concerns of governments, affecting not only the economic operators but also the citizens. Other subjects that might lead to new orientations in current R&D activities would be: the relationship between agro-food, health and environment; land use change and its monitoring; and water scarcity.

Among the areas that could possibly lead to new initiatives, the Group has analysed the following:

- ***Information and Communication Technologies***: there is no State Laboratory devoted to these technologies, no equivalent of INRIA in France. It is felt that the Universities, mostly through the creation of Associated Laboratories, as well as the industry, cover the related S&T needs in an adequate fashion; UMIC is providing the necessary support to governmental policies. Hence, there is no need for setting-up a new State Laboratory.
- ***Global Security***: this became a major concern at the beginning of the 21st Century. If S&T related work is mainly in the hands of the largest industrialized nations, Portugal within the frame of the Common European Security Policy and the international efforts towards disarmament and non-proliferation might nevertheless wish to bring its own contribution. This could lead to the organization of some new R&D activities by

combining a number of adequate research groups inside and outside State Laboratories.

- ***Space:*** there is no intention to recommend the creation of a Portuguese Space Agency with its own research branch, but in view of the increased involvement of Portuguese institutions in space-related activities, some rationalization should be considered using IM's and INETI's activities as a base.
- ***Natural Risks and Protection of the Environment:*** this is probably the area where the gap is most significant. Governments have an important responsibility to respond to the concerns of their citizens and Science & Technology have proven to be of great help in terms of decision-making on these pressing issues. Some new initiative is required: this will be addressed later in the report.

The current state of health of the State Laboratories: an overall assessment

To support the work of the International Working Group, the services of the Ministry of Science, Technology and Higher Education have produced a document entitled “Main facts and figures concerning State Laboratories”. This document reinforces the assessment performed by the International Working Group by confirming with detailed figures some of the statements made in this report and its preparation is gratefully acknowledged.

One of the most significant characteristics of the Portuguese system remains its degree of fragmentation. The fractured state of the country's S&T landscape is striking, and its most direct consequence is a notable loss of synergetic effects.

The State Laboratories are no exception in this state of fragmentation, as splintering and isolation exist also within their structures. This is only one feature that helps explain why, in the present state of affairs, Portuguese State Laboratories can only partly fulfil their task for the benefit of the country.

The system is in a quasi sub-critical state, having endured in the last years a steady degradation of its financial and human resources, and in some cases, a significant decrease in the funds available for investment. The lack of critical mass prevents it from having a real impact on many issues and the lack of flexibility hinders its ability to undertake new, bold initiatives.

Extreme rigidity in the management of financial and human resources, and obstacles in the management of external income constitute negative factors for ensuring good governance of these public institutions. Specificity of research institutions in terms of internal management has not been recognized sufficiently.

The most preoccupying issues are:

- The freeze in the recruitment of personnel, notably of young staff
- The lack of autonomy in adapting the staff table to the evolving needs of the Laboratories
- The unusual situation of keeping within the Laboratories, grant holders for extended periods of time, e.g. beyond 5 years

- The inability of the Laboratories to manage in an efficient way the income received from the outside, due to measures imposed upon them that constitute a disincentive for obtaining such external income
- The absence of secure budgetary planning that would allow sound financial management, notably by assuring that funds allocated by the budget would be effectively available during the relevant budgetary exercise
- The constraint created by the principle of annuality of the budget, the lack of differentiation between commitments and payments, that constitute obstacles to a sound management of research and development activities
- The lack of clear rules about payment mechanisms for services performed for other Government services and more generally the absence of a pricing policy
- The absence of a framework for transferring activities to the economic sector or for engaging in partnerships with the industrial world
- In some cases, the damaging delays in the payment by other governmental branches of services performed by the State Laboratories
- The arbitrary merger of State Laboratories with very different missions and specificities
- The institutional framework that does not provide any incentive for collaboration between State Laboratories, or between these Laboratories and Higher Education Institutions, as well as other research institutions, notably the Associated Laboratories

In addition, for some State Laboratories, the lack of clear guidance from their responsible Ministries hampers the efficiency of the system. A clearer expression of the demand, capable of orienting the Laboratories in discharging their mission is required.

Finally, when they exist, the advisory structures do not seem to provide any significant guidance to the activities of the State Laboratories; their role is opaque with no clear separation between the two distinct functions of management and advice.

There is an urgent need for a reform of the system of State Laboratories, but it can only be successful if the government as a whole, and the responsible Ministries in particular, enter into a continuous dialogue with the State Laboratories in order to ensure a better orientation of their work and a more beneficial output of the laboratories. The reform, therefore, cannot be limited to the State Laboratories as such, but would have to address their place within the entire system of science-based governance.

A proposal for a new governance scheme for the State Laboratories

The Group proposes a fundamental reform of both internal and external governance of the Portuguese State Laboratories.

In terms of internal governance, a specific legal status should be created.

As for the external governance, new inter-linkages between Portuguese S&T actors should be established through the following initiatives at three distinct levels:

- Between State Laboratories and the relevant Ministries: the definition of multi-annual financial planning and the creation of the position of Science Adviser
- Between State Laboratories and other research institutions: the setting-up of research consortia
- Between State Laboratories: the creation of a Council bringing together all State Laboratories

Some of these initiatives are detailed in the following sections.

It should be emphasized that the creation of new structures should lead to increased synergy and not to further divergence. This requires a precise definition of the role of each structure and of its links with the others. Allowing grey areas in the division of responsibilities would be detrimental to the governance of the system.

A first set of recommendations

1. A more appropriate legal status

In order to achieve a sound governance of the State Laboratories our primary recommendation is to establish a specific legal status for these institutions that would respect their public character. The essential goal is to provide flexibility in internal management and functional autonomy when discharging duties in support of the Government, as well as to improve the advisory mechanism; the current consultive bodies are too numerous and without significant

impact. The new status should also improve the relationships with customers, which would facilitate, among other objectives, the generation of external income.

It does not pertain to an international group to make detailed recommendations related to the Portuguese legal framework but the Group wishes at least to define the minimum requirements of functionality and operability that any new legal status should take into account:

- Financial autonomy, i.e. ability to decide on the deployment of financial means attributed by the State
- Full flexibility in securing external income and freedom in its use
- No financial control *a priori* but guidance provided by a State financial controller
- Possibility of carrying over unused credits from one financial exercise to another
- Possibility of having recourse to legal procedures against persistent debtors, public or private
- Flexibility in the recruitment of different categories of staff within the available financial envelope
- Flexibility in the definition of the staff table
- Simplified advisory structures

The Group notes that a more functional autonomy of the State Laboratories requires excellence in the leadership of these institutions and a strong capability of adaptation to the new managerial challenges. A clear human resources policy should be defined based either on in-house breeding of future leaders or external recruitment based on strict criteria.

The Group underlines the strong rationale for adopting a new legal status and recommends that it be considered a priority within the frame of reform of State Laboratories.

2. A Council regrouping all State Laboratories. Conselho dos Laboratórios do Estado Portugueses (CLEP)

In order to improve cooperation and visibility, all State Laboratories should come together to form the Council of Portuguese State Laboratories (CLEP). The Council should strictly limit itself to support the efficiency and the performance of its member institutions and it should, by no means, interfere with the responsibilities within them, nor should it introduce a new level of hierarchy or of administration between the Ministries and the Laboratories.

The Council should, in particular:

- Promote coordination of personnel policies and mobility
- Establish common rules of governance
- Provide efficient means of quality assurance
- Improve the use of common infrastructures (computers, large facilities)
- Strengthen international visibility
- Develop initiatives on interdisciplinary issues
- Organize foresight activities
- Serve as a forum for direct dialogue among the Laboratories
- Become the interlocutor of the Minister of Science, Technology and Higher Education for the coordination of the interests of the State Laboratories within the overall S&T policy

The Council should have a very lean structure. It may not set up permanent headquarters and should not have its own staff.

The Council should:

- Elect a Chairperson for a period of 2 years by and from the presidents/directors general of the State Laboratories. The chairperson would have to provide the secretarial functions for the Council from within his Laboratory.
- Create an Advisory Board, composed of independent persons with outstanding reputation in science and science management, 4 from Portugal and 4 from abroad.

The board membership should be approved by the Minister of Science, Technology and Higher Education.

- Organize an annual meeting between the members, the Minister and the Board. This meeting should be combined with a conference on a subject of interest to a wide spectrum of its members.
- Set up working groups for matters of common interest (computing, libraries, legal affairs, personnel management and training).

3. A multi-annual framework for financial planning

Programmatic stability is essential for the performance of R&D. One way to ensure such stability for the State Laboratories would be the establishment of a multi-annual financial planning over a period of three to four years; such planning would in no way go against the basic principle of annual budgets that should be respected, but could be a useful tool for defining some mid-term financial perspectives, notably when investments are considered. The financial planning should be based on a multi-annual work statement negotiated with the Ministry responsible for the State Laboratory, as well as with the Ministries with no direct responsibility on State Laboratories, such as External Relations or Environment, but which plan to use the services of these institutions. Beyond assisting in financial planning, the work statements should be a tool for developing a better understanding between the supplier and the receiver of the required knowledge, and for the creation of a common strategy.

4. The position of Science Adviser

Linking the policy demand of governmental authorities to the S&T offer of public research and using scientific expertise for decision-making regarding public policies in a great number of domains has been a significant issue in most, if not all, industrialized countries. It became clear to the Group that all Portuguese State laboratories have accumulated a significant scientific expertise in a great variety of domains which could and should contribute to the elaboration of public policies in a great number of areas in Portugal (public health, protection

of the environment and against natural hazards, transportation, public infrastructures and energy being the most obvious ones).

One must stress also that, in most cases, the scientific work which is performed by the State Laboratories is not currently seen as a potential valuable input by Portuguese ministries for the definition of their policies (this is particularly the case of LNEC and INETI but to some extent also of the others). There is certainly a huge knowledge gap between these institutions and the various ministerial departments. It should also be taken into account the fact that ministerial demands are not always considered as a priority by the State Laboratories.

The Group thus suggests that a Science Adviser be nominated in each relevant Ministry with three main functions:

- Advising the ministry and its main directorates on scientific matters in direct relationship with their missions on the basis of the state of the art expertise existing within Portuguese State Laboratories (and more generally within university departments)
- Drawing the attention of the Laboratories' management to the potential relevance of on-going projects and to existing expertise for the definition and implementation of various ministerial policies
- Proposing whenever necessary, joint operations between ministerial departments and State Laboratories.

The position of science adviser should probably be part time (avoiding that a science adviser be considered a "shadow" president of a Laboratory). In some cases this adviser might be nominated to the consultive structure of a State Laboratory, enabling the participation of the ministry in the discussion of its strategy and bringing ministerial guidelines to the table. The Science Adviser should be able to contribute, in close cooperation with the laboratories' management, to the "translation" of public demand into research programs and assist in this respect in the preparation and monitoring of the multi-annual financial planning.

5. The issue of the patrimony

The State Laboratories occupy a significant share of the patrimony in terms of land and buildings. The PRACE Commission strongly recommends examining cases where actual installations or ground properties are clearly not necessary or can be used in a more profitable way. A factor that must be taken into consideration in this respect is that the great majority of the State Laboratories have no rights of property over their installations. They are almost always the property of the State, with the most significant but not only exception being LNEC, where almost the entire campus area is registered in the name of the institution.

The implementation of the reform of the State Laboratories as a whole could be facilitated by the use of income from a possible alienation of the patrimony of some State Laboratories. It does not pertain to an International Working Group to formulate precise recommendations in this respect. The matter should be in the hands of national experts and the Group understands that a commission for the evaluation of all state property is being put into place.

6. The creation of research consortia

Certain areas of Research & Development focusing on a specific theme require for their successful conduct the association of several partners. Rather than creating new State Laboratories or new Institutes, the Group proposes the creation of a new type of institution, i.e. the research consortium, which would coordinate and consolidate the organizations cited above, but without depriving them of their identity. The consortium should be a cooperative structure created by several partners agreeing to reach well defined common objectives through research and technological development by sharing competencies and dedicated infrastructures. State Laboratories, Research Institutes, Universities, Politecnicos, Associated Laboratories are potential members of such consortium; non-Portuguese entities might also participate in a consortium.

Based on the defined objectives, a work-plan should be established containing a precise detailing of the joint activities, the modalities of task sharing and the milestones for achievements. Members of the consortium should agree on a yearly budget with well defined individual contributions in terms of funds and dedicated personnel.

The consortium should have a legal personality, using the most appropriate status under Portuguese law, which would guarantee its autonomy and the ability to receive contracts from external sources such as the European Union. The by-laws should define objectives, rules of governance and operating modes. The flexibility should be even greater than the one envisaged for State Laboratories under the new proposed model.

Senior Managers (Presidents, Director-Generals and Rectors) would constitute the Board of the consortium. This Board would designate the Director of the consortium and vote the annual budget. The consortium should have a dedicated staff seconded from member institutions. For its activities, the consortium will rely in principle on the equipment available in the members' laboratories but it should also be able to acquire specific equipment with its own budget. This equipment should become its property and the same rule would apply to patents obtained through the activities.

Following the model of the Associated Laboratories, the consortium should be created for a limited period of time, e.g. 10 years with a review after 5 years. At that point, the Consortium will only continue to exist if the results of the review explicitly recommend such continuation.

The Agro-Food sector could be used for testing the concept. Agriculture represents a small fraction of the Portuguese GNP; however, the food sector is probably the first industry in the country, and its implication in food safety, tourism, and land use and management, makes it a key strategic sector very much in need of a renewed research and development effort. The new Agro-Food research consortium would involve components of the new INIA, including former DGPC components (agriculture, agrochemicals), IPIMAR (fisheries), LNIV (veterinary medicine) and IICT (its tropical agriculture component). A key feature of the new consortium would be the establishment of a common location: all of the mentioned State Laboratories, currently in Lisbon, should be located in a single site, most preferably the current Oeiras location.

This new effort would lead to the development of an agro-food Campus, the *Biopolis*, where the IQTB, the IBET, the Gulbenkian Institute and other institutions currently working in Oeiras could participate and contribute to the creation of high quality and critical mass teams properly coordinated for tackling a broad range of research themes.

Coordination with the research carried out by the Technical University of Lisbon in Tapada da Ajuda will be essential; joint appointments of key university professors could provide the needed link and coordination throughout the whole agricultural R&D system in Portugal.

Physics (including life sciences aspects) could be another theme to be tackled by another research consortium. As detailed later in the document, Sacavém could be the site of *FISPOLIS* associating the ITN to other research organizations and University groups.

Even if not regrouped in a common location, such consortia should also be envisaged in other areas. As indicated later, two have already been identified: one dealing with natural risks and environmental studies (CORNEA – *Consórcio Riscos Naturais e Estudos Ambientais*) which should be centred on IM and another one on operational oceanography (CONOCEO – *Consórcio Oceanografia Operacional*) led by IH.

Specific recommendations for individual State Laboratories

- *Instituto de Genética Médica Jacinto de Magalhães – IGM/JM*

In 2001, IGM/JM was evaluated by IAC following the procedure applied to State Laboratories, but unlike these Laboratories it was immediately noted that the R&D component of the Institute's activities was very small. IGM/JM was essentially an Institute of public assistance with limited training and research activities. As an example, Decree Laws 123/99 and 124/99 only applied to one researcher and one fellow. IAC concluded that if the need to have IGM/JM as a State Laboratory was confirmed, strong changes in policy and procedures were necessary. IGM/JM became a State Laboratory in 2002 but the nature of its most useful activities, notably in the field of genetic diseases, has not been fundamentally modified since.

IGM/JM currently requests the option to withdraw from the system of State Laboratories. The International Working Group, after visiting the Institute, supports this request. It remains very much impressed by the usefulness and quality of the work at IGM/JM, notably in the screening of diseases from genetic origin affecting newborns, but recognizes that the research component is quite limited and that a withdrawal from the system is justified.

- *Instituto Nacional de Saúde Dr. Ricardo Jorge – INSA*

In 2001, IAC noted with satisfaction the substantial improvement of the situation in INSA as compared to previous evaluations. Its mission was implemented with an effective combination of R&D activities and epidemiological surveillance, diagnosis, training, laboratory accreditation and other services. The 2001 report identified several problems, including delays in payments for services provided by INSA to hospitals and others debtors and expressed worries about the situation of the Porto Delegation, in terms of the inadequate location of its facilities.

In 2006, the International Working Group notes that the Institute has experienced further substantial improvements in its operations and its efficacy is much higher compared to the situation assessed in the evaluation of 2001. The institutional integrity of the Institute is

important and the National Observatory of Health should remain closely integrated in INSA, benefiting from synergies with its research activities. Difficulties persist in collecting timely payments for services provided to the Administration. The Porto delegation performs useful research, notably in tropical medicine and plays a useful support role at regional level. The planned regrouping of all Porto units into a single building in the city should resolve the issue risen in the 2001 report and should enhance the efficiency of its operations.

- *Instituto de Investigação Científica Tropical – IICT*

In 2001, IAC noted that the required comprehensive reform of this ageing institution was underway but needed further focusing, notably on the following issues:

- Identifying the supporting role of IICT for Ministries other than MCT, notably for those Ministries dealing with developing countries
- Identifying the future users of IICT's work among tropical countries
- Involving all beneficiaries of IICT's activities in the scientific work of the Institute
- Establishing a new scheme for the financing of the IICT
- Reducing the geographical dispersion of the Institute
- Reinforcing or terminating some areas of scientific work which were clearly sub-critical.

In 2006, the International Working Group notes that there has been considerable clarification in the mission of the Institute thanks to the recent regrouping of activities.

The Institute could still do more in support of Portuguese external relations if clear requirements were formulated. The institutional integrity of IICT's activities should be maintained, its historical components benefiting from synergies with its research activities.

IICT should concentrate on issues related to tropical areas and eliminate any activity specifically oriented towards problems of Continental Portugal. Its centres of excellence such as CIFIC should become reference laboratories at an international level. Efforts should be made to attract international funds from institutions such as UN agencies and the World Bank. The reduction of the geographical dispersion has not progressed effectively.

- *Instituto Tecnológico e Nuclear – ITN*

In the 2001 report, IAC underlined that the main issue for ITN was the establishment of clear orientations for its upcoming activities based on a strategic vision of its future mission. Activities appeared too dispersed; focusing and coherence should be urgently introduced.

IAC considered at that time that ITN could be more involved also in the medical field by operating specialised facilities such as the proposed medical cyclotron, but suggested that a careful analysis of the potential demand for health care in Portugal should be conducted before proceeding with such project. Reinforcement of links with Universities, beyond the use of the reactor for education and training, was also recommended.

Currently, the ITN fulfils a useful role both in regulatory tasks (radiation protection) and fundamental research. Most of the 2001 recommendations were followed, with the exception of the medical field where it was found that hospitals themselves could cope with their own needs. The close contacts of ITN with Universities should be commended in particular.

The current absence of a Nuclear Regulatory Authority in Portugal puts an additional burden on ITN and this situation should be corrected by the Government through activating the Independent Commission for Radiological Protection and Nuclear Safety (Decree-Law 139/2005). ITN should ensure the training of inspectors who, after certification by the Independent Commission, should become part of ITN's staff, as well as part of other relevant organizations such as INSA.

The new accelerator facility will enhance the experimental capabilities of the Institute. In order to increase the utilization of the research reactor RP-1, ITN should launch an active campaign of promotion outside Portugal, emphasizing its good accessibility and availability.

In the future, ITN should become the heart of a research consortium with a much wider scope than nuclear research, addressing various questions of modern physics including aspects of life sciences (FISPOLIS).

Beyond its classical functions of:

- Ensuring radiological monitoring in all its aspects at national level

- Promoting the use of radiation and radioisotopes both for scientific research and for applications, notably in the health area
- Offering access to its specific nuclear installations for advanced training and research in higher education institutions.

ITN should:

- Attract more groups of universities and other research organizations which can benefit from the manifold methods for production and characterization of materials on a small scale,
- Offer a site for research organizations using heavy research equipments in the field of Nuclear Fusion and High Energy Physics through the establishment of FISPOLIS.

FISPOLIS' access to GRID computing could be a matter of great importance for the Portuguese nuclear physics community, and, in the future, for many other scientific areas as well. The land available in the Sacavém Campus could be used for the establishment of FISPOLIS.

- *Instituto Hidrográfico – IH*

In its 2001 report, IAC indicated that IH had a very well defined mission in the development of operational products such as the production and maintenance of nautical charts, the support to navy operations (search and rescue, marine pollution, etc.), the performance of rapid environmental assessment, of environmental monitoring, of ocean and survey engineering and that these operational tasks were supported by vigorous R&D activities and the quality of research appeared to be excellent.

IAC noted that the co-operation with other State Laboratories such as IPIMAR and IM was quite good and that there were also active links with university research centres but recommended that further networking with academic laboratories in Portugal and in Europe should reinforce this trend. IAC recommended also that the IH's research infrastructure, notably the research vessels, should be widely exploited by the entire oceanographic

community, that IH should become the focal point for operational oceanography in Portugal, and that it should be more ambitious on the European scene.

In its current survey, the International Working Group considers that IH has maintained its level of excellence, performing valuable research work beyond the tasks assigned by the Navy. It reiterates the IAC recommendation that IH research vessels be widely exploited by the entire oceanographic community. It might also be useful for Portugal to join the European grouping of oceanographic institutions (France, Germany, and United Kingdom) which organizes the time sharing for oceanographic cruises at the European level. Its participation would be beneficial to the Portuguese ocean science community.

IH should reinforce its activities in two areas:

- Marine instrumentation and more specifically submarine technology, e.g. automatic systems, observatories, new sensors. Cooperation with the IST/ISR Associated Laboratory should be reinforced
- Coastal zone research in cooperation with IPIMAR and LNEC.

Operational oceanography (ocean forecasting), which has been developing rapidly in many countries, is an important priority for IH. As already underlined in the IAC 2001 report, Portugal should be more ambitious on the European scene and claim a greater role in programs such as GMES (Global Monitoring for Environment and Security); more generally, IH as other State Laboratories should increase its use of satellite images and data.

A consortium under the leadership of IH called CONOCEO (*Consórcio Oceanografia Operacional*) should be formed by all institutions dealing with operational oceanography, notably IM as well as Universities.

- *Laboratório Nacional de Engenharia Civil – LNEC*

In 2001, the IAC report outlined the essential role of LNEC in Portugal, and its potential to become a centre of excellence in civil engineering in Europe. However, in order to achieve

such potential, LNEC had to overcome, in addition to the problems faced by other State Laboratories, some specific difficulties, notably:

- The problem of attracting young creative people and keeping them within the Laboratory.
- The difficulty in encouraging people displaying outstanding performance through a bonus scheme that could be implemented if the Laboratory had greater autonomy.

IAC expressed some worries about finding the right point of equilibrium between public service work and contract work and expressed the wish that LNEC's future growth should be based on an open, balanced search for the two sources of funding.

In 2006, the International Working Group considers that the activities of the Laboratory remain relevant to current issues, and that there is a significant opening to the outside world, but feels that LNEC could do more in support of government policies and that its position in the future on the Portuguese and international scene should be better defined. LNEC has reached a steady pace in carrying out the work that has given prestige to the institution in the past, but it lacks the innovative drive to tackle new challenges and to close lines of declining activity. The Group recommends that a foresight exercise associating a wide spectrum of experts be conducted in order to define a long term strategy. Civil engineering remains a dynamic field with a lot of stimulating issues such as advanced concrete techniques, fire protection of buildings and public works or the recycling of construction materials. The formulation of such strategy should guide a clear policy for LNEC's research infrastructures, which in some cases require updating; it could also assist in the regrouping of small units which would increase internal efficiency. Its regulatory role should be restated and its strong involvement in the proposed research consortium dealing with natural risks should be considered. Routine inspections, though currently generating income, might be spun-off in the future.

- *Instituto Nacional de Investigação Agrária e das Pescas – INIAP*

INIAP results from the merger in 2002 of INIA and IPIMAR (Decree Law 246/2002). IAC produced in 2001 two separate sets of remarks.

a) INIA

The situation of INIA in 1998 was such that it could only be resolved by either closing the Institute or by implementing a strong effort of revitalization. Several steps were taken between 1998 and 2001 following the second option and the 2001 IAC report indicated that INIA was on its way to recovery. As efforts were made to focus the R&D activities more on the needs of the agricultural sector, INIA also became involved in technology transfer, and the links with universities were reinforced. The number of publications had increased but the quality of the research could still be improved.

b) IPIMAR

The 2001 Report noted the significant improvements in IPIMAR's activities and praised the 2000-2006 strategic plan. It concluded that IPIMAR fulfilled its role of supporting policy-makers and the fishing industry. It highlighted the emphasis on interdisciplinary studies and the future role of the new infrastructures. IAC noted some problems on the replacement of retirees and on the lack of autonomy to dispose effectively of the funds coming from projects.

In 2006, the International Working Group concluded that the merge of INIA and IPIMAR has not brought any useful scientific synergy; hence the Group recommends that they should be restored to their earlier status and that their specific missions be restated.

In the case of INIA, after assessing its current course, a fundamental change in its mission is recommended. If Portuguese agriculture is to prosper in the future, the use of advanced science and technology, innovation and superior entrepreneurship will all be required. To achieve these objectives, both research and outreach efforts will be needed. INIA's research mission should therefore be restricted to those activities, not done elsewhere, in support of technology transfer. INIA's research agenda should complement and supplement activities undertaken by the universities and not compete or duplicate University-based research. In view of the proposed creation of *Biopolis* and of the potential incorporation of parts of other State laboratories into INIA, we recommend that INIA be the subject of a detailed external

review to assist in defining its new mission, objectives, and strategies within the overall context of Portuguese agriculture. In this respect, the experimental stations that INIA has outside Lisbon should become much more important in the future as poles of technology transfer to other regions.

- *Laboratório Nacional de Investigação Veterinária – LNIV*

The 2001 report indicated that LNIV had the double role of conducting R&D activities and providing diagnostic and other services to the industry, and called for maintaining an adequate balance between the two. It also noted that, in view of the need to maximize the funding devoted to R&D, the transfer of the Lisbon premises to Oeiras should not divert LNIV's research budget to building investments in the subsequent years. This concern was highlighted by the visit to the impressive new Porto facility, probably oversized at that time.

The International Working Group notes that there has been a notable effort to effectively support the response of the Government to pressing veterinary issues and the Laboratory has demonstrated its efficacy in such cases as BSE and avian flu. The delegation of Porto has experienced a real revival thanks to a close cooperation with the University, and whenever possible it should further valorise its infrastructures. The move out of Benfica already planned in 2001 did not take place until now; this creates a problem as the location of LNIV in Benfica is increasingly inadequate. Performing tests and research on animal diseases within a highly inhabited area could give rise to serious safety issues. This concern adds to the anticipated benefits that would be expected, in terms of increasing interactions with similar State Laboratories and others, from finally moving the LNIV's Lisbon facilities to the new *Biopolis* to be created in Oeiras.

- *Direcção-Geral de Protecção das Culturas – DGPC*

In 2001, DGPC was not yet a State Laboratory but the IAC reviewed its activities and concluded that its recognition as a State Laboratory should allow a better institutionalisation of their R&D activities. IAC recommended that important topics such as Integrated Pest

Management should be coordinated by the Ministry of Agriculture for effective policy-making and it concluded that, in spite of its small size, DGPC appeared to be a valuable component in support of agricultural policy in Portugal.

Today, crop protection remains a critical issue in terms of agriculture and environmental protection. In view of the evolution of DGPC's activities, there is a need for a clearer distinction between regulatory and research tasks. While recognizing for the latter the specificity of some areas of research, the links with INIA's research are becoming such that the merge of the research activities of INIA and DGPC should be seriously considered.

The regulatory activities of DGPC, which are essential for the sustainable use of agrochemicals in Portugal, should then return to the direct control of the Ministry of Agriculture.

- *Instituto de Meteorologia – IM*

In 2001, IAC noted that the role of IM in support of Government policies was well defined and that it was fulfilling its role with much dedication.

IAC welcomed the fact that seismology was reintegrated within the IM; the monitoring and modelling of seismic phenomena was an avenue to be pursued actively in strong cooperation with the universities, IH and international bodies.

IAC recommended that the specificity of IM and its unique role in fulfilling Portuguese international obligations should be recognised. It recommended also that the services IM provided to several Ministries should be adequately and equitably rewarded.

IAC noted that the biggest problem for IM related to inadequate staffing and the lack of investment through PIDDAC for equipment renewal.

In 2006, the International Working Group noted the persistence of problems regarding staffing and investments. In this difficult context, the understandable priority given to operational tasks hampers the development of research, resulting in a too weak synergy with

the Universities. The computing facilities are outdated. Insufficient means deployed in the islands constitute an issue for the Azores.

IM can play a significant role in the European context, notably in operations such as LANDSAF or GEOLAND. Interfaces with activities of other State Laboratories require clarification.

The Group suggests restructuring IM into two distinct sections:

- One section should devote itself to operational meteorology (weather forecasting) and to the monitoring of seismic activities through an adequate network of stations. To effectively accomplish its mission both on the continent and in the islands, this part should be furnished with adequate means; the meteorological area should aim at becoming self-sustaining, while seismic monitoring should be undertaken with government funds.
- The other section should consist in a new research department focused on advanced methods and models for weather forecasting, seismic prediction and more generally for issues related to natural risks and environmental protection. This research department should constitute the nucleus of a new Consortium CORNEA (*Consórcio Riscos Naturais e Estudos Ambientais*) involving IH, LNEC, IGM, IICT (for issues related to Africa), University groups (Aveiro, Evora, Lisboa, Nova de Lisboa, among others), Associated Laboratories and possibly private companies involved in Earth Observation activities. This consortium should exercise responsibility for European operations such as LANDSAF and GEOLAND. For research on vulcanology, a separate International Institute for Vulcanology should be established in the Azores.

The separation of IM into two distinct parts should assist in clarifying its role in air navigation within the frame of the Single European Sky (*Céu Único Europeu*). The operational part of IM could be considered as the supplier of services (*Prestador de Serviços de navegação aérea*), while the research department could serve as the national supervisory authority in this matter (*Autoridade supervisora nacional*).

- *Instituto Nacional de Engenharia, Tecnologia e Inovação – INETI*

The current INETI results from the merger in 2003 of INETI and IGM (Decree Law 186/2003). IAC produced in 2001 two separate sets of remarks.

a) INETI

In previous evaluation reports, IAC stressed the fact that Portugal did need a very different INETI from the one that existed then. In 2001, IAC noted encouraging progress in the work accomplished in the preceding five years. The question remained nevertheless to orient INETI's activities towards the effective needs of the Portuguese public and private sectors. A much clearer expression of the demand from these two sectors was required in order to match such economic or societal demand with the S&T offered by INETI.

Although there were in 2001 good indicators of improvement, much remained to be done to solve the old problem of very limited coordination among the different departments of the institution. At that time, financial resources were not a particular issue for INETI, but it was noted that in terms of human resources, it would greatly benefit, as other State Laboratories, from early retirement measures, that could rejuvenate and update its staff structure.

b) IGM

In 2001, IAC noted that the basic mission of IGM was to gather and provide a good knowledge base of the geological situation of Portugal, keeping in mind the aspects of mineral resources, environment, and land planning. Geosciences constituted the core of the Lisbon operation while engineering aspects were more concentrated in the Porto operations. IAC was impressed by the dynamism of the Porto Delegation in terms of addressing issues directly related to the industry; its positive attitude towards attracting customers and servicing the community was stressed.

IAC considered that the work of IGM could be better integrated in the policy formulation and implementation of the various Ministries. Links with the Ministry of Environment, which could cover, among others, important environmental protection aspects, should be reinforced.

In 2006, the International Working Group notes that INETI constitutes the most complex case among State Laboratories. The many adjustments in INETI's tasks in the past have not led to a convincing strategy. Also, the recent integration of IGM within INETI has not produced the expected synergy. There has been an effort of concentration of the activities in the last years but the wide spectrum still lacks coherence. There are several strong areas like activities in regulatory research which constitute a valuable part of the work; the same applies to the work of the Porto branch of the former IGM. But there are also some weak areas. There is still little co-operation within the Laboratory, and the heterogeneity of tasks and multiplicity of departments persists. Furthermore, INETI's staff does not demonstrate a common understanding of the Laboratory's mission.

INETI currently has three main functions:

- Assisting the Government, and in particular the Ministry of Economy and Innovation, in the exercise of their functions, through tasks of a public service type
- Supporting Portuguese industry, notably in its efforts to increase innovation
- Developing through R&D activities a knowledge base that could benefit the economic actors in Portugal

Restating the contents of the first function should not be too difficult but it should take into account the other components of the S&T system also involved in public services such as IPQ and ISQ.

The real issue concerns the last two functions, as the paradigm of the involvement of public research structures in innovation has evolved significantly, as recorded earlier, and given the fact that the structure of the Portuguese industry is not yet able to benefit from an innovation policy focusing on a technological push. The weak industrial demand for assistance in the innovation process does not favour the involvement of public institutions; the results displayed by a recent study (Conceição et al., March 2006) are eloquent: only a quarter of the innovative companies are "cooperative innovators," i.e. involving partners in their innovation activities. Any effort to redefine the possible role of INETI or of any public institution in innovation should take these boundary conditions into account. Involvement in the innovation process if not really desired by the users has little value; it should be clearly demand-driven and performed in close association with companies or professional technical centres.

Concerning the promotion of a knowledge base, the S&T areas to be chosen should derive from a long term national strategy for industrial development and should rely on the best competencies of INETI.

After thorough consideration, the International Working Group suggests the termination of the INETI in its current form and the creation of a new State Laboratory for Energy (INE – Instituto Nacional de Energia). The new Institute will build on several of INETI's strong programs which are all of long term importance for the Portuguese industry and society at large.

Energy is already a significant sector of INETI's activities and an outstanding one in terms of external income. Many more activities which are at present oriented in a somewhat vague manner towards Sustainability can be made more valuable if focused on energy research, e.g. deriving energy from wastes or from biomass or, in general, from unconventional fuels. A field of great importance in the energy sector is the study of a more rational use of available energy and optimization of energy systems. The wide spectrum of INETI's activities in systems and new processes can find a very important application in this field. Focusing on the energy problem, including relevant materials research will put the new INE right in the heart of any new R&D policy, as the issue of energy R&D will certainly gain momentum and continue to be a top research priority on a long term scale.

Several of INETI's activities cannot be reoriented and absorbed by the new INE. Some may be suited for spin-offs. Many others could valuably contribute to the mission of other State Laboratories or public research organizations and should be transferred to them. There are also some minor activities that could be terminated.

The International Working Group proposes the following main lines for the reform of INETI while being aware that the details of such complex reorganization must be analyzed in depth with the participation of the stakeholders.

INE should comprise the following former activities of INETI:

- Energy Technologies (Renewable Energies, Fuel Energy and Environment)

- Most parts of Information Technologies and Systems (Simulation and Knowledge Management, Electronic Systems and Computation), with reorganisation towards energy efficiency and energy conservation
- Chemistry, focusing on processes and materials for energy
- Materials and Production Technologies and Sustainable Development: these activities should be reoriented with a new emphasis on innovative and environmentally friendly energy solutions (unconventional fuels, biomass and waste conversion to energy)

Other activities of INETI should be concentrated in other research organizations:

- Marine Geology, Hydrogeology and Geology, Economic Geology and the Laboratory of Mineral Technologies that constituted the former IGM should be restored to an independent State Laboratory, IGM. The issue of the headquarters' location of the restored IGM, either in Porto or in Lisbon, should be further examined. The traditional strength of IGM in marine geology should be maintained if not reinforced.
- Activities on Optical and Aerospace Systems related to remote sensing should be transferred to IM and become a valuable part of the new consortium on Natural Risks and Environmental Studies (CORNEA)
- Biotechnology activities linked to Health should be transferred to INSA
- Activities in food and nutrition (a part of Biotechnology and Food Science) should be incorporated into INIA
- The Laboratory of electric measures and activities related to safety, inspection and control systems and sensors, tests and calibration should be transferred to IPQ which might consequently become the Portuguese Institute of Metrology.
- Monitoring activities of air and water should be incorporated into IM
- Activities directed towards innovation in general and Entrepreneurial development should be integrated into the relevant innovation services within the Government structure.

The overall evolution of the structure of State Laboratories is given in the first figure of Annex 1 while the restructuring of INETI is represented graphically in the second figure of the same annex.

New State Laboratories

Two requests have been made for transforming public research organizations into State Laboratories:

- *Instituto Nacional de Medicina Legal - INML*

The Ministry of Justice requested in November 2005 that the INML become a State Laboratory. After visits of the Chairman of the Group to both the Coimbra and Lisbon branches of the Institute and the examination of the relevant documentation, it is recommended to respond favourably to this request. The INML performs valuable advanced research related to its fields of activity, it produces good scientific publications and it has extensive relationships with Universities, more than those experienced by some recognized State Laboratories. As INML is financially self-sustained, its integration in the system of State Laboratories should not create any additional burden and there is no danger of an overlap with INSA activities.

- *Instituto Português de Arqueologia – IP*

The Director of IP has requested the transformation of this Institute into a State Laboratory to be named “*Laboratório do Estado em Arqueociências e Paleoecologia*”.

This request was received in April 2006 and has not yet been examined.

If accepted, it should lead to a relationship with other research activities performed in universities and museums in the area of conservation of the artistic patrimony using advanced techniques.

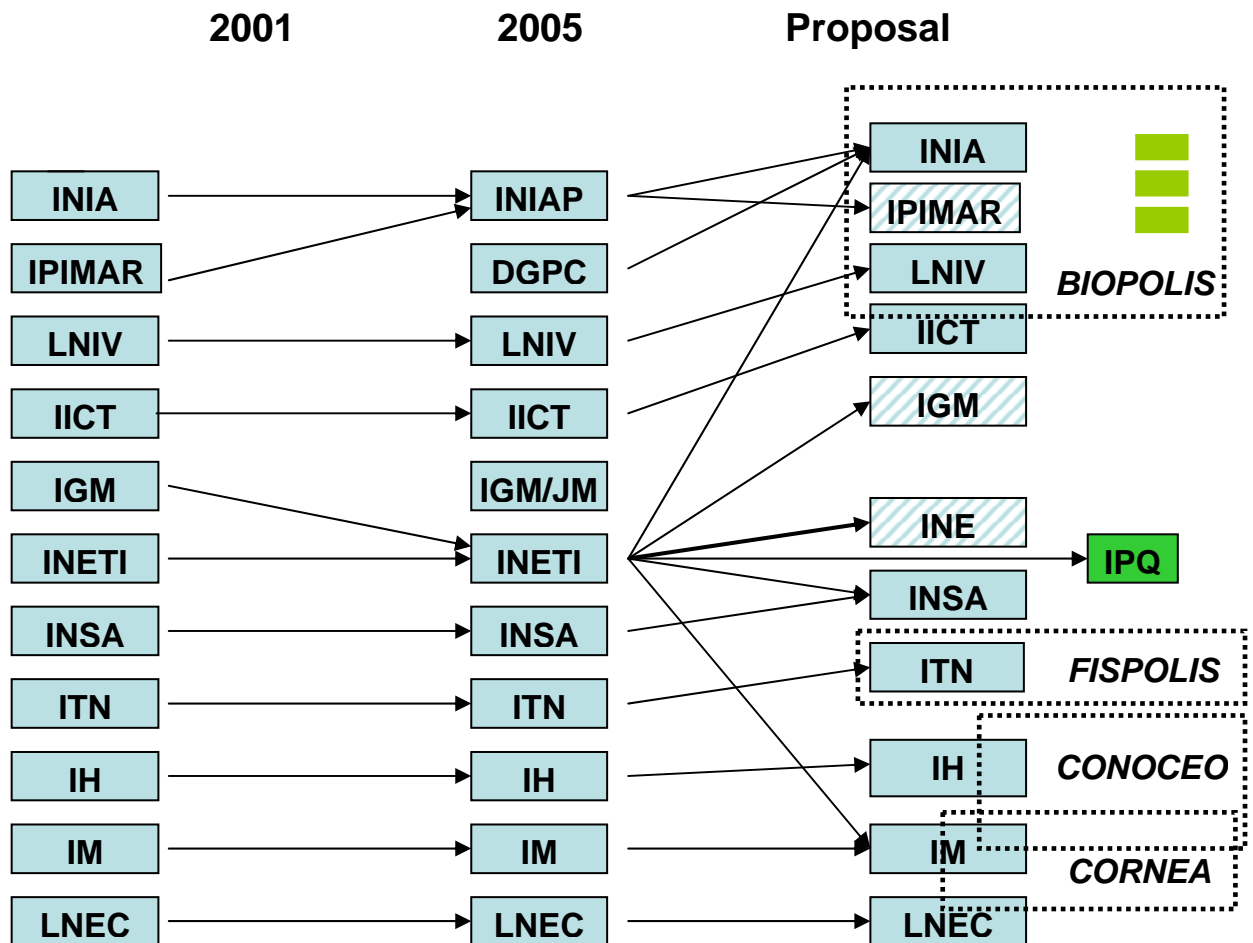
Conclusion

The International Working Group formulates in this report a set of recommendations which could be used as a base for guiding the re-engineering of the governance of Portuguese State Laboratories. The International Working Group hopes that its work will contribute to a new impulse on the system of State Laboratories, a system that should remain a worthy component of the overall Portuguese S&T structure.

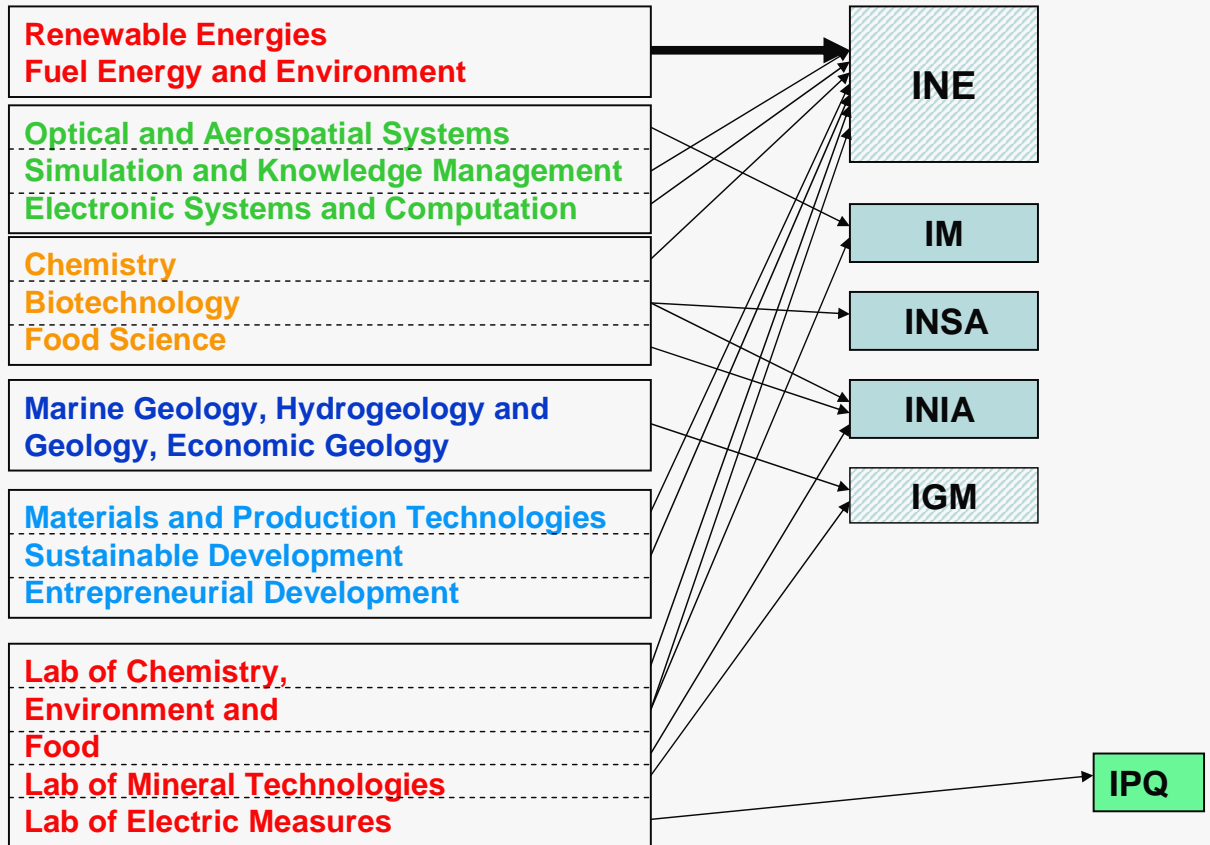
Annex 1

**The proposed evolution of the system of State Laboratories
at a glance**

The Evolution of the System of State Laboratories



The restructuring of the INETI complex



Note: Activities directed towards innovation in general and Entrepreneurial development should be integrated into the relevant innovation services within the Government structure.

Annex 2

List of persons contacted

Instituto Nacional de Medicina Legal (INML)

Delegação de Lisboa

9 Janeiro

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- Margarida Pimenta (Assessora do Secretário de Estado Adjunto e da Justiça)
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Direcção-Geral de Protecção das Culturas (DGPC)

Oeiras, 11 Janeiro

- Carlos São Simão Carvalho (Director-Geral)
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Centro de Investigação das Ferrugens do Cafeeiro (CIFC/IICT)

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- Jorge Braga de Macedo (Presidente do Instituto de Investigação Científica Tropical, I.P. (IICT))
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- Alexandre Aguiar (Investigador Auxiliar – Estação Florestal Nacional (EFN) em representação do Director)
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Instituto de Meteorologia, I.P. (IM)

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Instituto Hidrográfico (IH)

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Instituto Tecnológico e Nuclear, I.P. (ITN)

Sacavém, 1 Fevereiro

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- Eduardo Costa Alves (Responsável do Sector de Física)
- José Gonçalves Marques (Responsável do Reactor Português de Investigação (RPI))
- Maria de Fátima Araújo (Responsável do Sector de Química)
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Laboratório Nacional de Engenharia Civil (LNEC)

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- António Moura Joyce (Director do Departamento de Energias Renováveis (DER))
- Augusto Costa (Coordenador do Departamento de Hidrogeologia (DH))
- Carlos Roseiro (Director do Departamento de Biotecnologia (DB) e Coordenador de Programa)
- Carlos Santos (Director do Departamento de Tecnologia de Indústrias Alimentares (DTIA) e Coordenador de Programa)
- Carmen Rangel (Coordenadora de Programa)
- Eugénia Meirinhos da Cruz (Coordenadora de Programa)
- Fátima Abrantes (Directora do Departamento de Geologia Marinha (DGM))
- Fernando Carvalho (Coordenador do Núcleo de Marketing)
- Hélder Gonçalves (Coordenador de Programa)
- Ibrahim Gulyurtlu (Coordenador de Programa)
- Isabel Palma Cabrita (Directora do Departamento de Engenharia Energética e Controlo Ambiental (DEECA) e Coordenador de Programa)
- Joaquina Barrulas (Directora do Centro de Informação Técnica para a Indústria (CITI))

- José Cabrita Freitas (Director do Departamento de Optoelectrónica (DOP))
- José Manuel Rebordão (Director do Laboratório de Apoio às Actividades Aeroespaciais (LAER) e Coordenador de Programa)
- José Miguel Figueiredo (Director do Departamento de Materiais e Tecnologias de Produção (DMTP))
- Luís Plácido Martins (Director do Departamento de Prospecção de Minérios Metálicos (DPMM) e Coordenador de Programa)
- Luísa Duarte (Coordenadora de Programa)
- Maria do Céu Costa (Coordenadora de Programa)
- Maria João Marcelo Curto (Directora do Departamento de Tecnologia de Indústrias Químicas (DTIQ))
- Maria Manuela Oliveira (Coordenadora de Programa)
- Mário Costanzo Nunes (Director do Laboratório de Medidas Eléctricas (LME) e Coordenador de Programa)
- Mário Machado Leite (Director do Laboratório do INETI em S. Mamede de Infesta (LAB Porto))
- Miguel de Magalhães Ramalho (Director do Departamento de Geologia (DG))
- Teresa Coelho (Directora do Centro de Gestão e de Engenharia de Formação (CEGEF))

Instituto Nacional de Saúde Dr. Ricardo Jorge (INSA)

Delegação do Porto

6 Março

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- Manuel Gomes Afonso (Director da Delegação do Porto)
- Anabela Medo Miranda (Em representação da assessora – Centro de Tuberculose e Micobactérias)
- Isabel Adrião (Directora de Serviços de Administração Geral)
- José Manuel Costa (Assessor – Centro de Imunologia e Biologia Parasitária (CIBP) (Porto))
- Maria Margarida Heitor (Assessora – Centro de Qualidade Hídrica (Porto))
- Maria Margarida Saraiva (Assessora – Centro de Segurança Alimentar e Nutrição (Porto))
- Maria Olinda Basílio (Assessora – Centro de Bacteriologia (Porto))
- Olga Mayan (Assessora – Centro de Saúde Ambiental e Ocupacional (Porto))
- Paulo Pinho e Costa (Assessor – Centro de Biopatologia (Porto))
- Sofia Caetano (Técnica – Gabinete de Planeamento e Gestão (Porto))

Laboratório Nacional de Investigação Veterinária, I.P. (LNIV)

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6 Março

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- Albano Beja Pereira (Investigador do ICETA/CIBIO-CTM, Universidade do Porto)
- António Barreira Silva (Responsável pela Manutenção da Delegação do LNIV (Porto))
- António Rocha (Coordenador do ICBAS, Universidade do Porto)
- Augusta Rebelo da Costa (Vice-Coordenadora do ICBAS, Universidade do Porto)
- Cristina Ochôa (Responsável pelo Serviço de Anatomia Patológica e Histopatologia (Porto))
- Cristina Rocha (Responsável pelo Núcleo de Garantia de Qualidade (Porto))
- Gordon Luikart (Investigador do ICETA/CIBIO-CTM, Universidade do Porto)
- Hugo Rafael Guedes (Responsável pelo Serviço de Microbiologia dos Alimentos (Porto))
- Hugo Valadares (Responsável pela Secção Financeira e Patrimonial (Porto))
- Jorge Barbosa (Chefe do Departamento de Higiene Pública LNIV sede)
- Júlio Carvalheira (Membro da Direcção do ICETA/CIBIO-CTM, Universidade do Porto)
- Manuel Joaquim Azevedo Ramos (Director da Delegação do LNIV (Porto))
- Maria Alcina Paulos Tavares (Responsável pelo Serviço de Bacteriologia (Porto))
- Maria de Fátima Mota (Responsável pelo Serviço de Virologia (Porto))
- Nuno Ferrand de Almeida (Coordenador Científico do ICETA/CIBIO-CTM, Universidade do Porto)
- Raquel Godinho (Investigadora do ICETA/CIBIO-CTM, Universidade do Porto)

Instituto de Genética Médica Dr. Jacinto de Magalhães (IGM/JM)

Porto, 7 Março

- Maximina Pinto (Directora)
- Margarida Reis Lima (Subdirectora)
- Manuel Ribeiro dos Santos (Administrador Hospitalar)

Instituto Nacional de Engenharia, Tecnologia e Inovação (INETI)

Laboratório de S. Mamede de Infesta

7 Março

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- Mário Machado Leite (Director do Laboratório do INETI em S. Mamede de Infesta (LAB Porto))
- Álvaro Oliveira (Bolseiro – especialização em Mineralogia e Tecnologia de Minerais Industriais e Matérias-Primas Cerâmicas do LAB Porto)
- Ana Maria Botelho de Sousa (Responsável da Unidade de Gestão da Qualidade e especialista de Processamento de Minerais do LAB Porto)
- Cristina Carvalho (Responsável da Secção de Rochas Industriais e Ornamentais do LAB Porto)
- Elsa Macedo Pinto (Responsável da Plataforma de Informação Geográfica de Ocorrências Minerais do LAB Porto)
- Fernanda Guimarães (Responsável da Secção de Microsonda Electrónica do LAB Porto)
- Joana Cavalheiro Gomes (Bolseira – especialização em Métodos Clássicos de Análise de Águas Minerais e de Nascente do LAB Porto)
- João Manuel Farinha Ramos (Coordenador do Núcleo de Mineralogia e Geoquímica do LAB Porto)
- Joaquim Santos Bento (Coordenador do Núcleo de Instalações e Oficinas do Pólo de S. Mamede de Infesta)
- José Jorge Ferreira (Responsável da Secção de Difraccção de Raios-X do LAB Porto)
- Laurentino Rodrigues (Responsável da Secção de Documentação Técnica do Pólo de S. Mamede de Infesta)
- Maria Adelaide Alves Ferreira (Responsável da Secção de Métodos Electroquímicos e Absorção Atómica do LAB Porto)
- Maria Eugénia Moreira (Responsável da Secção de Fluorescência de Raios-X do LAB Porto)
- Maria José do Canto Machado (Coordenadora do Núcleo de Química e Responsável das Secções de Hidroquímica e Plasmas do LAB Porto)
- Maria Luísa Matos (Responsável da Secção de Higiene e Segurança do LAB Porto)
- Maria Manuela Amarante (Coordenadora do Núcleo de Caracterização Tecnológica e Processamento de Minerais do LAB Porto)
- Marta Themudo (Bolseira – especialização em métodos de Química Clássica do LAB Porto)
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- Paulo Bravo (Bolseiro – especialização em Petrografia e Geoquímica do LAB Porto)
- Rogério Calvo (Bolseiro – especialização em Fluorescência de Raios-X do LAB Porto)
- Rui Santos (Bolseiro – especialização em Espectrometria de Massa ICP-MS do LAB Porto)

Associação Empresarial de Portugal (AEP)

Santa Maria da Feira, 7 Março

- José Sá Correia (Administrador da AEP no Europarque)

Associação Industrial Portuguesa (AIP)

Lisboa, 8 Março

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- José Veiga Simão (Adjunto do Presidente)
- António Alfaiate (Administrador Executivo)

Direcção-Geral do Orçamento

Lisboa, 8 Março

- Luís Morais Sarmiento (Director-Geral)

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Lisboa, 8 Março

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- Ana Rosa Botelho (Laboratório Nacional de Investigação Veterinária, I.P. – LNIV)
- António Gonçalves Henriques (Laboratório Nacional de Engenharia Civil – LNEC)
- António M. P. Lavadinho (Direcção-Geral de Protecção das Culturas – DGPC)
- António Nazareth Falcão (Instituto Tecnológico e Nuclear, I.P. – ITN)
- Carlos Ventura Soares (Instituto Hidrográfico – IH)
- José Manuel Empis (Instituto Nacional de Investigação Agrária e das Pescas, I.P. – INIAP)
- Luís Alfaro Cardoso (Instituto de Investigação Científica Tropical , I.P. – IICT)

- Maria Cristina Clímaco (Instituto Nacional de Investigação Agrária e das Pescas, I.P – INIAP)
- Maria de Fátima Borges (Instituto de Investigação das Pescas e do Mar – IPIMAR)
- Maria Helena Ferronha (Laboratório Nacional de Investigação Veterinária, I.P. – LNIV)
- Maria Margarida Vieira (Direcção-Geral de Protecção das Culturas – DGPC)
- Maria Teresa Paixão (Instituto Nacional de Saúde Dr. Ricardo Jorge – INSA)

Instituto Nacional de Medicina Legal (INML)

Coimbra (sede)

9 Março

- Duarte Nuno Vieira (Presidente)

Conselho Nacional dos Laboratórios Associados

Porto, 28 Março

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Centro Tecnológico do Calçado (CTC)

S. João da Madeira, 28 Março

- Leandro de Melo (Director)

Centro Tecnológico da Indústria de Moldes, Ferramentas Especiais e Plásticos

(CENTIMFE)

Marinha Grande, 28 Março

- Rui Tocha (Director-Geral)

Instituto de Soldadura e Qualidade (ISQ)

Taguspark, 29 Março

- Dias Miranda (Presidente)
- Manuel Cruz (Vice-Presidente)
- Eduardo Manuel Dias Lopes (Director - Serviço de Investigação e Desenvolvimento)
- Joaquim Jorge Guedelha (Director de Laboratórios)

Instituto do Ambiente

Amadora, 29 Março

- João Gonçalves (Presidente)
- Maria Leonor Gomes (Vice-Presidente)
- Tereza Vinhas (Directora de Serviços do Laboratório de Referência do Ambiente)
- Cristina Carrola (Chefe de Divisão do Laboratório de Medidas e Ensaios do Laboratório de Referência do Ambiente)

Instituto Português da Qualidade

Caparica, 29 Março

- António Cruz (Director)
- Maria José Brito (Vogal do Conselho Directivo)
- Maria Eduarda Côrte-Real Filipe (Directora – Laboratório Central de Metrologia)

Fundação para a Ciência e a Tecnologia

Lisboa, 29 Março

- João Sentieiro (Presidente)

Appendix 1

Appendix to the Report of the International Working Group on the Reform of the State Laboratories

Prepared by the Services of MCTES

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The aim of this appendix is to provide basic information on the spectrum of the Portuguese State Laboratories as a support of the main report of the International Working Group on the Reform of the State Laboratories.

Table 1: State Laboratories and Guardianship

State Laboratories^(a)	Guardianship
1. DGPC (Direcção-Geral de Protecção das Culturas) 2. INIAP (Instituto Nacional de Investigação Agrária e das Pescas, I.P. ^(b)) 3. LNIV (Laboratório Nacional de Investigação Veterinária. I.P.)	Ministério da Agricultura, do Desenvolvimento Rural e das Pescas <i>(Ministry of Agriculture, Rural Development and Fishing)</i>
4. IGM/JM (Instituto de Genética Médica Doutor Jacinto de Magalhães) 5. INSA (Instituto Nacional de Saúde Dr. Ricardo Jorge)	Ministério da Saúde <i>(Ministry of Health)</i>
6. IICT (Instituto de Investigação Científica Tropical, I.P. ^(c)) 7. IM (Instituto de Meteorologia, I.P.) 8. ITN (Instituto Tecnológico e Nuclear, I.P.)	Ministério da Ciência, Tecnologia e Ensino Superior <i>(Ministry of Science, Technology and Higher Education)</i>
9. INETI (Instituto Nacional de Engenharia, Tecnologia e Inovação ^(d))	Ministério da Economia e da Inovação <i>(Ministry of Economy and Innovation)</i>
10. IH (Instituto Hidrográfico)	Ministério da Defesa Nacional <i>(Ministry of National Defence)</i>
11. LNEC (Laboratório Nacional de Engenharia Civil)	Ministério das Obras Públicas, Transportes e Comunicações <i>(Ministry of Public Works, Transportation and Communications)</i>

^(a) The competence for the definition of strategic guidance, as well as following its execution, is exerted, by the ministries of the respective guardianships, in articulation with the Ministry of Science, Technology and Higher Education (Lei Orgânica do XVII Governo Constitucional, Decreto-Lei nº 79/2005, 15 de Abril);

^(b) After 2002, **INIAP** is the result of the merge between **INIA** (Instituto Nacional de Investigação Agrária) and **IPIMAR** (Instituto de Investigação das Pescas e do Mar);

^(c) The competence for the definition of strategic guidance of IICT, as well as following its execution, is exerted in articulation with ministry of Foreign Affairs (alínea 4, artº 23º da Lei Orgânica do XVII Governo Constitucional, Decreto-Lei nº 79/2005, 15 de Abril).

^(d) After 2003, **IGM** (Instituto Geológico e Mineiro) has been extinguished and integrated **INETI**

1. Financial Resources: context

- Total R&D expenditure by the State Laboratories accounted for 115,2 million Euros in 2003, representing 17% of total national expenditure in R&D, Table 2. The State Laboratories assumed the highest share of investment in R&D of the Government sector in 2003 (67%). R&D expenditure of State Laboratories decreased 16% from 2001 to 2003. For comparison, total R&D expenditure also decreased, from 708,1 million Euros in 2001 to 681,5 million Euros in 2003, i.e. 5,3%.

Table 2: Distribution of total expenditure in R&D per sector of execution (2001-2003), based on latest available statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

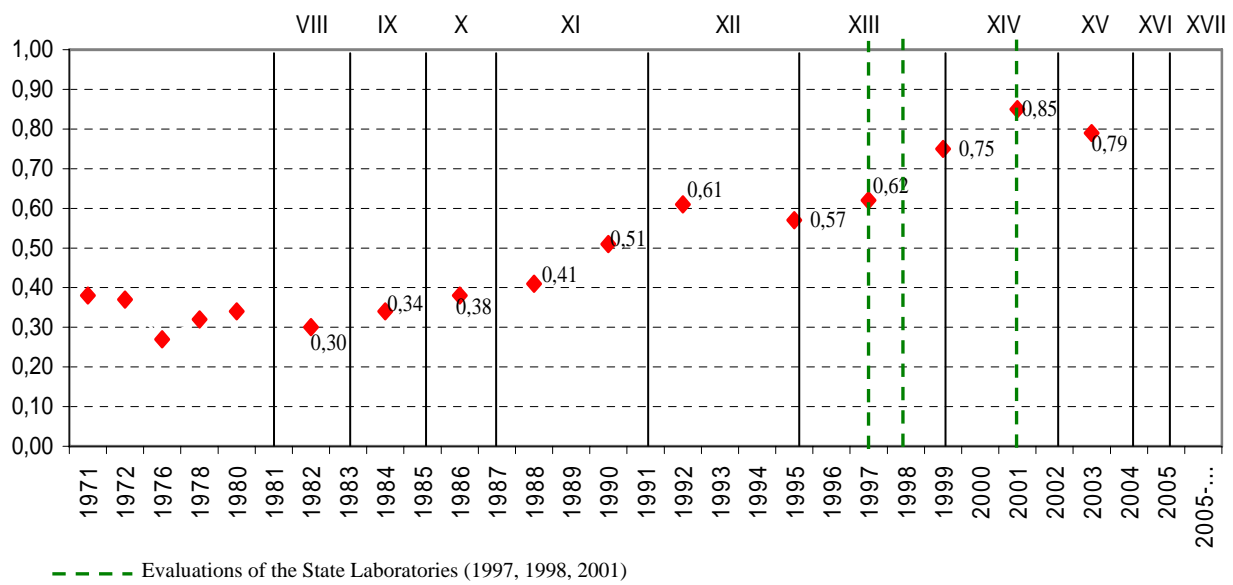
Sector of execution	Total Expenditure in R&D				
	2001 (current prices)		2003 (current prices)		t.m.c.a. 01/03 ¹
	1 000 €	%	1 000 €	%	%
Government	215 500	30	172 000	25	-13,7
State Laboratories	151 500	70	115 200	67	-15,8
Hospital Units	9 600	4	12 800	7	11,1
Other Government	54 400	25	44 100	26	-13,1
Higher Education	380 600	54	391 800	57	-2,0
Public University	336 400	88	333 500	85	-3,9
Public Polytechnic	26 200	7	36 100	9	13,3
Private and Cooperative – University	17 500	5	20 800	5	5,3
Private and Cooperative – Polytechnic	500	0	1 400	0	58,1
Private Non-Profit Institutions	112 000	16	117 700	17	-1,0
TOTAL	708 100	100	681 500	100	-5,3

Source: OCES, Inquérito ao Potencial Científico e Tecnológico Nacional – IPCTN 2003

- Figure 1 shows that the Portuguese gross expenditure in R&D (GERD) was 0,79% of GDP in 2003, while it was 0,85% in 2001. Science and technology (S&T) got a major boost in the mid 1990s with the implementation of specific policies focused on the promotion of human resources and scientific institutions. The Ministry of Science and Technology was created in 1995, resulting in profound institutional changes. The development of the Portuguese scientific and technological system was stimulated within the framework of a deep reform in the evaluation of R&D institutions and State Laboratories, to guarantee the independence and effectiveness of the evaluations, the publication of the respective methodologies and results, as well as the exercise of the right to recourse. During this period, the State Laboratories were evaluated in 1997, in 1998 (follow up) and in 2001 (follow-up).

As a result, the Ministry of Science and Technology, MCT, has developed a program for the restructuring of the State Laboratories and Table 3 lists the portfolio of R&D projects funded through the Foundation for Science and Technology, FCT, in various State Laboratories.

Figure 1: Gross expenditure in R&D (GERD, %) as a fraction of GDP, with identification of the various Governments, (based on latest available statistical data acquired through the national survey system, IPCTN 2003)



Source: EUROSTAT

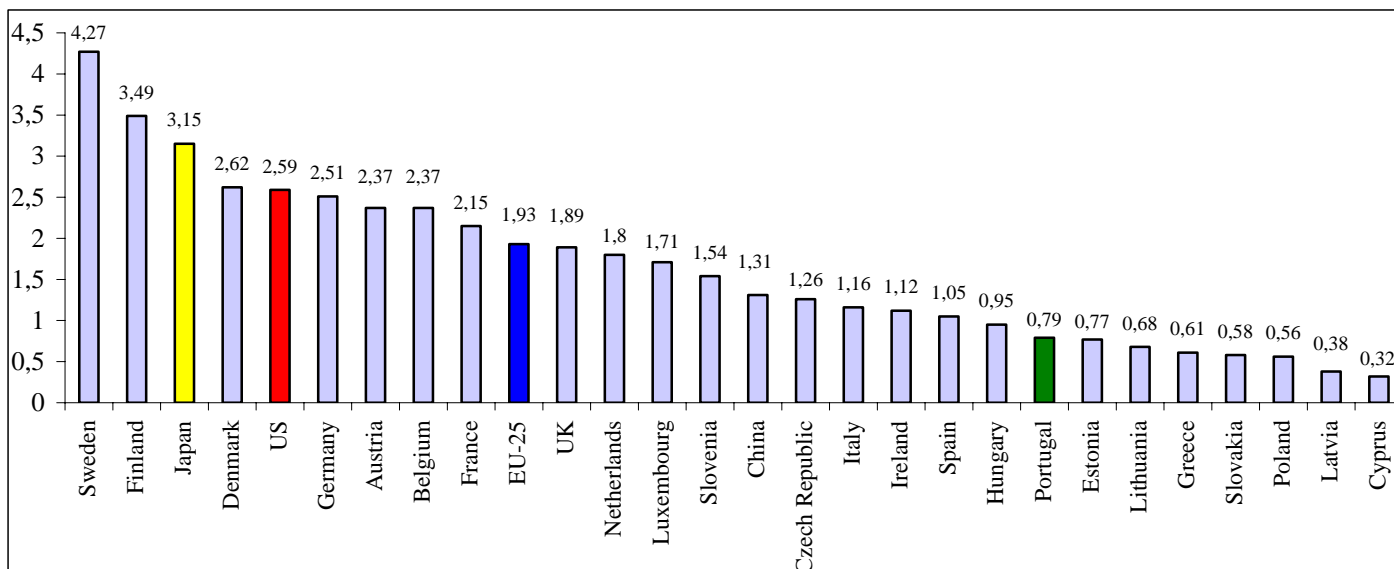
3. For international comparisons, Figure 2 compares the gross expenditure in R&D as a fraction of GDP of Portugal, Europe, US and Japan, while Figure 3 refers to intensity figures and shows that the funding available per government's research in Portugal in 2001 (i.e. researchers at State Laboratories) was only 40% of the European average (considering the new EU-25), about the same gap between a government's research in Europe (EU-25) and in the USA.
4. The figures reported above regarding the R&D budget of State Laboratories are based on a fraction of the overall budget of the Laboratories, estimated through predefined values agreed between OCES and EUROSTAT in 1997. On the bases of those agreements, three categories of State Labs have been considered, Table 4, namely: i) those that mobilize up to 50% of its total resources to R&D activities (INETI, LNIV, IM, INSA and IGM); ii) those that mobilize about 70% (LNEC, INIA, IGM); iii) and those that use almost all resources – 90% (ITN, ICT, IH, IPIMAR).

Table 3: Program for the restructuring of the State Laboratories through R&D projects funded by FCT, 1999-2002

Date (beginning)	State Laboratory	Thematic Orientation	Project	Assignment of the Project (in Portuguese)
1999				
13/12/99	LNEC	Prevention and Risk Reduction	<u>PLE/3/98</u>	<i>Metodologias para a Mitigação do Risco Associado à Degradação das Construções</i>
10/01/1999	LNEC	Sciences and Sea Technology	<u>PLE/1/98</u>	<i>Valorização e Protecção da Zona Costeira Portuguesa</i>
08/03/1999	IICT	Tropical Scientific Research	<u>PLE/11/98</u>	<i>Reforço da Cooperação Directa com os Países Africanos de Língua Oficial Portuguesa</i>
05/01/1999	IGM	Prevention and Risk Reduction	<u>PLE/5/98</u>	<i>Caracterização do Potencial Sismogenético de Falhas na Região do Algarve Ocidental Meridional</i>
05/01/1999	IGM	Sciences and Sea Technology	<u>PLE/4/98</u>	<i>Reforço da Capacidade de Investigação no Domínio da Geologia Marinha</i>
05/01/1999	LNEC	Prevention and Risk Reduction	<u>PLE/2/98</u>	<i>Mitigação do Risco Sísmico em Portugal</i>
03/01/1999	IICT	Tropical Scientific Research	<u>PLE/10/98</u>	<i>Reforço e Renovação do Centro de Investigação das Ferrugens do Cafeeiro</i>
02/01/1999	IICT	Tropical Scientific Research	<u>PLE/9/98</u>	<i>Modernização do Arquivo Histórico Ultramarino - IICT</i>
18/1/99	ITN	Prevention and Risk Reduction	<u>PLE/7/98</u>	<i>Reforço de Competências em Protecção e Segurança Radiológica Nuclear</i>
2000				
06/01/2000	IM	Observation and Climate, Biophysical and Environmental Prevision	<u>PLE/23/01</u>	<i>Aplicação de Satélites Meteorológicos à determinação de Parâmetros Biosféricos (SATBIOS)</i>
01/01/2000	IH	Sciences and Sea Technology	<u>PLE/22/99</u>	<i>Aquisição e Análise de Dados por Sonda Submarina Multifeixe</i>
2001				
10/01/2001	ITN	Sciences and Sea Technology	<u>PLE/8/00</u>	<i>Consequências das Modificações do Caudal Fluvial na Zona Costeira e na Plataforma Continental</i>
09/01/2001	IPIMAR	Sciences and Sea Technology	<u>PLE/12/00</u>	<i>Alterações Ambientais Durante o Quaternário Recente Deduzidas a Partir do Registo Sedimentar dos Estuários e da Plataforma Continental</i>
06/01/2001	INIA	Management of Agrarian Systems and Environmental Protection	<u>PLE/18/00</u>	<i>Promoção da Gestão Integrada e do Combate a Doenças do Pinhal Bravo</i>
06/01/2001	INIA	Management of Agrarian Systems and Environmental Protection	<u>PLE/19/00</u>	<i>Promoção da Gestão Integrada, Conservação e Sustentabilidade de Montados</i>
06/01/2001	INIA	Management of Agrarian Systems and Environmental Protection	<u>PLE/20/00</u>	<i>Revitalização das Competências na Valorização, Melhoramento e Gestão do Olival: Estudo da sua Diversidade, Implementação Fitotécnica e Medidas Inovadoras</i>
06/01/2001	INIA	Food Quality and Safety	<u>PLE/16/00</u>	<i>Valorização da Qualidade e Promoção da Segurança Alimentar e da Preservação do Ambiente na Produção Hortofrutícola</i>
06/01/2001	INIA	Management of Agrarian Systems and Environmental Protection	<u>PLE/17/00</u>	<i>Valorização de recursos e produtos regionais de qualidade em sistemas policulturais da montanha e vale no Norte do País (EDM)</i>
06/01/2001	INIA	Food Quality and Safety	<u>PLE/15/00</u>	<i>Valorização do Património Vitivinícola Português pela Qualidade, Diversidade e Segurança Alimentar dos Seus Produtos</i>
05/01/2001	IPIMAR	Sciences and Sea Technology	<u>PLE/14/00</u>	<i>Monitorização e Avaliação da Contaminação do Ambiente Costeiro: processos biogeoquímicos e interações com o biota</i>
05-01-2001	IPIMAR	Sciences and Sea Technology	<u>PLE/13/00</u>	<i>Reforço da Capacidade de Investigação e Biologia das Pescas Aplicada à Gestão dos Recursos Marinhos</i>
04/01/2001	IH	Sciences and Sea Technology	<u>PLE/21/00</u>	<i>Desenvolvimento das Competências Nacionais para a Implementação de Modelos Oceanográficos de Assimilação de Dados</i>
03/01/2001	IGM	Sciences and Sea Technology	<u>PLE/6/98</u>	<i>Fluxo de Saída da Água Mediterrânea e o Drift de Faro: modelação da velocidade das correntes de contorno em função do clima pelo método do "sortable silt"</i>

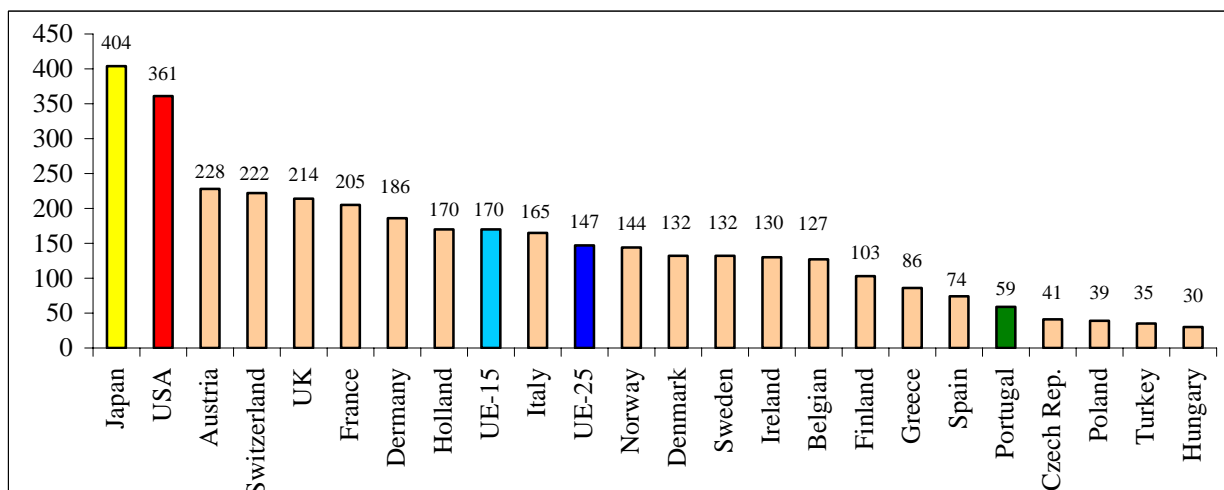
Source: FCT (Foundation for Science and Technology)

Figure 2: Gross expenditure on R&D as a fraction of GDP (GERD, %), 2003; Source: EUROSTAT



Source: EUROSTAT

Figure 3: Expenditure in R&D per Government researcher (1000 €/ FTE), 2001



Sources: OECD (2004); Eurostat; <http://europa.eu.int/comm/eurostat/>

Notes: data on "PPS", for 2001 or last year available (Áustria, Reino Unido: 1998; Bélgica, Dinamarca, Grécia, EUA: 1999; França, Irlanda, Itália, Holanda, UE-15, UE-25, Turquia, Suíça: 2000); "FTE" refers to "full time equivalent"

Table 4: R&D Fraction of overall budget, considered for R&D statistics, as agreed with EUROSTAT

State Laboratories	Convention of R&D fraction of total budget
DGPC	50%
INIAP	78%
INIA	70%
IPIMAR	90%
LNIV	50%
IGM/JM	50%
INSA	50%
IICT	90%
IM	50%
ITN	90%
INETI	50%
IGM	70%
IH	90%
LNEC	70%

Source: OCES

5. Table 5 shows that 84% of the R&D expenditure in State Laboratories was financed through Government funding in 2003. Funds from non-profit institutions and companies represented 10,725 million Euros.

Table 5: R&D Expenditure and origin of financing (2001/2003), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

(1000 Euros)	Total Expenditure in R&D		Government Funds						Own Funds		Funds from Non-Profit Institutions		Funds from Companies		Funds from Abroad	
			State Budget		Structural Funds		Other State Funds				2001	2003	2001	2003	2001	2003
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003		
State Labs																
DGPC	4 052,5	6 785,0	3 664,1	5 848,5	114,6	921,2	-	-	273,7	-	-	-	-	15,3	-	-
IGM/JM	99,0	202,1	99,0	202,1	-	-	-	-	-	-	-	-	-	-	-	-
IICT	7 688,8	5 991,8	6 592,2	5 732,4	930,3	218,2	-	-	132,7	-	13,0	-	-	-	20,6	41,2
IM	7 001,7	2 268,3	6 256,6	1 424,1	-	691,2	-	25,9	-	-	-	-	115,0	56,7	630,1	70,4
IH	7 038,2	5 021,7	6 142,0	4 621,0	875,9	240,4	-	-	-	-	3,0	-	-	-	17,2	160,3
INETI	25 422,0	21 010,4	21 196,8	16 753,5	1 690,6	1 599,7	482,2	325,1	79,2	11,6	-	316,5	498,2	754,9	1 475,1	1 249,2
INETI	19 553,7	17 164,0	16 425,6	14 150,7	1 048,4	803,9	236,7	50,6	51,8	11,6	-	265,7	471,0	693,1	1 320,2	1 188,4
IGM	5 868,2	3 846,4	4 771,2	2 602,8	642,2	795,7	245,5	274,5	27,3	-	-	50,8	27,2	61,8	154,8	60,8
INIAP	43 536,9	32 710,1	32 139,9	24 796,9	7 450,3	4 554,8	1 041,4	1 165,7	302,2	946,1	20,1	18,8	160,8	312,0	2 422,3	915,7
INIA	28 335,5	20 880,6	21 786,5	16 533,5	5 054,0	2 798,1	194,9	231,1	302,2	946,1	20,1	1,8	145,8	182,0	831,9	187,9
IPIMAR	15 201,4	11 829,5	10 353,3	8 263,3	2 396,2	1 756,7	846,5	934,5	-	-	-	17,1	14,9	130,0	1 590,4	727,8
INSA	6 494,6	5 189,0	5 776,2	2 855,8	-	110,2	21,7	-	-	-	21,7	130,0	-	-	-	2 093,0
ITN	10 775,6	8 580,6	6 982,7	6 535,5	294,0	752,9	51,3	77,5	10,8	-	51,3	164,6	974,6	947,8	248,9	102,1
LNEC	30 990,8	22 553,4	18 234,8	11 838,8	6 028,6	1 188,5	-	-	586,0	754,9	-	-	4 594,0	8 008,0	749,2	763,3
LNIV	5 743,5	4 880,1	5 650,3	4 703,1	-	64,9	-	-	-	-	-	-	-	-	62,0	112,2
CNIG*	2 651,6	-	2 291,3	-	-	-	-	-	289,3	-	-	-	-	-	71,0	-
TOTAL	151 500	115 200	115 026	85 312	17 384	10 342	1 597	1 594	1 674	1 713	109	630	6343	10095	5696	5507

(1) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas) * sum of INIA and IPIMAR

(2) In 2004, IGM integrated INETI (IGM has been extinct) ** sum of INETI and IGM

(3) In 2002 DGPC became a State Laboratory. R&D Expenditure for 2003 is available here.

(4) Data is only available for 2001 and 2003 (IPCTN)

(5) 'Total budget S&T' refers to the total expenditure (operational budget+PIDDAC)

(6) 'Executed budget 'R&D' ('Total Expenditure R&D'/'Total Budget R&D') is an approximation to the execution of the 'Total budget R&D'

(7) Total can be different from the sum of the parts due to rounding of numbers.

* CNIG (Centro Nacional de Informação Geográfica): extinct in 2001 and integrated in IGP (Instituto Geográfico português). OCES included this data.

Source: OCES (IPCTN 2003)

6. Public funding of State Labs (i.e. State budget and PIDDAC funding) has remained constant and equal to 0,1% of GDP from 2001 to 2003, Table 6. However, the fraction between the overall budget of State Labs and the government budget for S&T has decreased from 15% to 9% from 2001 to 2003.

Table 6: Evolution of overall budget of State Laboratories (2001-2006), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

(euros)

State Labs	Overall Budget					
	2001	2002	2003	2004	2005	2006
IH	6 888 658	6 276 140	6 341 725	6 311 500	6 430 000	6 930 205
INIA/INIAP	36 651 669	33 848 864	40 982 792	43 538 324	42 238 171	34 027 986
IPIMAR	18 236 051	20 730 854	-	-	-	-
LNIV	11 721 751	14 948 724	8 441 225	9 291 665	8 672 784	8 758 581
DGPC	-	-	-	5 011 393	6 744 915	6 764 566
INSA	20 609 007	22 993 062	23 365 758	21 905 964	23 806 510	27 119 885
IGM/JM	4 665 895	4 162 887	4 309 459	4 368 250	4 489 749	4 512 775
IGM	10 464 780	10 688 196	10 791 156	-	-	-
INETI	38 831 760	43 010 809	39 557 255	36 865 039	35 686 908	37 688 439
LNEC	29 753 295	30 092 477	31 310 047	29 227 565	35 809 073	36 747 743
IM	19 095 684	22 667 706	14 515 337	13 696 510	15 153 677	14 860 938
ITN	9 913 015	11 092 717	12 068 956	10 792 370	14 347 325	12 421 339
IICT	8 999 686	10 235 707	9 097 526	8 498 340	8 907 975	8 245 236
Overall Budget State Labs (State+PIDDAC+Other sources)	221 844 261	236 682 150	200 781 236	189 506 920	202 287 087	198 077 693
Overall Budget State Labs (State+PIDDAC)	129 582 158	133 543 316	128 380 963	127 081 065	134 584 934	118 471 169
GDP	129 308 400 000	135 433 600 000	137 522 800 000	142 843 200 000	147 249 000 000	-
Government Budget for S&T	875 574 875	1 010 902 717	993 008 488	1 067 009 578	1 239 191 137	1 315 396 998
Overall Budget State Labs (State+PIDDAC)/GDP	0,10%	0,10%	0,09%	0,09%	0,09%	-
Total S&T Budget State Labs (State+PIDDAC)/Government Budget for S&T	14,80%	13,21%	12,93%	11,91%	10,86%	9,01%

(1) In 2002 DGPC became a State Laboratory, but data is only available from 2004 onwards

(2) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(3) In 2004, IGM integrated INETI (IGM has been extinct)

(4) Excludes data from IGP, CNIG and MCT

Sources:

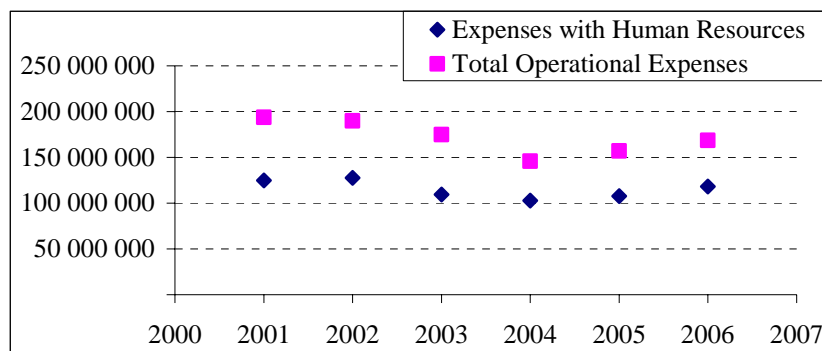
a) OCES for S&T (support from DGO and DPP)

b) INE for GDP, in 10th May 2006 (current prices - Contas Nacionais Anuais Preliminares- Base 2000 - DESPESA (PIBpm) - Dados em Valor (Preços Correntes); 2001 a 2003: dados provisórios, 2004: dados preliminares, 2005: previsão?; 2006 unavailable)

(c) DGO for State Budget S&T: total amount from the Government devoted to S&T (includes the total for the State Laboratories, the total for the ministry of science and technology for S&T and its institutions, the total for the universities for S&T and other financial programs for S&T)

7. Expenditure in human resources represent the largest share of expenditure in State Laboratories, accounting for 70% of overall operational budget (PIDDAC excluded) in 2006, Figure 4.

Figure 4: Overall expenditure budget of State Laboratories (2001-2006, Euros), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

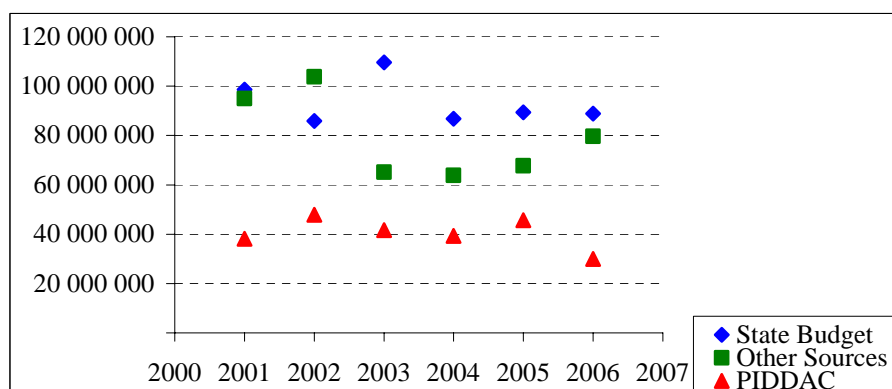


Sources: OCES (Direcção Geral do Departamento de Planeamento e Prospectiva; Gabinete do Ministro da Ciência e da Tecnologia; Direcção Geral do Ensino Superior; Gabinete do Ministro da Defesa Nacional; Gabinete de Gestão do POE; Gabinete de Planeamento da Política do Ministério da Agricultura; Presidência do Governo da Região Autónoma dos Açores; Direcção Regional do Planeamento da Região Autónoma da Madeira)

NOTE: from 1999 to 2006 some State Laboratories have been extinct, other have merged and other have been classified as it (CNIG not included)

Figure 5 shows that the State budget represents 45% of overall budget for State Labs in 2006. It should be noted that while Table 5 shows that R&D activities in State Labs are mostly funded by Government, Figure 5 confirms that ‘other sources’ of funding are almost exclusively for services other than R&D.

Figure 5: Overall budget funding - State Budget, Other Sources and PIDDAC (State Laboratories, 2001-2006, Euros), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

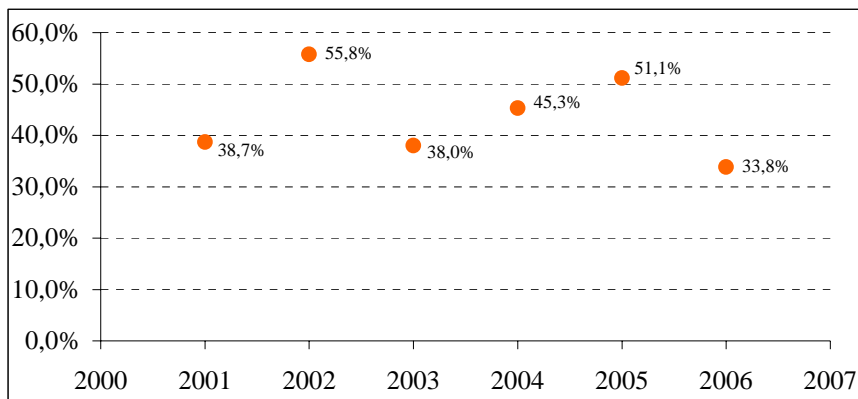


Sources: OCES (Direcção Geral do Departamento de Planeamento e Prospectiva; Gabinete do Ministro da Ciência e da Tecnologia; Direcção Geral do Ensino Superior; Gabinete do Ministro da Defesa Nacional; Gabinete de Gestão do POE; Gabinete de Planeamento da Política do Ministério da Agricultura; Presidência do Governo da Região Autónoma dos Açores; Direcção Regional do Planeamento da Região Autónoma da Madeira)

NOTE: from 1999 to 2006 some State Laboratories have been extinct, other have merged and other have been classified as it (CNIG not included)

8. Also within the overall budget for State Labs, Figure 6 shows that the overall amount for PIDDAC is about 34% of State funds in 2006.

Figure 6: Ratio between PIDDAC and State funds (overall budget for State Laboratories, 2001-2006), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

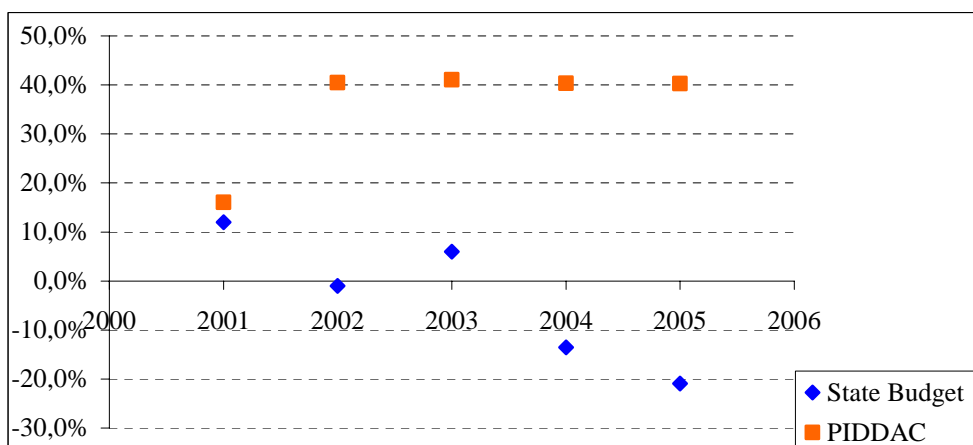


Sources: OCES (Direcção Geral do Departamento de Planeamento e Prospectiva; Gabinete do Ministro da Ciência e da Tecnologia; Direcção Geral do Ensino Superior; Gabinete do Ministro da Defesa Nacional; Gabinete de Gestão do POE; Gabinete de Planeamento da Política do Ministério da Agricultura; Presidência do Governo da Região Autónoma dos Açores; Direcção Regional do Planeamento da Região Autónoma da Madeira)

NOTE: from 1999 to 2006 some State Laboratories have been extinct, other have merged and other have been classified as it (CNIG not included)

9. Since 2001, a fraction of the State budget and PIDDAC funds for State Labs has been frozen, and Figure 7 quantifies the level of retentions made.

Figure 7: Retentions of overall budget - State and PIDDAC (State Laboratories, 2001-2005), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES and also information from the State Laboratories



Source: OCES, based on survey performed in March-April 2006 within the State Laboratories (DGPC, INIAP, LNIV, IGM/JM, INSA, ICT, IM, ITN, INETI, IH, LNEC. CNIG not included)

10. Table 7 shows the amount of debt of clients to State Laboratories, which accounted for 8.589.511 Euros in 2005, represents about 6% of the overall budget (i.e., State budget and Other Sources, excluding PIDDAC) and 13% of ‘Other Sources’.

Table 7: Debts from clients (State Laboratories: 2001-2005), based on data reported by the State Laboratories (Euros)

State Labs	Debts from clients				
	2001	2002	2003	2004	2005
DGPC	-	-	-	-	-
INIAP (includes INIA and IPIMAR)	0	0	0	0	0
LNIV	87 927	90 324	28 450	230 981	1 215 190
IGM/JM	1 778 717	1 218 724	1 213 233	2 739 585	1 666 164
INSA	2 817 336	3 585 591	3 023 356	4 341 733	2 778 226
IICT	-	-	-	-	-
IM	886 260	838 208	914 092	649 660	717 179
ITN	401 652	495 316	593 858	464 144	583 103
INETI (includes IGM)	-	-	-	-	426 683
IH	249 399	20 761	143 462	128 700	-
LNEC	179 937	164 874	225 117	206 880	1 202 966
TOTAL	6 401 228	6 413 798	6 141 568	8 761 683	8 589 511

(1) Debts refer to the amount that has not been paid by clients

(2) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(3) In 2004, IGM integrated INETI (IGM has been extinct)

(4) In 2002 DGPC became a State Laboratory

Source: based on survey performed in March-April 2006 (CNIG not included)

2. Human Resources: profile of staff

1. Table 8 and Table 9 show that total human resources in R&D in government institutions represented 3439,6 FTE (full time equivalent) researchers in 2003, while State Laboratories had 1996,8 FTE researchers, representing 16% of total R&D staff in Portugal.
2. Table 10 shows that, in 2003, State Laboratories included 391 Master and 696 PhD's, representing about 20% and 35% of their researchers, respectively (Figure 8).
3. Table 11 shows that, in 2006, the research staff of State Laboratories included 144 research assistants and 270 fellowships (i.e. 'bolseiros').

Table 8: Human Resources in R&D (Institutional sector, 2001-2003), based on latest available statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

Sector of execution	Human Resources								t.m.c.a. 01/03 ¹	
	Researchers (only)				Total Staff in R&D (includes researchers and technicians)				Researchers	Total R&D Staff
	2001		2003		2001		2003			
FTE	%	FTE	%	FTE	%	FTE	%	%	%	
Government	3646,4	24	3439,6	21	5970,5	31	4917,0	25	-2,9	-9,3
State Laboratories	2142,1	59	1996,8	58	3965,4	66	3124,0	64	-3,5	-11,2
Hospital Units	333,9	9	295,6	9	347,6	6	308,6	6	-5,9	-5,8
Other Government	1170,4	32	1147,3	33	1657,5	28	1484,3	30	-1,0	-5,4
Higher Education	8941,6	60	10062,4	61	10172,9	53	11146,9	57	6,1	4,7
Public University	7818,1	87	8620,6	86	8997,4	88	9520,6	85	5,0	2,9
Public Polytechnic	659,8	7	859,8	9	687,5	7	985,6	9	14,2	19,7
Private and Cooperative – University	449,1	5	536,3	5	467,5	5	586,3	5	9,3	12,0
Private and Cooperative – Polytechnic	14,6	0	45,7	0	20,6	0	54,4	0	77,0	62,5
Private Non-Profit institutions	2415,3	16	2946,1	18	2951,3	15	3341,9	17	10,4	6,4
Autonomous	237,7	10	279,9	9	295,8	10	334,8	10	8,5	6,4
University Group	2177,5	90	2666,3	91	2655,5	90	3007,1	90	10,7	6,4
TOTAL	15003,2	100	16448,1	100	19094,8	100	19405,7	100	4,7	0,8

Sources: OCES, Inquérito ao Potencial Científico e Tecnológico Nacional – IPCTN 2003; (1) Average yearly growth rate at constant p; '0' – below 1%

Table 9: Total Staff in R&D and Researchers (State Laboratories, 2001/2003), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES (excludes other than R&D staff)

State Labs	Total Staff in R&D (includes researchers and technicians)				Researchers (only)			
	2001		2003		2001		2003	
	Number	FTE	Number	FTE	Number	FTE	Number	FTE
DGPC	198	146,1	155	119,2	103	92,9	87	86,2
IGM/JM	9	5,6	12	10,3	8	4,6	12	10,3
IICT	256	241,8	123	113,7	141	126,8	118	108,7
IM	124	122,7	59	52,9	124	122,7	54	51,8
IH	113	101,3	84	73,8	79	78,8	70	69,6
INETI	876	803	683	645	564	549	528	516
INETI	634	582,8	544	517,8	436	427,7	438	429,7
IGM	242	220,3	139	126,7	128	121,7	90	86,8
INIAP	1 357	1 287	1 126	1 087	487	464	529	512
INIA	969	899,6	736	699,0	373	350,4	363	347,2
IPIMAR	388	387,2	390	388,5	114	113,2	166	164,5
INSA	210	264,4	166	152,7	59	155,6	166	152,7
ITN	331	312,8	283	252,1	163	153,5	159	148,1
LNEC	603	519,4	546	462,6	260	259,2	251	250,2
LNIV	219	117,4	227	154,8	97	96,0	92	91,1
CNIG**	45	44,1	-	-	39	39,0	-	-
Total	4 341	3 965,4	3 464	3 124,0	2 124	2 142,1	2 066	1 996,8

* FTE stands for 'Full Time Equivalent'

(1) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(2) In 2004, IGM integrated INETI (IGM has been extinct)

(3) In 2002 DGPC became a State Laboratory. Nevertheless, data is available for 2001

(4) Total can be different from the sum of the parts due to rounding of numbers.

** CNIG (Centro Nacional de Informação Geográfica): extinct in 2001 and integrated in IGP (Instituto Geográfico português). OCES included this data.

Sources: OCES (IPCTN 2003)

Table 10: Researchers per education degree (State Laboratories, 2001/2003), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES

FTE*	Researchers (only)		Bachelor		Licenciatura		Master		PhD	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
State Labs										
DGPC	92,9	86,2	13,5	12,0	55,8	50,0	13,6	15,7	10,1	8,5
IGM/JM	4,6	10,3	-	1,8	2,0	5,3	0,8	1,7	1,8	1,4
IICT	126,8	108,7	-	-	39,6	22,8	29,8	19,4	57,4	66,5
IM	122,7	51,8	2,0	1,0	102,1	33,4	16,6	17,4	2,0	-
IH	78,8	69,6	6,0	7,0	49,9	44,9	16,0	11,7	6,9	6,0
INETI	549	516	54	33	240	216	109	106	147	162
INETI	427,7	429,7	49,7	30,9	183,9	180,5	70,1	76,5	124,0	141,9
IGM	121,7	86,8	4,0	2,0	56,2	35,1	38,7	29,4	22,8	20,2
INIAP	464	512	68	51	149	181	82	98	165	182
INIA	350,4	347,2	66,0	49,0	93,6	104,5	59,7	51,9	131,0	141,9
IPIMAR	113,2	164,5	2,0	2,0	55,0	76,3	22,5	46,5	33,7	39,7
INSA	155,6	152,7	9,7	5,0	91,2	97,0	28,2	22,0	26,5	28,7
ITN	153,5	148,1	6,0	10,0	54,2	51,7	21,7	20,8	71,7	65,6
LNEC	259,2	250,2	-	-	53,0	35,0	56,3	65,0	149,9	150,2
LNIV	96,0	91,1	7,0	9,0	44,0	43,6	15,0	13,0	30,0	25,5
CNIG**	39,0	-	1,0	-	24,0	-	8,0	-	6,0	-
Total	2 142,1	1 996,8	166,8	129,7	904,6	780,0	396,8	391,0	673,8	696,1

* FTE stands for 'Full Time Equivalent'

** CNIG (Centro Nacional de Informação Geográfica): extinct in 2001 and integrated in IGP (Instituto Geográfico português). OCES included this data.

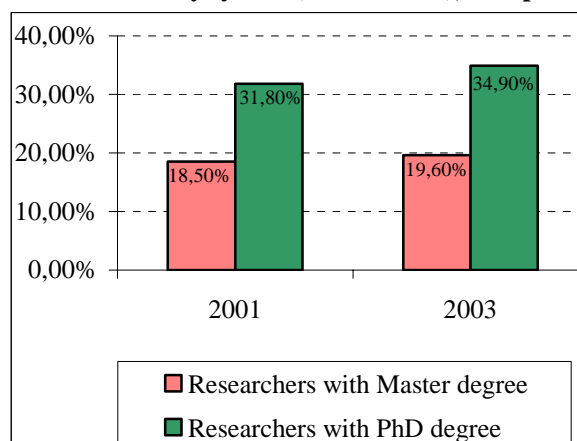
(1) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(2) In 2004, IGM integrated INETI (IGM has been extinct)

(3) In 2002 DGPC became a State Laboratory. Nevertheless, data is available for 2001.

Sources: OCES (IPCTN: data from 2005 is still unavailable. Prevision to be available in November 2006)

Figure 8: Qualification level of researchers (State Laboratories 2001/2003), based on statistical data acquired through the national survey system (IPCTN 2003), as reported by OCES



* FTE stands for 'Full Time Equivalent'

(1) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(2) In 2004, IGM integrated INETI (IGM has been extinct)

(3) In 2002 DGPC became a State Laboratory. Nevertheless, data is available for 2001.

Sources: OCES (IPCTN 2003)

Table 11: Staff in research careers in State Laboratories (2006)

State Labs	Coordinators	'Principais'	Auxiliary	'Supranumerários'	Research Assistants	Research Trainees	Invited Researchers	Bolseiros (fellowships)	
								FCT	From own institution
DGPC	0	3	5	0	0	1	0	0	0
INIAP (Integrates INIA and IPIMAR)	14	34	120	0	52	3	0	16	147
LNIV	0	14	11	0	2	0	1	2	30
IGM/JM	0	0	2	0	0	0	0	1	0
INSA	4	8	17	5	7	0	2	1	21
IICT	3	6	55	9	3	0	1	23	4
IM	0	0	0	0	0	0	0	0	0
LNEC	44	53	57	0	41	0	0	13	33
ITN	-	-	-	0	3	0	1	0	0
INETI (integrates IGM)	-	-	-	39	36	0	5	39	28
IH	-	-	-	0	0	0	0	0	7
TOTAL	65	118	267	53	144	4	10	95	270

(1) IM has no R&D careers

(2) Titles in Portuguese notation (to avoid translation problems)

(3) ITN, IH and INETI have staff regulated through 'dotação global', while the careers on the other State Laboratories refer to 'dotação por categoria'

(4) FCT is the Science and Technology Foundation

Sources: SGMCTES, based on survey performed in March-April 2006

4. Table 12 quantifies currently available vacancies in State Laboratories and Table 13 shows that the average age of employees within research careers at the Laboratories is more than 56 years old for coordinators and more than 47 years old for 'Principais'.

Table 12: Vacancies at State Laboratories (2006), based on public administration data

State Labs	Vacancies			
	Coordinators	'Principais'	Auxiliary	
DGPC*	4	7	10	21
INIAP (Integrates INIA and IPIMAR)*	35	66	27	128
LNIV*	11	7	31	49
IGM/JM*	1	2	1	4
INSA*	1	3	3	7
IICT*	9	24	0	33
IM	0	0	0	0
ITN	-	-	-	42
INETI (integrates IGM)	-	-	-	0
IH	-	-	-	9
LNEC*	16	10	9	35
				328

* data for Coordinators+'Principais'+Auxiliary

(1) data missing for IM

(2) Titles in Portuguese notation (to avoid translation problems)

(3) ITN, IH and INETI have staff regulated through 'dotação global', while the careers on the other State Laboratories refer to 'dotação por categoria'

Sources: SGMCTES, based on survey performed in March-April 2006

Table 13: Average age of people in research careers in State Laboratories in 2006

(years-old)

State Laboratories	Coordinators	'Principais'	Auxiliary	Supranumerários	Research Assistants	Research Trainees	Invited Researchers
DGPC	-	63	50	-	-	52	-
INIAP (integrates INIA and IPIMAR)	59	57	50	50	50	39	-
LNIV	-	56	49	-	38	-	51
IGM/JM	-	-	42	-	-	-	-
INSA	60	47	45	44	37	-	36
IICT	64	67	47	-	40	-	64
IM	-	-	-	-	-	-	-
ITN	67	49	46	-	45	-	40
INETI (integrates IGM)	56	56	49	44	58	-	40
IH	-	-	40	-	-	-	-
LNEC	57	50	44	-	39	-	-

* data missing for some State Laboratories

** bolsiros mean fellowships

(1) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(2) In 2004, IGM integrated INETI (IGM has been extinct)

(3) In 2002 DGPC became a State Laboratory

(4) Titles in Portuguese notation (to avoid translation problems)

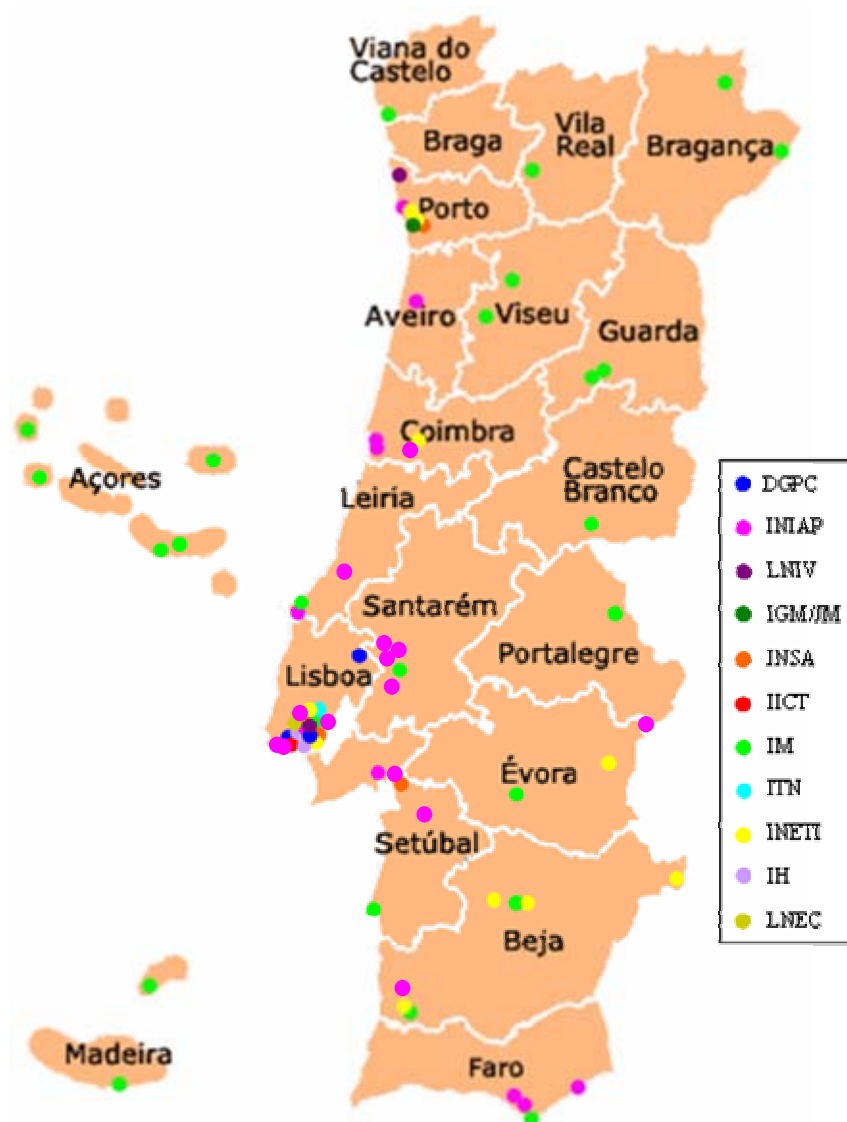
(5) ITN, IH and INETI have staff regulated through 'dotação global', while the careers on the other State Laboratories refer to 'dotação por categoria'

Sources: SGMCTES, based on survey performed in March-April 2006

3. Physical Installations: general characteristics

1. Figure 9 shows the locations of the State Laboratories (2006), while Table 14 lists the details of their physical installations.

Figure 9: State Laboratories network in Portugal, based on data from survey performed in March-April 2006



Notes:

- (3) In 2003, INIA (Instituto Nacional de Investigação Agrária) and IPIMAR (Instituto de Investigação das Pescas e do Mar) were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)
 - (4) In 2004, IGM (Instituto Geológico e Mineiro) integrated INETI (IGM has been extinct)
 - (5) In 2002 DGPC became a State Laboratory
 - (6) 'Area' stands for total area, including under roof and exterior.
- Sources: data supplied from each State Laboratory

Table 14: Physical Installations of the State Laboratories
Source: SGMCTES, based on survey performed in March-April 2006

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
DGPC	Buildings at Oeiras: 1) Headquarters 2) Chemical products warehouse 3) Quarantine	Quinta do Marquês 2780 – 155 Oeiras	1) 4.178 m ² 2) 315 m ² 3) 468 m ²	Urban	Property of the State
	Buildings at Tapada: 4) Building 1 5) Building 2	Tapada da Ajuda 1349 - 018 Lisboa	4688 m ² 1301m ²	Urban	Property of the State
	6) Center of rehearsals and control of ‘Escaroupim’	Escaroupim, Salvaterra de Magos 2120-013 Marinhaus	480000 m ²	Rural	Property of the State
INIAP (IPIMAR)	1) Headquarters	Lisboa (Av. Brasilia)	15000 m ²	Urban	Own
	2) ‘Peniche’ delegation	Peniche (Porto de pesca)	184 m ²	Urban	Own
	3) ‘Setúbal delegation	Setúbal (Av. J.Rebello,29 A)	200 m ²	Urban	Rent
	4) Matosinhos (Centro Regional Investigação Pesqueira)	Administration Leixões harbour (Matosinhos)	1000 m ²	Urban	Own Institution
	5) Aveiro (Centro Regional Investigação Pesqueira)	Aveiro (canal das Pirâmides)	546 m ²	Urban	Own Institution
	6) Delegation- Figueira da Foz	Figueira da Foz (R. A. Albuquerque, 85)	Base floor and 1 st floor	Urban	Rent
	7) Figueira da Foz	Figueira da Foz (Morraceira)	42900 m ²	Rural	Rent
	8) Olhão (Centro Regional de Investigação Pesqueira)	Olhão Av. 5 De Outubro	2596 m ²	Urban	Own Institution
	9) “Laboratório Experimental de Piscicultura de Olhão”	Olhão (docapesca)	350 m ²	Urban	Own Institution
	10) Lab. Experim. de Moliscicultura de Tavira	Tavira (Posto de Invest. das P.E Do Mar –Apartado 60)	500 m ²	Urban	Own Institution
INIAP (INIA)	11) Central Services	Building at Largo de Santos, n.º. 3 - 2 andar Dtº, Lisboa	80 m ²	Urban	Own Institution
		Building at Largo de Santos, n.º. 3 - 2 andar Esqº e 3º andar Dtº e Esqº, Lisboa		Urban	Rent

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
		Building at Calçada de Memória, r/c and 1º andar (2 lojas arrendadas e 1º andar ocupado pela SG do MADRP - Audio Visuais		Urban	Own Institution
		Building at Rua Barata Salgueiro, 37 - 2º, 3º, 4º e 7º andar	4x309,36=1 237,44 m ²	Urban	Rent
	12) EAN (Oeiras)	Building with: a) - Quinta de Cima (Vulgo Reguengo de Cima) also known as Quinta Grande b) - Casal da Manteiga c) - Azenha do Goilão (inside Quinta Grande) - Casa e Tanque da Pesca classified as National monuments d) - Terrain	16305 m ² 1200 m ² 8450 m ²	Rural & Urban Rural & Urban Rural	'Afecto'
		Main building, 3 floors	3255 m ²	-	Own Institution
		Building of Pedologia, 3 floors	1000 m ²	-	Own Institution
		Building of Entomologia	782 m ²	-	Own Institution
		Building of Genética, 2 floors	650 m ²	-	Own Institution
		Building of Fisiologia, 3 floors	1098 m ²	-	Own Institution
		Building of Horticultura – 1 floor	650 m ²	-	Own Institution
		Building of Tecnologia	1850 m ²	-	Own Institution
		Building of Centro de Actualização Propedêutica (CAP) e Refeitório, 2 floors	1015 m ²	-	Own Institution
		Building of Residência do CAP, 2 floors	750 m ²	-	Own Institution
		Building of Oficinas	700 m ²	-	Own Institution
		Building of Serviços Sociais, constituídos por: - Creche, pavilhão pré-fabricado, 1 floor - Jardim escola, pavilhão pré-fabricado, 1 floor - Sala de Apoio (casa da horticultura), 1 floor	(820 m ²) 335 m ² 340 m ² 145 m ²	-	Own Institution Own Institution 'Afecto'
		Building Procalfer - pavilhão pré-fabricado de um piso	480 m ²	-	Próprio
		Building of Forragens Velhas, 2 floors	166 m ²	-	Afecto
		Building Antigo Refeitório, constituído por um piso	385 m ²	-	Own Institution
		Casas da Portaria e Garagem, constituídas por um piso	270 m ²	-	Own Institution

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
		Building of Casal da Manteiga, constituído por piso térreo e torreão com 2 pisos	1200 m ²	-	'Afecto'
		Vacaria e Palheiros, constituídos por vacaria, ovil, sala de ordenha, palheiro, gabinete e duas residências	1100 m ²	-	'Afecto'
		Casa da Vinha, constituído por um piso	175 m ²	-	'Afecto'
		Casa da Sede (parte do conjunto monumental da quinta), constituído por 3 pisos	165 m ²	-	'Afecto'
		Casa da Pesca e Cascata da Taveira ou das Gigantes (classificados como Monumentos Nacionais - D.L. 31175, de 17/04/1953)	1500 m ²	-	'Afecto'
		Outros edifícios do Conjunto das Construções Monumentais - Pombal, Fonte da Mina, Fonte da Mina do Ouro, Cascata da Mina do Ouro e Aqueduto (Fonte da Mina e Cascata da Taveira)	270 m ²	-	'Afecto'
		Casas da Portartia e garagem	270 m ²	-	Own Institution
		Várias Estufas adstritas aos Departamentos	2093 m ²	-	Own Institution
	EAN (Coruche)	Edifício de 2 Pisos, garagem e logradouro, sito na Rua 5 de Outubro, 24, em Coruche	502 m ²	Urban	'Afecto'
		Prédio 5 - Secção DDD, designado "Quinta Grande - Posto Experimental de Culturas Regadas do Vale do Sorraia"	1983000 m ²	Rural	'Afecto'
		Prédio 07 - Secção EEE - "Campo Experimental"	185000 m ²	Rural	'Afecto'
	EAN (Alvalade do Sado)	Vila de Alvalade, concelho de S.Tiago do Cacém - Edifício com 3 corpos (2 térreos e um com r/c e 1ª andar)	1100 m ²	Urban	'Afecto'
		Vila de Alvalade, concelho de S.Tiago do Cacém	75,95 m ²	Urban	Own Institution
		Várzea de S. Romão, Freguesia de Alvalade do Sado - neste prédio existe um conjunto de edifícios com a área coberta total de 2162,59 m ²	117750 m ²	Rural	'Afecto'

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	EAN (Monte dos Alhos)	Prédio rústico, sito em Monte do Alhos, só 62 ha estão sob a administração da EAN: - Oficinas e casa de máquinas - Secador de Cereais - Estábulo - Celeiro - Residência do Guarda - Armazém - Refeitório e cozinha - Secretaria (pré-fabricado)	7603650 m ² 415,8 m ² 720,0 m ² 35,0 m ² 280,0 m ² 134,3 m ² 80,0 m ² 75,14 m ² 360,00 m ²	Rural	'Afecto'
	EAN (Aveiro)	Casa do Taveiro do Posto Experimental da Beira Litoral - Coimbra	102490 m ²	Rural	'Afecto'
	EAN (Fataca)	Fataca, no concelho de Odemira, composto por escritórios (pré-fabricados), casa do capataz, vacaria, armazém, estufas de madeira e metálicas e abrigos do sistema da bomba de água e do transformador	520000 m ²	Rural	Rent
	EZN	Quinta da Fonte Boa e anexos, sita no Concelho de Santarém	1649300 m ²	Rural	Own Institution
		Quinta da Fonte Boa e anexos, sita no Concelho de Santarém	373700 m ²	Urban	Own Institution
		Paúl D'Anana, sito no Concelho de Santarém	791000 m ²	Rural	Own Institution
		Mouchão de Esfolas Vacas, sito no Concelho Salvaterra de Magos	3293000 m ²	Rural	Own Institution
		Mouchão de Esfolas Vacas, sito no Concelho Salvaterra de Magos	10000 m ²	Urban	Own Institution
	EFN	Edifício Sede, na Quinta do Marquês, em Oeiras	7400 m ²	Urban	Own Institution
		Tapada das Necessidades, em Lisboa,	100000 m ²	Rural & Urban	'Afecto'
		Prédio na Rua Cândido dos Reis, em Alcobaça	700 m ²	Urban	Rent
		Posto Apícola, sito na Tapada da Ajuda, em Lisboa	2000 m ²	Rural & Urban	'Afecto'
	ENMP	Sede da ENMP	377000 m ²	Rural	Own Institution
		Herdade da Comenda	394300 m ²	Rural	'Afecto'
		Edifício Principal - Sede da ENMP	2726 m ²	Urban	Own Institution
		Herdade do Reguengo, sito no Concelho de Elvas	680000 m ²	Rural	Own Institution
		Herdade do Reguengo, Edifício Sede	1404,48 m ²	Urban	Own Institution
		Armazém - Sede	475 m ²	Urban	Own Institution
		Celeiro - Sede	233 m ²	Urban	Own Institution
	Telheiro - Sede	210 m ²	Urban	Own Institution	

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
		Oficinas - Sede	968 m ²	Urban	Own Institution
		Casões das oficinas - sede	796 m ²	Urban	Own Institution
		Celeiro de sementes e calibragem	975 m ²	Urban	Own Institution
		Outros celeiros	250 m ²	Urban	Own Institution
		Arcos do Almidon	2 050 m ²	Urban	Own Institution
		5 Casas de habitação	400 m ²	Urban	Own Institution
		Residência	563 m ²	Urban	Own Institution
		Casa do guarda - Herdade do Reguengo	90 m ²	Urban	Own Institution
		Lagar e Centro de Formação Profissional - Herdade do Reguengo	1 471 m ²	Urban	Own Institution
		Oficinas - Herdade do Reguengo	190 m ²	Urban	Own Institution
		Monte Velho em ruínas - Herdade do Reguengo	363 m ²	Urban	Own Institution
		PT - Herdade do Reguengo	47 m ²	Urban	Own Institution
		Sede da ENMP	377000 m ²	Rural	Own Institution
		EVN	Quinta da Almoíña	138,000 m ²	Rural
		Quinta da Almoíña, onde funcionam os Serviços Administrativos	3,482 m ² (2 floors)	Urban	Own Institution
		Centro de Formação Profissional em Vitivinicultura	1,620 m ² (3 floors)	Urban	Own Institution
		Quinta da Almoíña - Antiga Casa do Director	500 m ² (2 floors)	Urban	Own Institution
		Quinta da Almoíña - Armazéns Agrícolas	554 m ²	Urban	Own Institution
	ENFVN	Quinta do Olival Fechado, sito em Alcobaça Campo Experimental do Olival Fechado	1650 m ²	Urban	Own Institution
		Quinta do Olival Fechado, sito em Alcobaça Campo Experimental do Olival Fechado	400 m ²	Urban	Own Institution
		Quinta do Olival Fechado, sito em Alcobaça Campo Experimental do Olival Fechado	120 m ²	Urban	Own Institution
		Quinta do Olival Fechado, sito em Alcobaça Campo Experimental do Olival Fechado	386 m ²	Urban	Own Institution
		Quinta do Olival Fechado, prédio rústico com a área de 5,7 hectares, sito em Alcobaça, incluindo armazéns e arrecadação em alvenaria	67600 m ²	Rural	Own Institution
		Campo Experimental da Quinta Nova - Quinta Nova, sito em Alcobaça	502 m ²	Urban	Own Institution

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
		Campo Experimental da Quinta Nova - Quinta Nova, sito em Alcobaça	98000 m ²	Rural	Own Institution
		Campo Experimental dos Ganilhos - Quinta dos Ganilhos, sito em Alcobaça	86 m ²	Urban	Own Institution
		Campo Experimental dos Ganilhos - Quinta dos Ganilhos, sito em Alcobaça	40000 m ²	Rural	Own Institution
	LQARS	Tapada da Ajuda, em Lisboa - Edifício Principal (3 pisos)	1995 m ²	Urban	Own Institution
		Tapada da Ajuda, em Lisboa - Edifício II (2 pisos)	628 m ²	Urban	Own Institution
LNIV	1) Headquarters	Estrada de Benfica, n.º 701 1549 -011 Lisboa	18000 m ²	Urban	Own Institution
	2) Porto delegation	Rua dos Lagidos Lugar da Madalena 4485- 655 Vairão	55000 m ²	Rural	Own Institution
IGM/JM	1) Headquarters (131204 – Cedofeita; U – 07772/ 07773/ 07865)	Praça Pedro Nunes, 88 4099-028 Porto	-		Property of the State
INSA	1) Headquarters	Avª Padre Cruz, Lisboa	15987 m ²	Urban	Property of the State
	2) Building “LEMES”	Avª Padre Cruz, Lisboa	1514 m ²	Urban	Property of the State
	3) “Genética e Saúde Ambiental”	Avª Padre Cruz, Lisboa	4770 m ²	Urban	Property of the State
	4) Building “Centro de Estudos Vectores e Doenças Infecciosas”	Ávª da Liberdade, Águas de Moura	669 m ²	Urban	Property of the State
	5) Building of Porto’s delegation	Rua de S. Luis, 12/14 Porto / Sé	-	Urban	Rent
		Rua de S. Luis 16/18 Porto – Sé	-	Urban	Rent
		Rua de S. Luis 20, 2º Porto - Sé	-	Urban	Rent
		Rua Alexandre Herculano, nº.317 a 333 - Porto - Sé	-	Urban	Rent
IICT	1) Presidency (“Palácio Burnay”)	R. da Junqueira, 86, 1º 1300-344 Lisboa	854 m ²	Urban	Property of the State

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	2) Management of support services + SOC program + HIST program	R. da Junqueira, 30 1349-007 Lisboa	2350 m ²	Urban	Property of the State (CCCM)
	3) Scientific Tropical Archive	R. da Junqueira, 5 – 1º. 1300-342 Lisboa	167 m ²	Urban	Rent
	4) BIO program	R. da Junqueira, 14 a 18 1300-342 Lisboa	1454 m ²	Rural & Urban	Property of the State
	5) TER program	R. da Junqueira, 534 1300-343 Lisboa	250 m ²	Urban	Rent (soon to be extinguished)
	6) Bio program	Trav. Conde da Ribeira, 7 130-142 Lisboa	520 m ²	Urban	Property of the State
	7) CDRD + HIST program + AGRI program	Trav. Conde da Ribeira, 9 130-142 Lisboa	1070 m ²	Urban	Property of the State
	8) Garden-museum “Agrícola Tropical”	Lgo. dos Jerónimos, 1400-290 Lisboa	70000 m ²	Rural & Urban	Property of the State
	9) AGRI program	Tapada da Ajuda 1301-901 Lisboa	2396 m ²	Rural & Urban	Property of the State (INSA)
	10) TER program	Tapada da Ajuda 1301-901 Lisboa	300 m ²	Urban	Property of the State (INSA)
	11) FLOR program	Tapada da Ajuda 1301-901 Lisboa	1070 m ²	Urban	Property of the State (INSA)
	12) Research Center “Ferrugens Do Cafeeiro”	Quinta do Marquês 2780-155 Oeiras	1280 m ²	Rural & Urban	Property of the State
	13) Ultramarino Historical Archive	Calç. da Boa Hora, 30 1300-095 Lisboa	2060 m ²	Urban	Property of the State
	14) DES program	Trav. Conde da Ponte, 9-1º. 1300-141 Lisboa	225 m ²	Urban	Rent
	15) TER program	Al. D. Af. Henriques, 41-4º Dto. 1000-123 Lisboa	320 m ²	Urban	Rent (soon to be extinguished)
	16) TER program	Al. D. Af. Henriques, 41-4º Esq. 1000-123 Lisboa	320 m ²	Urban	Rent (soon to be extinguished)
	17) DES program	R. João de Barros, 27 1300-319 Lisboa	330 m ²	Urban	Rent

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	18) Laboratory of TER program	Pcta. João do Rio, 2-5º. Esq., Lisboa	131 m ²	Urban	Rent (soon to be extinguished)
	19) DES program	R. Óscar Monteiro Torres, 34-1º Esq 1000-219 Lisboa	102 m ²	Urban	Rent
	20) Warehouse of TER program	R. Tristão Vaz, 3B 1400-350 Lisboa	181 m ²	Urban	Rent
	21) Publications Deposit	Trav. Paulo Martins, 31-A 1300-447 Lisboa	440 m ²	Urban	Rent
	22) Library/"Filmoteca" of HIST program	R. das Junqueira, 86 – R/C Dto 1300-344 Lisboa	91 m ²	Urban	Rent
<p>Acronyms: AGRI (Programa Agricultura Sustentável e Segurança Alimentar); TER (Programa Ciências da Terra e do Ambiente); BIO (Programa Biodiversidade e Gestão de Recursos Naturais); FLOR (Caracterização e Valorização de Produtos Lenhosos); CDRD (Centro de Detecção Remota para o Desenvolvimento); DES (Programa de Desenvolvimento Global); HIST (Programa História e Cartografia Antiga); SOC (Programa Sociedades e Culturas Tropicais); CCCM (Centro Científico e Cultural de Macau); ISA (Instituto Superior de Agronomia)</p>					
IM	1) Main building	Rua C ao Aeroporto de Lisboa	17062 m ²	Urban	Property of the State
	2) New technical building (headquarters)	Rua C ao Aeroporto de Lisboa	4256 m ²	Urban	Property of the State
	3) Car workshop and garage (headquarters)	Rua C ao Aeroporto de Lisboa	400 m ²	Urban	Property of the State
	4) Pre-built pavilion	Rua C ao Aeroporto de Lisboa	250 m ²	Urban	Property of the State
	5) Electrical/power central	Rua C ao Aeroporto de Lisboa	78 m ²	Urban	Property of the State
	6) Weather station (Vila Real). (already deactivated)	Bairro S.Vicente Paulo	1880 m ² building area 130, m2	Urban	Property of the State
	7) Coordination center of Vila Real	Mata Ramalhão Constantino Vila Real	20.000 m ² building area 380,0 m2	rural	Property of the State
	8) Coordination center of Viseu	Serra dos Lagos-Freg. do Campo-Viseu	20000 m ² building area 380,0 m2	rural	Property of the State
	9) Coordination center of Évora	Estrada de Viana-Évora – Km 56,643	9642 m ² building area 380,0 m2	rural	Property of the State

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	10) Weather station of Portalegre	Estrada Atalião-Sítio do Lugarinho- Portalegre	1600 m ² building area 136, m2	Urban	Property of the State
	11) Function house (fracção D-1º Esq.)	Rua Rosiel Bairro/Assentos Portalegre	91 m ²	Urban	Property of the State
	12) Function house (r/c Esq.)	Rua Rosiel/Bairro Assentos Portalegre	91 m ²	Urban	Property of the State
	13) Weather observatory of Penhas Douradas	Lugar/Penhas Douradas	4080 m ² building area 210,m2	rural	Property of the State
	14) Hearthquake station of Manteigas (With 3 Function house)	Lugar de S.Domingos- Manteigas	728 m ²	Urban	Property of the State
	15) Coordination center of Faro	Rua Azevedo Coutinho nº .5 - r/c ,1º, 2º, 3º e 4ºand. dtº e esqº -Faro	400 m ²	Urban	Property of the State
	16) Coordination center of Castelo Branco	Bairro Buenos Aires- Feiteira C.Branco	25000 m ² building area 380,0 m2	Urban	Property of the State
	17) Function house	Bairro Buenos Aires- Feiteira C. Branco	117m ²	Urban	Property of the State
	18) Function house	Bairro Buenos Aires- Feiteira C.Branco	117 m ²	Urban	Property of the State
	19) Function house (Fracção A)	Empreendimento S.Tiago- Castelo Branco	114 m ²	Urban	Property of the State
	20) Function house (Fracção B)	Empreendimento S.Tiago- Castelo Branco	112, m ²	Urban	Property of the State
	21) Function house (Fracção C)	Empreendimento S.Tiago- Castelo Branco	129, m ²	Urban	Property of the State
	22) Weather station of Caramulo	Paredes do Guardião- Caramulo	93 m ² building area 33,m2	Urban	Property of the State
	23) Weather station of Beja	Santiago Maior Estrada Nacional-Beja	6.600 m2 building area 178,m2	Urban	Property of the State
	24) Weather station of Sines	Lugar do Monte Chãos- Sines	117 m ²	Urban	Property of the State

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	25) Geophysics center of São Teotónio	Malhão/Silveirinha – S.Teotónio - Odemira	24.570m2 building area 160m2	Rural	Property of the State
	26) Function house	Malhão/Silveirinha-S.Teotónio-Odemira	90 m2	Rural	Property of the State
	27) Function house	S.Teotónio-Odemira	90m2	Rural	Property of the State
	28) “anemógrafo” installation	Cabo Carvoeiro	-	Rural	Property of the State
	29) Radar (Coruche)	Coruche	11.500 m2	Rural	Property of the State
	30) Radar (Cavalos de Caldeirão)	Const. Pelo DVAG a transferir para o IM	7.513, m2	Rural	Property of the State
	31) Function house (Magnetic observatory) (now deactivated)	Fajã de Cima S.Miguel-Açores	9553 m ²	Urban	Property of the State
	32) Observatório José Agostinho 5 buildings (alvenaria – Weather observatory)	Freguesia de S. Luzia-Angra do Heroísmo	19.360, m2 building area 660,m2	Urban	Property of the State
	33) “Afonso Chaves” Observatory	S.Pedro de Ponta Delgada-Alameda Duques de Bragança	8224 m ² building area 772, m2	Urban	Property of the State
	34) “Príncipe Alberto de Mónaco” Observatory	Freguesia das Angústias-Horta Faial	1500 m ²	Urban	Property of the State
	35) “Santa Cruz/Flores” Observatory (deactivated)	Santa Cruz das Flores	2617 m ²	Urban	Property of the State
	36) Weather station of Funchal	Rua do Lazareto- Funchal	2780 m ² building area 280 m ²	Urban	Property of the State
	37) Terrain/field	Lugar dos Matos-Porto Santo	5.000 m ²	Urban	Property of the State
	38) Weather station of Bragança	Calvário, Bragança	1950 m ² building area 167 m ²	Urban	Property of the State
	39) Weather station of Miranda do Douro	Miranda do Douro-Bairro Dr. Valentim Guerra	1000 m ² building area 58 m ²	Urban	Property of the State

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	40) Weather station of Viana do Castelo (with function house)	Lugar da Areia-Chafé	10264 m ² building area 240 m ²	Rural	Property of the State
ITN	1) Campus of Sacavém	Estrada Nacional 10, Sacavém	100000 m ²	Urban	Property of the State
INETI	1) Campus of Lumiar	Estrada do Paço do Lumiar, Lisboa	67520 m ²	Urban	Own Institution
	2) Technology “Pólo” of Lisbon	Estrada do Paço do Lumiar, Lisboa	21337 m ²	Urban	Own Institution
	3) Campus of Ramalde	Rua de Salazares, Porto	8125,5 m ²	Urban	Own Institution
	4) Campus of Loreto	Rua Coronel Júlio Veiga Simão, Coimbra	2450 m ²	Urban	Own Institution
	5) Quinta dos Remédios	Bobadela / Loures	131933 m ²	Rural & Urban	Own Institution
	6) Pólo de Alfragide	Estrada da Portela, Alfragide, Amadora	15676 m ²	Urban	Property of the State
	7) Pólo da Amieira	Rua da Amieira, S. Mamede de Infesta	8395 m ²	Urban	Property of the State
	8) Geology Museum	Rua Academia das Ciências, Lisboa	2640 m ²	Urban	Free commodate
	9) ‘Aparis’ Mine	Barrancos	901 m ²	Urban	Property of the State
	10) Príncipe Real	Príncipe Real, n.º 19, Lisboa	1533 m ²	Urban	Rent
	11) Beja #1	Rua Frei Amador Arrais, 35/37/38 Beja	187 m ²	Urban	Rent
	12) Beja #2	Rua de Lisboa, Beja	233 m ²	Urban	Rent
	13) Ferreira do Alentejo	Largo das Escolas, 36, Ferreira do Alentejo	226 m ²	Urban	Rent
	14) Odemira	S. Luís Odemira	160 m ²	Urban	Rent
	15) Vila Viçosa	Estrada da Bela Vista, Letra B, Vila Viçosa	90 m ²	Urban	Rent
IH	1) Headquarters	R. das Trinas nº 49 1249-093 Lisboa	4151 m ²	Urban	Property of the State
	2) Annex Terrain	Anexo ao Convento das Trinas, com entrada pelo nº 53 da Rua das Trinas e Rua Garcia da Horta, porta sem número. 1249-093 Lisboa	4849 m ²	Urban	Property of the State

State Lab	Building	Location/address	Area	Type (rural/urban)	Property (State, Own, Rent)
	3) 'Azinheira' Facilities	Seixal, Quinta da Trindade – Azinheira. 2840 - Seixal	73147 m ²	Rural	Property of the State
LNEC	1) LNEC #1	Av. Alferes Malheiro, nº 89, 89A e 89B, Lisboa	500 m ²	Urban	Own Institution
	2) LNEC #2	Av. Alferes Malheiro, nº 99, 99A e 99B, Lisboa	273 m ²	Urban	Own Institution
	3) LNEC #3	Rua Jorge Colaço, Lisboa	900 m ²	Urban	Own Institution
	4) LNEC #4	Av. Marechal Craveiro Lopes, Lisboa	49088 m ²	Urban	Own Institution
	5) LNEC #5	Rua Jorge Colaço, Lisboa	70 m ²	Urban	Own Institution
	6) LNEC #6	Rua Jorge Colaço, Lisboa	191 m ²	Urban	Own Institution
	7) LNEC #7	Rua Jorge Colaço, Lisboa	500 m ²	Urban	Own Institution
	8) LNEC #8	Rua Jorge Colaço, Lisboa	240 m ²	Urban	Own Institution
	9) LNEC #9	Rua Jorge Colaço, Lisboa	240 m ²	Urban	Own Institution
	10) LNEC #10	S. João de Brito, Lisboa	48 m ²	Urban	Own Institution
	11) LNEC #11	Av. do Brasil, Lisboa	737 m ²	Urban	Own Institution
	12) LNEC Campus	S. João de Brito, Lisboa	1088 m ²	Urban	Own Institution
	13) LNEC #12	Av. do Brasil, Lisboa	636 m ²	Urban	Own Institution
	14) LNEC #13	Rua Jorge Colaço, Lisboa	877 m ²	Urban	Own Institution

4. Scientific and Technologic Capacity: main indicators

1. Table 15 shows that researchers in State Laboratories published 226 papers in Portugal and 653 abroad in 2005. INETI, INIAP and LNEC have the highest share of publications.
2. Overall State Laboratories submitted 12 patents to INPI¹ from 2001 to 2005. INPI approved 16 patents and EPO² granted 2. No patents have been submitted nor approved from USPTO³ or PCT⁴. INETI submitted 4 patents to INPI in 2001, 4 in 2002, 2 in 2003 and 2 in 2005 and got INPI's approval of 2 patents in 2001, 2 in 2002, 1 in 2003, 4 in 2004 and 4 in 2005. Furthermore, EPO granted INETI 1 patent in 2003 and another in 2005. INPI granted 1 patent to DGPC in 2001 and 2 other patents to ITN in 2005.

¹ Instituto Nacional de Propriedade Industrial

² European Patent Office

³ United States Patent and Trademark Office

⁴ Patent Cooperation Treaty

Table 15: Publications (State Laboratories: 2001-2005), based on data from survey performed in March-April 2006

State Labs	2001				2002				2003				2004				2005			
	Papers		Books	Other	Papers		Books	Other	Papers		Books	Other	Papers		Books	Other	Papers		Books	Other
	National publication	International publication			National publication	International publication			National publication	International publication			National publication	International publication			National publication	International publication		
DGPC	8	8	15	89	2	8	6	63	4	6	6	62	4	1	7	87	6	5	6	61
INIAP (includes INIA and IPIMAR)	-	-	-	-	55	131	14	443	72	117	14	522	65	139	6	661	78	142	16	621
LNIV	1	6	0	5	7	6	0	1	10	6	0	0	2	17	0	6	3	5	0	24
IGM/JM	4	11	2	1	4	10	1	0	7	19	1	0	8	10	0	3	8	11	0	0
INSA	13	28	19	236	19	48	45	237	20	54	0	0	35	67	43	199	16	60	4	215
HCT	41	60	7	296	82	58	23	256	24	59	7	264	35	67	3	341	5	27	5	339
IM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ITN	0	135	7	247	0	140	10	244	0	146	6	253	0	176	9	287	0	146	8	311
INETI (includes IGM)	34	118	8	0	57	105	10	0	82	147	4	0	57	95	7	0	78	196	13	29
IH	1	7	0	23	0	0	0	33	4	21	0	42	7	10	0	42	6	4	0	32
LNEC	40	29	16	1386	-	-	-	-	40	31	7	1380	46	57	16	1559	34	68	11	1562
TOTAL	142	402	74	2283	226	506	109	1277	263	606	45	2523	259	639	91	3185	226	653	63	3194

(1) In 2002 DGPC became a State Laboratory

(2) In 2003, INIA and IPIMAR were both merged and originated INIAP (Instituto Nacional de Investigação Agrária e das Pescas)

(3) In 2004, IGM integrated INETI (IGM has been extinct)

(4) Books also includes chapters of books

(5) Other publications refers to communications, publications at conferences, etc...

(6) "-" stands for missing data

Sources: based on survey performed in March-April 2006

Appendix 2

Council of Ministers' Resolution 198/2005, on November 24th

PRESIDÊNCIA DO CONSELHO DE MINISTROS

Resolução do Conselho de Ministros n.º 198/2005

No âmbito da reforma em curso da administração central do Estado, determinada pela Resolução do Conselho de Ministros n.º 124/2005, de 4 de Agosto, importa proceder à «reforma dos laboratórios do Estado, estabelecendo missões e contratos orientadores, especialmente de apoio à actividade reguladora e fiscalizadora do Estado e à actividade económica, à tomada de decisões e minimização de riscos». De facto, as orientações incluídas no Programa do Governo são claras, nomeadamente no que se refere ao enraizamento de uma cultura exigente de avaliação e de qualidade, que se quer ver generalizada a todos os sectores da vida nacional. Vencer o atraso científico é hoje condição imprescindível para o nosso progresso económico e social, tendo necessariamente de abranger os laboratórios do Estado.

Os laboratórios do Estado são instituições públicas de investigação, criadas e mantidas com o propósito explícito de contribuir, através de actividades de investigação científica e desenvolvimento tecnológico, para a formulação e implementação de políticas públicas, podendo ainda desenvolver actividades relacionadas com o seu objecto, como a prestação de serviços, o apoio ao sector privado e às empresas em particular, a realização de peritagens, procedimentos de normalização, certificação e regulamentação e outras.

Actualmente os laboratórios do Estado, cujas tutelas são exercidas pelo respectivo ministério em articulação com o Ministério da Ciência, Tecnologia e Ensino Superior, são a Direcção-Geral de Protecção das Culturas (DGPC), o Instituto Nacional de Investigação Agrária e das Pescas, I. P. (INIAP), o Laboratório Nacional de Investigação Veterinária, I. P. (LNIV), cujas respectivas tutelas cabem ao Ministério da Agricultura, do Desenvolvimento Rural e das Pescas, o Instituto de Genética Médica Doutor Jacinto de Magalhães (IGM), o Instituto Nacional de Saúde Dr. Ricardo Jorge (INSA), cujas respectivas tutelas cabem ao Ministério da Saúde, o Instituto Hidrográfico (IH), cuja tutela cabe ao Ministério da Defesa Nacional, o Instituto Nacional de Engenharia, Tecnologia e Inovação (INETI), cuja tutela cabe ao Ministério da Economia e da Inovação, o Laboratório Nacional de Engenharia Civil (LNEC), cuja tutela cabe ao Ministério das Obras Públicas, Transportes e Comunicações, o Instituto de Investigação Científica Tropical, I. P. (ICT), cuja tutela cabe ao Ministério da Ciência, Tecnologia e Ensino Superior em articulação com o Ministério dos Negócios Estrangeiros, e o Instituto de Meteorologia, I. P. (IM), e o Instituto Tecnológico e Nuclear, I. P. (ITN), cuja tutela cabe ao Ministério da Ciência, Tecnologia e Ensino Superior. Em 2003, por mera fusão administrativa, o Instituto das Pescas e do Mar foi integrado no INIAP e o Instituto Geológico e Mineiro no INETI.

Numa perspectiva histórica, note-se que no século XIX europeu o desenvolvimento de laboratórios do Estado em vários países acompanhou o reforço da presença do Estado na área de ciência e tecnologia (C&T). Em Portugal, o desenvolvimento institucional dos laboratórios do Estado só viria a ocorrer durante o Estado Novo e foi marcado por políticas de curta duração, dirigidas a objectivos claros e investimentos modestos em ciência e tecnologia. Na verdade, até meados da década de 80 a política nacional de ciência e tecnologia era

caracterizada por uma base científica dispersa e incipiente, onde, todavia, se devem destacar os planos de fomento, que incluíram estímulos escassos às actividades de I&D, contando com alguns laboratórios do Estado como os principais núcleos para actividades científicas. É apenas durante a segunda metade dos anos 90, com o Programa do Governo do XIII Governo Constitucional, que é assumido o reforço das instituições científicas e valorizada a actividade de investigação científica, nomeadamente reformando «a actual matriz dos laboratórios do Estado [. . .] em condições de maior eficiência, identificação e ligação aos utilizadores, concentração e actualização das missões de investigação, certificação e difusão científica e tecnológicas, rejuvenescendo os seus quadros onde necessário e dotando esses organismos de órgãos de avaliação e acompanhamento eficazes, de composição internacional».

Consequentemente, através da Resolução do Conselho de Ministros n.º 5/96, de 16 de Janeiro, o Governo incumbiu o Ministro da Ciência e da Tecnologia de desencadear uma profunda e independente avaliação dos laboratórios do Estado.

Esta avaliação foi levada a cabo por especialistas organizados em grupos internacionais de avaliação, escolhidos por um Comité Internacional de Aconselhamento, e apoiada por comissões portuguesas de acompanhamento constituídas por personalidades de diversos sectores relevantes, tendo sido os próprios laboratórios convidados a pronunciar-se sobre os relatórios de avaliação. Coube ao Comité Internacional de Aconselhamento, que acompanhou todos os passos deste processo, definir a metodologia utilizada e validar a avaliação, elaborando sobre ela uma análise e recomendações próprias, as quais constam do 1.º Relatório da Comissão Internacional de Aconselhamento, intitulado *Os Laboratórios do Estado: Um Sistema a Necessitar de Reengenharia—1997*.

A Resolução do Conselho de Ministros n.º 133/97, de 12 de Agosto, tornou público os resultados desta avaliação e adoptou um conjunto de orientações de reforço, valorização e diversificação da actividade de investigação científica de interesse público nestes laboratórios.

Nesta sequência, em 1998 foi criado na Fundação para a Ciência e Tecnologia o Programa de Apoio à Reforma dos Laboratórios do Estado, dirigido para a orientação para missões específicas de interesse público, gestão por objectivos, rejuvenescimento dos recursos humanos de investigação, organização em torno de equipas de projecto lideradas por um investigador responsável e uma autonomia acrescida e flexibilidade de gestão das equipas de projecto sob a responsabilidade do investigador responsável correspondente.

Ainda neste contexto, em Abril de 1999 foram aprovados os novos regimes jurídicos da carreira de investigação científica (Decreto-Lei n.º 124/99, de 20 de Abril) e do Estatuto do Bolseiro de Investigação Científica (Decreto-Lei n.º 123/99, de 20 de Abril), iniciou-se o processo de alteração das leis orgânicas dos laboratórios do Estado e foram concretizadas algumas medidas de descongelamento progressivo das admissões de pessoal investigador.

Foi também aprovado em 1999 o regime jurídico das instituições que se dedicam à investigação científica e ao desenvolvimento tecnológico (Decreto-Lei n.º 125/99, de 20 de Abril), que pela primeira vez aborda, de forma integrada, os diversos tipos de instituições, consagrando os princípios gerais aplicáveis à actividade

de investigação, o acompanhamento e a avaliação científica das instituições, com tradução na respectiva orgânica interna, à contratação de recursos humanos e um sistema de gestão financeira e patrimonial, de entre outros aspectos. Neste regime é clara a definição da natureza jurídica dos laboratórios do Estado e da sua missão enquanto instituições que, por contraposição às demais instituições de investigação, levam a cabo missões de investigação e desenvolvimento tecnológico que assumem um incontornável interesse público, por exemplo na minimização e gestão de riscos públicos.

Em Março de 2001, o Comité Internacional de Aconselhamento entregou um relatório de acompanhamento do qual emergiram três grandes recomendações para concretizar o reforço do País em C&T: i) prosseguir com o aumento da relevância dos laboratórios do Estado para as políticas públicas e os temas específicos de interesse público para Portugal; ii) aumentar a inserção dos laboratórios do Estado no Espaço Europeu de Investigação; e iii) melhorar a transferência de conhecimento e promover um papel mais amplo em educação e formação.

Neste relatório eram também apontadas certas condições de competitividade, mantendo a especificidade dos laboratórios do Estado, que, a não serem asseguradas, limitariam gravemente a sua utilidade. Desde logo, a remoção do excessivo peso da burocracia e uma não descentralização efectiva de responsabilidades, ligada à ausência de um efectivo controlo *a posteriori* e de estruturas de aconselhamento adequadas, a introdução de um planeamento financeiro a médio prazo baseado em estratégias explícitas e com um equilíbrio cuidadoso entre fundos de funcionamento e de investimento, e recomendava-se a garantia de uma maior flexibilidade na distribuição de recursos humanos, de modo a favorecer o seu uso mais eficiente para as tarefas mais valiosas e a superar o envelhecimento do pessoal em todos os laboratórios do Estado.

Nesta senda, foi decidido pelo Conselho de Ministros, através da sua Resolução n.º 55/2001, de 25 de Maio, a criação de um grupo de trabalho que apresentasse medidas tendentes ao desenvolvimento do enquadramento da gestão financeira e patrimonial dos laboratórios do Estado.

Não obstante, a partir de 2002 não só estas recomendações e condições não tiveram quaisquer desenvolvimentos significativos como em diversos aspectos se verificou um desacompanhamento e até uma regressão no trabalhado até então desenvolvido.

Exemplos desta regressão foram a fusão administrativa de alguns laboratórios ou a consideração de que amissão dos laboratórios do Estado era, essencialmente, a prestação directa de serviços aos agentes económicos, tal como consta do relatório sobre a reorganização dos laboratórios do Estado elaborado na sequência da Resolução do Conselho de Ministros n.º 146/2004, de 29 de Outubro, esquecendo a sua contribuição, em algumas áreas bem mais significativas, para a prossecução de políticas públicas, designadamente no contexto da inserção de Portugal na EU.

Outro exemplo da situação de grande precariedade gerada nos últimos anos foi a perda da autonomia administrativa e financeira de alguns laboratórios do Estado com a aprovação da Lei do Orçamento do Estado para 2003. Consequências directas desta perda são, por exemplo, a indisponibilidade de receitas próprias e ou a sua rentabilização, a impossibilidade de recurso ao crédito

e uma menor capacidade de, autonomamente, realizar despesas, tudo apesar de o Decreto-Lei n.º 125/99, de 20 de Abril, determinar, com toda a clareza, as regras aplicáveis à contabilidade e à gestão destas instituições e a respectiva orgânica de fiscalização, controlo e acompanhamento.

Considerando que o rápido desenvolvimento científico do País é hoje condição absolutamente necessária para o desenvolvimento económico e social, aquelas consequências impunham, desde logo e por si só, a reposição do regime da autonomia financeira dos laboratórios do Estado, concretizada pelo XVII Governo Constitucional através do Decreto-Lei n.º 141/2005, de 17 de Agosto.

A aposta do XVII Governo Constitucional no desenvolvimento científico vai a par com uma exigência acrescida da qualidade do trabalho dos cientistas e das suas instituições, incluindo o reforço científico e das condições das instituições, dos projectos e das carreiras individuais, assim como a relevância dos seus contributos para o sucesso de políticas públicas, incluindo o governo e a gestão de riscos públicos. Assim, de acordo com o Programa do Governo, é considerado que a reposição da autonomia financeira, embora imprescindível, não é suficiente para que os laboratórios do Estado possam, sem mais, continuar a sua renovação, sendo antes necessário, em articulação com a reforma em curso para a Administração Pública, proceder à actualização da execução da avaliação realizada em 1997 e das recomendações do relatório de acompanhamento de 2001, com especial enfoque na capacidade científica e técnica necessária para grandes questões de interesse público, incluindo a prevenção de riscos públicos. O conhecimento científico e a capacidade técnica devem apoiar a modernização do tecido económico e social e a competitividade do País, mas também contribuir para a concepção e execução de políticas públicas, para proteger as pessoas, salvaguardar os recursos naturais, antecipar riscos e catástrofes, salvar vidas e ajudar a tomar decisões certas.

Assim:

Nos termos da alínea g) do artigo 199.º da Constituição, o Conselho de Ministros resolve:

1 — Encarregar o Ministro da Ciência, Tecnologia e Ensino Superior de, em articulação com os ministros da tutela de cada um dos laboratórios e em concertação com o Ministro de Estado e das Finanças e com o Ministro de Estado e da Administração Interna, preparar uma proposta de reforma do sistema actual dos laboratórios do Estado para apreciação pelo Governo.

2 — Indicar que o âmbito da reforma a empreender deve incluir decisões sobre as seguintes questões:

- a) Manutenção, fusão, segmentação ou extinção de cada um dos laboratórios do Estado;
- b) Definição das missões e do regime jurídico, administrativo e financeiro de todos os laboratórios;
- c) Mecanismos de avaliação e acompanhamento, de criação de emprego científico e técnico e de mobilidade e gestão dos recursos humanos;
- d) Localização dos laboratórios do Estado e conversão ou reafecção do património imobiliário actual;
- e) Financiamento do programa de reformas e modelo sustentado de financiamento de cada um dos laboratórios;
- f) Cooperação e partilha de responsabilidades e de recursos entre laboratórios do Estado, uni-

versidades, laboratórios associados e outras instituições, públicas e privadas;

g) Definição, com base na redefinição das respectivas missões, de contratos-programa para a execução de políticas públicas.

3 — Indicar que a proposta de reforma dos laboratórios do Estado acima referida deve ser submetida à apreciação do Governo até Maio de 2006 e as orientações que vierem a ser aprovadas pelo Governo serão objecto de consulta pública.

4 — Indicar que a proposta de reforma do sistema actual dos laboratórios do Estado deve ter por base as recomendações de um grupo internacional de trabalho que ora se cria na dependência do Ministro da Ciência, Tecnologia e Ensino Superior, com o objectivo de apoiar o Governo nesta reforma.

5 — Encarregar o grupo internacional de trabalho de formular recomendações para a reforma dos laboratórios do Estado após ter procedido à análise da sua situação actual, nomeadamente desde a avaliação intercalar de 2001, a qual deve ter em especial atenção:

a) A evolução do contexto nacional e internacional em termos da actividade desenvolvida em cada um dos laboratórios do Estado;

b) A evolução do desempenho científico dos laboratórios do Estado e da qualificação dos seus recursos humanos, nomeadamente para fazer face aos desafios que emergem para o conhecimento de interesse público;

c) A evolução da actividade dos laboratórios do Estado de apoio ao Governo em matérias de interesse público, designadamente de riscos públicos e valorização dos recursos naturais e do desenvolvimento da sua actividade em face do património por eles detido.

6 — Determinar que, até ao dia 31 de Dezembro de 2005, cada laboratório do Estado deve entregar ao grupo de trabalho um relatório circunstanciado sobre a sua situação actual visando, especialmente, a natureza do seu trabalho, a qualificação técnica e científica dos recursos humanos e a natureza do seu vínculo à instituição e a afectação dos seus recursos económicos, financeiros e patrimoniais, incluindo receitas próprias.

7 — Determinar que o calendário a seguir pelo grupo internacional de trabalho criado na dependência do Ministro da Ciência, Tecnologia e Ensino Superior é o seguinte:

a) Entre Janeiro e Março de 2006 o grupo internacional de trabalho deve proceder a visitas circunstanciadas aos laboratórios do Estado;

b) No mês de Março de 2006 o grupo de trabalho deve apresentar ao Ministro da Ciência, Tecnologia e Ensino Superior e aos ministros com tutela sobre os laboratórios do Estado um relatório preliminar sobre a situação actual dos laboratórios do Estado e recomendações sobre a sua reforma e convidar os laboratórios do Estado a pronunciarem-se sobre ele;

c) No mês de Abril de 2006 o grupo de trabalho deve apresentar ao Ministro da Ciência, Tecnologia e Ensino Superior e aos ministros com tutela sobre os laboratórios do Estado o relatório conclusivo sobre a situação actual dos laboratórios do Estado e recomendações sobre a sua reforma, tendo em consideração os resultados da audição referida na alínea anterior e

os trabalhos desenvolvidos no quadro do Programa de Reestruturação da Administração Central do Estado;

d) Entre Abril e Maio de 2006 o grupo de trabalho deve apoiar o Governo na preparação da proposta de reforma dos laboratórios do Estado, assegurando, designadamente, a articulação entre as suas conclusões e os trabalhos desenvolvidos no quadro do Programa de Reestruturação da Administração Central do Estado;

e) A partir de Maio, e sempre que necessário, o grupo internacional de trabalho deve apoiar o Governo no processo de consulta e discussão pública sobre a proposta de reforma entretanto preparada pelo Governo.

8 — Nomear o professor Jean-Pierre Contzen (presidente do grupo internacional de avaliação de laboratórios do Estado entre 1997 e 2001) presidente do grupo internacional de trabalho e determinar que os restantes membros, até ao máximo de quatro, são nomeados pelo Ministro da Ciência, Tecnologia e Ensino Superior, sob proposta do presidente do grupo de trabalho, a apresentar até 15 de Dezembro.

9 — Determinar que os encargos associados ao grupo internacional de trabalho são:

9.1 — Suportados de acordo com os parâmetros em vigor para os avaliadores científicos que constituem os painéis de avaliação dos projectos da responsabilidade da Fundação para a Ciência e Tecnologia;

9.2 — Suportados e têm cabimento no âmbito do projecto «Apoio à reforma de institutos públicos ou de instituições públicas de investigação» inscrito no orçamento da Fundação para a Ciência e Tecnologia.

10 — Determinar que o grupo internacional de trabalho tem como período de duração máxima três anos.

11 — Determinar que todo o apoio técnico, logístico e administrativo ao grupo de trabalho é prestado pela Fundação para a Ciência e Tecnologia.

12 — Revogar a Resolução do Conselho de Ministros n.º 146/2004, de 29 de Outubro.

Presidência do Conselho de Ministros, 24 de Novembro de 2005. — O Primeiro-Ministro, *José Sócrates Carvalho Pinto de Sousa*.

Appendix 3

International Working Group

International Working Group

- **Prof. Jean-Pierre Contzen**, *Presidente*

Special adviser do Ministro da Ciência, Tecnologia e Ensino Superior

Professor Catedrático convidado do Instituto Superior Técnico

Presidente do von Karman Institute for Fluid Dynamics

ex-Director-Geral do Centro Comum de Investigação, Comissão das Comunidades Europeias

- **Prof. Elías Fereres Castiel**

Director General de la Agencia Andaluza de Calidad y Accreditación Universitária

ex-Director do Instituto de Agricultura Sostenible, CSIC

ex-Secretário de Estado das Universidades e Investigação

- **Prof. Manfred Popp**

Presidente do *Board of Directors* do Forschungszentrum Karlsruhe (FZK), Helmholtz-Gemeinschaft Deutscher Forschungszentren

Professor da Universidade de Karlsruhe.

Professor Honorário da Universidade Técnica de Darmstadt

- **Prof. Pierre Papon**

Professor emérito na ESPCI (École Supérieure de Physique et de Chimie Industrielles de Paris)

ex-Director-Geral do Centre National de la Recherche Scientifique (CNRS)

ex-Presidente do Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)