For Official Use **EDU/EC(2006)25**

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

06-Dec-2006

English - Or. English

DIRECTORATE FOR EDUCATION
EDUCATION COMMITTEE

EDU/EC(2006)25
For Official Use

REVIEWS OF NATIONAL POLICIES FOR EDUCATION - TERTIARY EDUCATION IN PORTUGAL

Examiners' Report

13 December 2006, Centro Cultural de Belém, Lisbon, Portugal

The Committee is invited to:

- *NOTE the findings and recommendations in this report;*
- *DISCUSS the findings and recommendations with the Portuguese authorities at its special session to review Portugal's Higher education policy to be held in Lisbon on 13 December 2006; and*
- *AGREE to the publication of this report, together with the Background Report having taken into account the discussion at the 13 December 2006 review meeting.*

Abrar Hasan, Head of Education and Training Policy Division, Directorate for Education, OECD
Tel: 33 (0) 1 4524 9221; email: abrar.hasan@oecd.org

JT03219326

English - Or. English

(Note by the Secretariat)

1. In 2005, the Portuguese Ministry of Science, Technology and Higher Education invited the OECD Secretariat to undertake a review of tertiary education to evaluate the performance of the sector and recommend how it can better meet Portugal's strategic objectives for the sector. The review was organised within the framework of the OECD's education policy reviews. Following preparation of a Background Report by the Portuguese authorities [EDU/EC(2006)26], a team of OECD examiners visited Portugal from 15 to 27 May and prepared a report [EDU/EC(2006)25]. These documents together with "Suggested Issues for Discussion" [EDU/EC(2006)27] comprise the documentation for the special session of the Education Committee to review Portuguese higher education policy.

2. The attached Examiners' Report was prepared by an independent team with assistance from the Secretariat. It is based on the Background Report prepared by the Portuguese authorities (EDU/EC(2006)26) and interviews and meetings that the review team conducted during its visit to Portugal.

3. The Committee is invited to:

- **NOTE** the findings and recommendations in this report;
- **DISCUSS** the findings and recommendations with the Portuguese authorities at its special session to review Portugal's Higher education policy to be held in Lisbon on 13 December 2006; and
- **AGREE** to the publication of this report, together with the Background Report having taken into account the discussion at the 13 December 2006 review meeting.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION AND CONTEXT

A. INTRODUCTION

1.1 In June 2005, the Portuguese Minister of Science, Technology and Higher Education, Jose Mariano Gago, approached the OECD to conduct a review of the Portuguese higher education system, under the Education Committee's programme of national reviews. Agreement was reached on the substance of the review and a formal announcement to launch the review was made at a ceremony on 4 November 2005 in Lisbon. This report sets out the analyses and recommendations made by the OECD reviewers' team. The report draws upon the documentation produced by the Portuguese authorities to inform the review, other literature search and the evidence gathered by the Review Team during a two week study visit to Portugal in May 2006.

The context of the review

1.2 The Portuguese request for an OECD education policy review arose from several concerns. Reforms of the tertiary education were high on the political agenda during the election campaign leading to the formation of the present Government. The request for an OECD review attests to the Government's commitment to reforms. It is also in fulfilment of the laws that require periodic evaluation of the education system, including a requirement of an overall evaluation of the higher education system (Law n. 38/94, 21 November; Article 9, n. 3). However, the sector has not been evaluated since this requirement was put in place.

1.3 The OECD review is one of a series of evaluative work planned by the Government. Two other evaluations were launched in parallel: an assessment of accreditation and evaluation practices, to be carried out by the European Network for Quality Assessment (ENQA), and a voluntary system of institutional evaluations conducted by the European University Association.

1.4 The launching of these three evaluations signifies a high level of importance attached by the Government to tertiary education reforms. The Government has set its sights for initiating a series of legislative actions, starting with the implementation of the Bologna process in mid 2006. The intention is to bring forward legislation within the current electoral mandate of the Government.

The review process

1.5 Following agreement on the terms of reference, the Ministry of Science, Technology and Higher Education (MCTES) agreed to prepare a report to provide background information for the Review Team. On the basis of a first draft, the OECD Secretariat visited MCTES to discuss the draft with the Ministry, possible composition of the OECD team of experts, the dates and broad outlines of the institutions and the stakeholders to be consulted during the study visit, and the deadlines leading up to the final report and its publication. The visit was also used to consult with selected Ministry staff and representatives of stakeholder groups. It was agreed with MCTES that the consultation process for the review would be as open and public as possible. All interest groups were to be invited, if they so wished, to make short submissions of their point of view to the OECD team. The rapporteur of the OECD Review Team, Daniel O'Hare, and the team leader, Abrar Hasan, were invited to visit Lisbon, in early May, and describe the

review process at a conference attended by representatives from the academic community and various interest groups including student representatives.

1.6 The full OECD Review Team[1] consisted of: Jon File, Executive Director, CHEPS (Center for Higher Education Policy Studies), University of Twente, Netherlands; Michael Gallagher, Director of Policy and Planning, The Australian National University, Canberra, Australia; Paavo Löppönen, Director, Evaluation and Development, The Academy of Finland, Finland; Dr Daniel O'Hare, Founding President Dublin City University, Ireland, who served as the rapporteur for the group; Jane Wellman, Senior Associate, The Institute for Higher Education Policy, Washington, D.C.,USA; and Abrar Hasan, Head Education and Training Policy Division, OECD, who led the team.

1.7 The Background Report was further revised and a version was provided to the OECD team for the study visit, which took place during 15- 26 May. The schedule of the study visit, which appears as Appendix A to this report, demonstrates the wide-ranging consultations that were held during the visit, though it was evident that not all higher education institutions (HEIs) could be visited. An attempt was made to ensure that all who wished to provide a written submission could do so.

1.8 While it was impossible to visit all institutions, as noted in Appendix A, a large number of institutions of higher education were visited, including universities and polytechnics, both public and private and research organisations. Meetings were held with student, teachers and employers' organisations, associations of private universities, rectors of public universities and directors of polytechnics. Meetings were also held with officials of the Ministries of Education, Employment and of Finance and officials of S & T Foundations, Accounts Court, Director of the National Technological Plan, the National Committee for Education, Members of Parliament and several former Ministers of Education. The Reviewers had several meetings with the secretariat of the Ministry of Science, Technology and Higher Education (MCTES), in particular with the Secretary of Sate for Science, Technology and Higher Education Manuel Heitor. The Team benefited from two meetings with Minister Gago and was also received by the Prime Minister. In addition to personal interviews, more than a dozen organisations and representatives of various interest groups provided written submission.

1.9 Due care was taken to obtain information from large establishments as well as small ones, with as much geographical variety as was possible to accommodate.. Meetings were held with parliamentary committees, councils and commissions, organisations of students, employees and employers and those representing advocacy and stakeholder groups. Meetings were also held with legal experts on institutional regulation and with the banking sector representatives dealing with student loans Opinions were sought from prominent personalities who had been involved in various aspects of tertiary sector policy development. All of the groups and individuals were invited to make available their written submissions. Those received are cited in Appendix B.

1.10 The Experts' Report will be discussed by a special session of the Education Committee to be held in Lisbon on 13 December, 2006. The objective of this meeting is to examine the analyses and recommendations and discuss the views of Portugal and the Committee delegates in regard to their suitability and appropriateness. Any amendments proposed by this discussion will be taken on board before the Report is published by the OECD.

1.11 It is a requirement of the Education Committee's policy review process that, approximately two to three years after the December 2006 review session of the Committee, Portugal agrees to present to the

[1] The terms Review Team, Reviewers, Examiners Team and OECD Experts Team will be used interchangeably throughout this report.

Education Committee a progress report on the actions taken on the recommendations made by the OECD Experts' Report.

Structure of the chapter

1.12 To set the scene for the Examiners' analyses, the balance of this introductory chapter provides a brief overview of the Portuguese tertiary[2] education system within a comparative perspective of OECD and other countries (Section C). This section is followed by a description of the recent evolution of the Portuguese economy and investment in the tertiary sector (Section D). Its purpose is to illuminate the linkage of the tertiary sector with Portuguese economic performance in recent years.

1.13 The line of argument in the chapter is as follows. An overview of the tertiary education in Portugal reveals large challenges facing the country. Despite the massive expansion of the sector, overall educational attainment levels of the population is below the level of countries with whom Portugal wishes to compare itself. Tertiary level attainments are unsatisfactorily low. The research, development and innovation system is, equally, weak in comparison to the reference countries. The section on economic performance points out that the level of human capital formation in Portugal is no longer able to sustain productivity growth levels that are needed to improve the income gaps the country is facing in comparison to its competitors. Poor economic performance of recent years can be linked to the country's poor performance on human capital formation. The section on expenditure levels suggests that there is a need for further investment, over the long term, to accommodate participation in tertiary education by a larger percentage of the population.

B. TERMS OF REFERENCE AND THE STRUCTURE OF THE REPORT

1.14 In the discussion leading to the formulation of the terms of reference, three concerns appeared to be paramount. First, there is considerable disaffection, in many quarters and not just the Government, with the performance of the tertiary sector. Second, the performance was not viewed against narrow goals limited to intra-sectoral outcomes but concerned the role of the tertiary sector in the economic, social and regional life of the country. Finally, an overarching concern remains performing well in comparison with Portugal's European partners.

Goals of the tertiary education system

1.15 Government's goals for the sector have changed significantly over the years. During the late 1970s and the mid 1980s Portugal pursued a process of convergence that aimed at expanding and diversifying the system, especially by implementing the binary system and promoting the private system. The period was also marked by increased institutional autonomy for the public sector.

1.16 The Education System Act (Law 46/86 of 14 October) defined the main objectives of higher education as teaching and research, cultural production and the development of entrepreneurial and scientific spirit and reflective thought. Higher education should also train graduates able to be integrated into the different professional sectors and to participate in the development of society and continuing education; to promote research activities aiming at the development of science and technology, humanities

[2] This Report uses the term tertiary education to describe all provision of learning at post-secondary level, regardless of whether the institutions are the universities, polytechnics, post-secondary colleges or other institutes and institutions. The general usage of the term "higher education" is often restricted to the universities and sometimes to research-based universities alone. However, if the term higher education is used in the broad sense described above then it covers the same area as denoted by the term tertiary education. The Report uses the two terms interchangeably on the understanding that the term higher education covers the broad area described by tertiary education.

and arts and to contribute to cultural creation and diffusion. Higher education should also promote and valorise the Portuguese language and culture and promote critical thinking and the freedom of speech and research. However the law does not refer to the role of higher education institutions as providers of services to the outside community, nor to industry.

1.17 By the end of the 1990s, as the participation rate of the young cohort in higher education rose and enrolment numbers began to decrease, government attention shifted from quantity to quality factors. The terms of reference set for the OECD Experts by MCTES, reproduced in Appendix E below, gives a clue to further changes in government's expectations of the tertiary sector. The item on the role of higher education refers to the traditional roles of teaching and learning, research and contribution to cultural identity. But, in addition, it also makes clear references to the role of higher education in contributing to the knowledge society, national and regional economic performance, globalisation, social cohesion and equity.

Structure of the report

1.18 These terms of reference have shaped the structure of the OECD Experts' analysis and Report. This introductory chapter reviews the structure of the Portuguese tertiary education system and places it in the context of the economic goals mentioned above. The report then takes up six major areas of reform in turn: System diversity and system co-ordination (Chapter 2); Institutional governance (Chapter 3); Educational programmes: access, quality and relevance; (Chapter 4); Research, innovation and internationalisation (Chapter 5); Financing of tertiary education system (Chapter 6); and Conclusions of the Report (Chapter 7).

C. KEY FEATURES OF THE TERTIARY EDUCATION SYSTEM

Low educational attainment of the population

1.19 Despite massive expansion of education since the revolution in 1974, educational attainment of the adult population in Portugal remains low. As much as 62 per cent of the adults aged 25-64 had six years of schooling or less in 2001 (Table 1.1).

Table 1.1 Academic qualification level (2001)

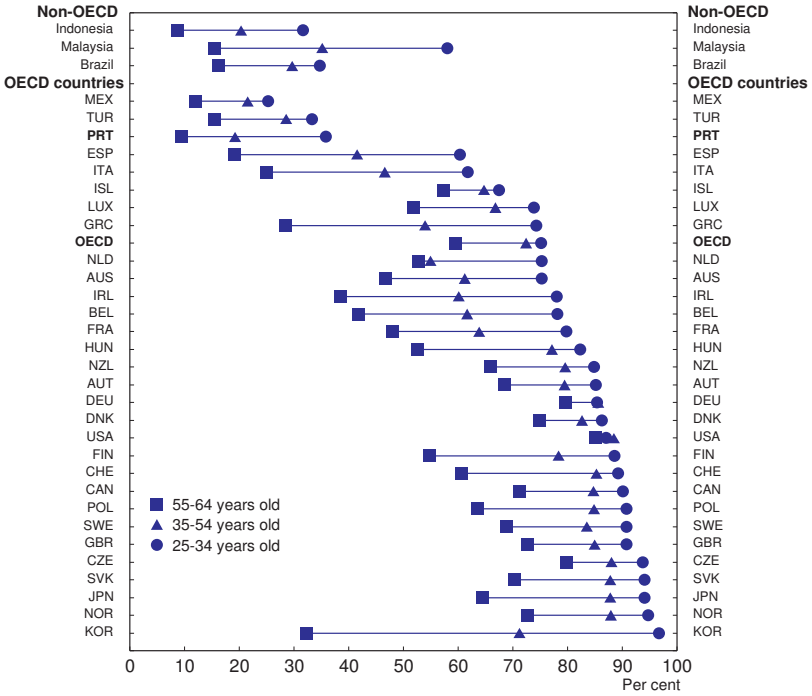
No academic	11%
4 years of schooling	36%
6 years of schooling	15%
9 years of schooling	13%
Upper secondary	13%
Tertiary education	11%
Others	1%

Source: INE, 2001 Population Census

1.20 Compared internationally, the number of years of schooling of the working-age population is among the lowest in the OECD, with Portugal ranking next to Turkey and Mexico. There has been only limited progress between one generation and the next, in contrast with Spain, Italy, Greece or Korea (Figure 1.1). This relatively weak position against its reference countries is a key factor in Portugal's competitive position and its prospects for economic growth, an issue taken up in Section D.

Figure 1.1 Educational attainment of the working-age population

Population with at least an upper-secondary qualification, 2003[1]



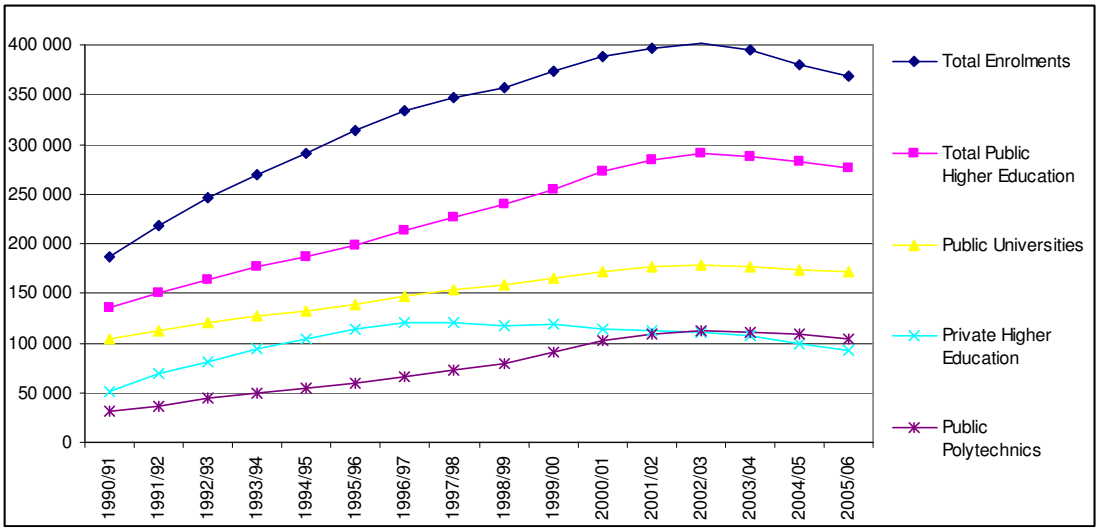
1. Per cent of each age group. 2002 for Czech Republic, Iceland, Italy and Netherlands

Source: OECD, Labour Market Statistics database.

Low level of tertiary education attainment

1.21 Portugal can be justly proud of the massive expansion of its higher education over the last three decades. Student numbers rose from 30 000 students in the 1960s to over 400 000 by the end of the 20th century. The dramatic increase began in the early 70s when the system was opened to young people of all social classes. Enrolment doubled over the 10 years to 2002-03 (Figure 1.2).

Figure 1.2 Evolution of the overall number of students (graduate and post-graduate) enrolled in higher education in Portugal, 1990/91 – 2005/06

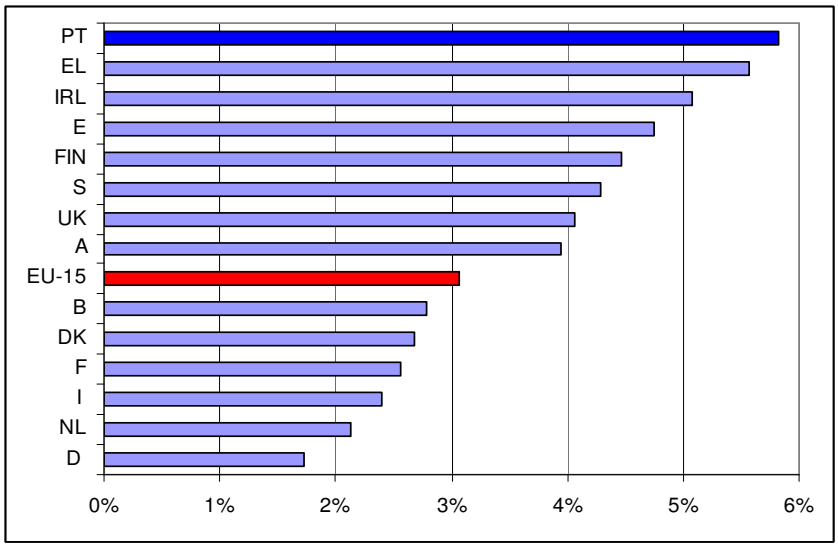


Source: Background Report (BR)

1.22 Another depiction of the high enrolment growth is displayed in Figure 1.3, which provides data on compounded growth rate of the number of students in the tertiary education sector. Portugal has the highest growth rate, close to 6 per cent per annum over the 1975 – 2001 period, compared to the EU-15 average of a little over 3 per cent. Though the low base from which it started is clearly a factor, the rapid strides Portugal has made is laudatory.

Figure 1.3 Compound annual growth rate of the number of students enrolled in tertiary education

(ISCED 5 and 6), 1975/76 – 2000/01

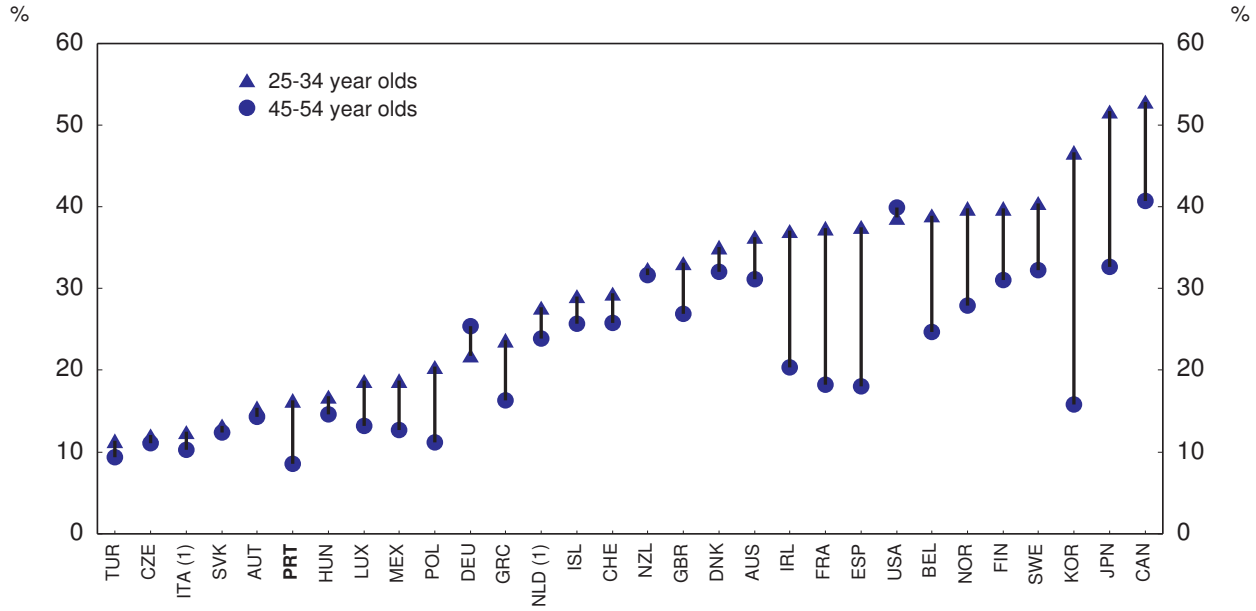


Source: Background Report (BR)

1.23 Notwithstanding the rapid expansion, two problematic features are causes for concern. First, the level of tertiary education attainment of the population, even in the 25-34 age group, remains among the lowest in the OECD (Figure 1.4); only five OECD countries have lower attainment levels. The large expansion in the last 30 years does show up in the improved percentages for the 25-34 year olds compared to the 45-54 year olds, but the overall picture remains unsatisfactory. Second, enrolment numbers in the tertiary level peaked in 2001/002 and there is slight decline is observed thereafter (Figure 1.2). This has led some observers to worry about the impending excess capacity in tertiary education. More recent data on student enrolment for 2005/2006 and 2006/2007 show a significant increase in the uptake of adult students. This is largely attributable to the new legal framework implemented in 2006, under the "Bologna Reform". As estimated by the institutions, an additional increase in enrolment of 5516 students was expected in post-secondary training. These developments point to possible ways of compensating for the decrease in enrolments caused by the demographic factor, discussed below.

Figure 1.4 Tertiary education attainment, 2003

As per cent of age group population



1. Data for 2002.

Source: OECD, *Education at a Glance*, 2005.

1.24 The main reason for the declining enrolment numbers comes from Portugal's demographic development. As in other countries of Europe, Portugal is experiencing declining birth rates. Associated with increased life expectancy, this trend has resulted in an ageing population (Table 1.2). The numbers in the 15-24 age group are declining. Looking ahead, the age cohort is likely to decline by approximately 150 000 over the period 2005 to 2010. Hence, attempts to increase numbers in tertiary education must look at ways of increasing the percentage of cohort that is eligible to enter this level. Taking the period 1991-2006, the population in age-group 6-17 has fallen by some 5 per cent (See Table 1.3).

Table 1.2 – Population forecasts, Portugal

Ages	2000	2005	2010	2015	2020
0-4	534 286	554 738	522 843	484 303	446 623
5-9	532 394	550 703	558 604	524 290	485 886
10-14	573 995	548 906	555 003	560 471	526 237
15-19	682 010	599 837	555 763	558 865	564 391
20-24	783 305	721 495	610 807	561 357	564 596
25-29	806 880	821 305	731 002	614 891	565 785
30-34	754 144	837 913	827 765	732 825	617 507
35-39	763 331	778 298	841 519	827 097	732 966
40-44	721 530	777 749	778 315	837 926	823 878
45-49	679 543	727 562	773 422	772 191	831 660
50-54	636 353	678 434	718 900	763 155	762 691
55-59	565 965	629 529	664 695	703 914	748 239
60-64	545 635	552 795	608 967	642 918	682 286
65-69	533 000	517 321	523 242	577 425	611 654
70-74	449 620	483 070	470 957	479 771	532 401
75-79	344 734	377 783	410 450	404 530	417 368
80-84	199 783	256 904	288 368	319 940	321 398
85+	150 150	147 489	185 443	220 817	253 586
Total	10 256 658	10 561 829	10 626 062	10 586 682	10 489 152

Source: INE, 2005

Table 1.3 Population by age groups (mainland Portugal)

Age interval	1991 (1)	2001 (2)	D [(2)-(1)]	D (%)	2006* (3)	D [(3)-(2)]	D (%)
6 – 9	494,495	406,428	-88,067	-18	410,199	+3,771	+1
10 - 11	277,757	213,368	-64,389	-23	199,680	-13,688	-6
12 - 14	457,871	330,128	-127,743	-28	315,292	-14,836	-4
15 - 17	484.535	372,523	-112,012	-23	328,660	-43,863	-12
Total: 6 – 17	1,714,658	1,322,447	-392,211	-23	1,253,831	-68,616	-5

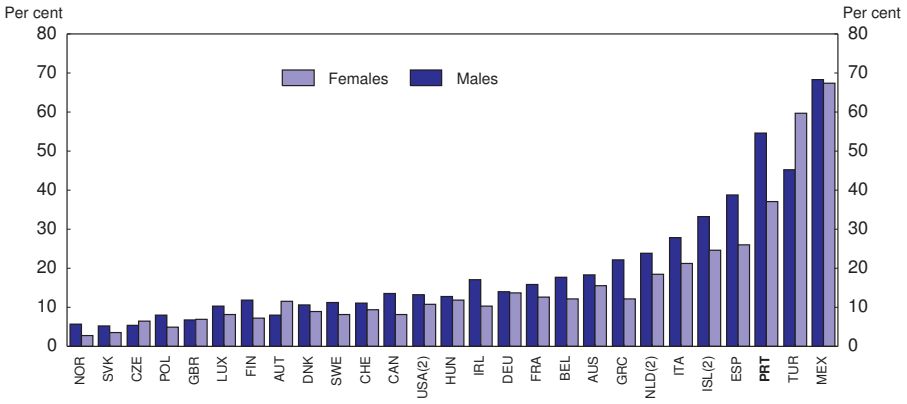
* estimates

Sources: XIII and XIV Population census, INE

1.25 This represents a key problem for Portuguese education policy. The percentage of cohort that fails to graduate also exhibits the highest rates of school dropouts from the 9th to the 12th year of schooling. The quality of schooling, defined as the impact of the education system on the academic, economic and social capabilities of students, is also low. The drop-out rates are among the highest in the OECD, while performance of the children who stay in school is one of the weakest, as measured by international literacy assessment (OECD-PISA]. .

Figure 1.5 Early school leavers in OECD countries

Share of 20-24 year olds who have not completed upper secondary and are no longer in education, 2003



1. Data are ranked in ascending order of the total of the 20-24 year-olds.
2. Year of reference 2002.

Source: OECD, *Education at a Glance* (2005).

1.26 These considerations suggest a key conclusion: a major problem of Portugal's teriary education system stems from the poor performance at the school level. Raising tertiary level attainment rates for the population must include raising the percentage of school leaving cohorts that is potentially available for tertiary level studies. Hence, policies for improving tertiary education in Portugal must be developed and implemented in close co-operation with policies for improving performance at the school level. This requires taking a longer term view of the education system's performance. The issue is considered further in Chapter 7..

The network of higher education institutions (HEIs)

1.27 Like many OECD countries, Portuguese tertiary education is a binary system with universities and polytechnics. In addition, both sectors can be public or private. As shown in Figure 1.2 above, the tertiary sector consists of different institutional components and they have evolved along very different trajectories. The respective growth rates of different types of institutions tell a story of changing weights of different group of HEIs. In 1983/84 the share of enrolments was 76.2 % in public universities, 12.6% in public polytechnics, 11.2% in the private sector. These changed significantly by 2004/05 to, respectively, 45.6%, 28.4% and 26.0% (CBR, 2006).

1.28 Currently, there are 30 universities and 130 polytechnic schools. The public university system includes 14 public universities (including the Open University) and a non-integrated university school, ISCTE. The public polytechnics network is composed of 15 Polytechnic Institutes and some polytechnic schools integrated in the Universities. There are also many other private institutions (105), most of them specialised (teacher training, health, management, marketing, etc.). Some have a university character but most are polytechnics. Their size varies considerably with the average size around 1,000 students. However, some are very small institutions: there are 29 institutions with enrolments below 200 students and 35 institutions with enrolments between 200 and 500 students (2003 data).

1.29 One key feature of the Portuguese tertiary network is the large number of institutions catering to a relatively small numbers of participants. Until the mid 1990s, the tertiary system was growing and expanding and there were sufficient candidates for every institution. The decline in the number of

candidates has been felt most keenly by these institutions and more recently by public polytechnics and even by some public universities located in interior regions. In addition to increased competition, the evolving patterns of demand and supply have led to co-operation and sharing among institutions, even leading to mergers. In some cases, polytechnics and universities are coming together. A so-called "South Academy", as a new network of different universities and polytechnics, is emerging in southern Portugal. The changing pressures on the structure and composition of the Portuguese tertiary education system raise important issues for the steering, governance and regulation of the system and for dealing with its growth and consolidation. These issues are taken up in Chapter 2.

Quality of tertiary education system

1.30 While enrolment in tertiary education has expanded, completion has increased much less, pointing to very high drop out and failure rates. There are a variety of reasons for these poor results ranging from the (short-term) opportunity costs of staying in tertiary education, the low efficiency of some higher education institutions, and the low competences of entering students. Quality also varies across institutions. Universities are more selective than polytechnics and typically provide better quality teaching. Public universities have been selecting students and charging moderate fees. They therefore tend to have the best students, who often come from more affluent/more educated families, because of the opportunity cost of continuing studies and because they were those performing the best in secondary schooling. In addition to the quality of teaching and learning processes there are major issues in research quality. The gross expenditure on research and development, as percentage of GDP (GERD 0.78% in 2003), was one of the lowest in Europe. The number of researchers with a Ph.D or equivalent working in industry was only 189 in 2003. As noted previously the number of Ph.Ds produced in the country how, however, has been growing very rapidly in recent years.

Two features of access and participation

1.31 Chapter 4 below, discusses the issues of equity of access and participation in tertiary education. Here two issues are touched upon briefly. First, as in many other OECD countries, women have made significant gains in participation in third level education. In the early 1990s women became the majority of enrolled students and graduates in all sub-systems of higher education reaching, by 2004, 56% of the overall number of students. This follows from the higher success rate of female students in compulsory education and in upper secondary education. The expansion of female enrolment in higher education has varied by field of study. Initially it began in those areas regarded as socially more acceptable and that more easily allow women to pursue a professional career but a growing proportion emerged in areas such as economics, law, medicine and engineering. Females are a majority in every degree programme except the more technological ones.

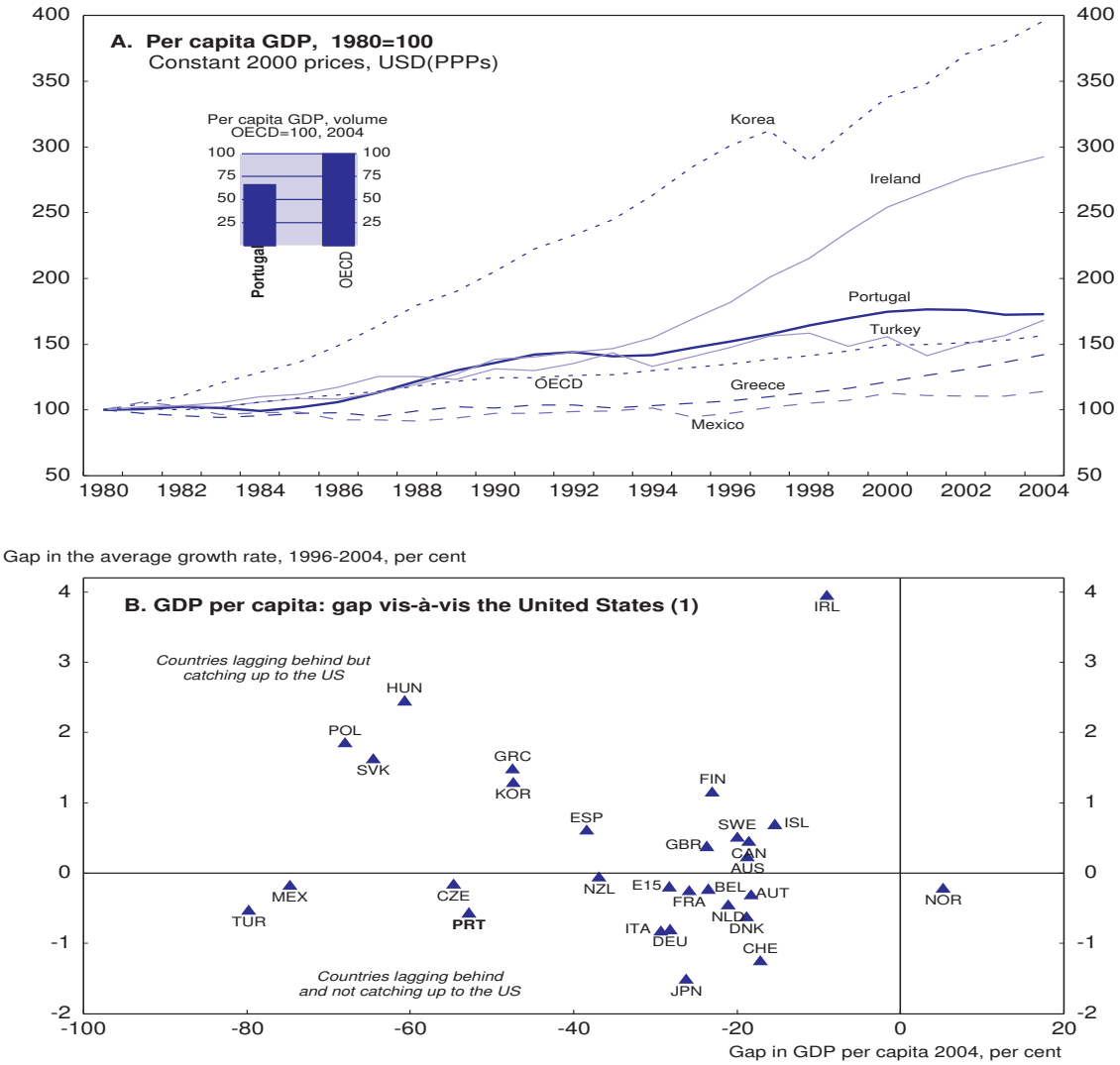
1.32 Second, older students are significantly under-represented. Lifelong education is still a relatively underdeveloped area of the Portuguese education system. Until recently students over 25 years of age and without formal qualifications could enter higher education by sitting in special entrance examinations. However, the number of students using this alternative entrance road was very limited, representing only 1.1% of total first year enrolments in 2004/05. In 2006 the Government reduced the age criterion to 23 years to encourage candidates to higher education. More importantly, the reform gave full responsibility to institutions to select their students, abolishing the national exams as the basis for selection. Previously, these national exams were regarded as a barrier to entering tertiary studies because they did not take the particular situation of adults into account.

D. ECONOMIC PERFORMANCE AND TERTIARY EDUCATION

1.33 Current economic performance and its evolution over the recent past as well as the budgetary perspective of the Government are clearly key factors in shaping the role the tertiary education sector. The considerations presented below emphasize the need for more investment in human capital formation over the long term. Modernising the Portuguese economy requires a broad package of reform which increases human capital at all levels and improves framework conditions for researchers and innovative firms. The issue of investment is taken up in Chapter 5 and various elements of the package of reforms are developed in Chapters 2 through to 6.

1.34 The Portuguese economy experienced average rates of growth of 3½ per cent from the mid-1980s -- when Portugal joined the European Union -- until 2000. An economic downturn started in 2001 turned into a protracted slow growth period and real GDP growth averaged less than 1% per year from 2000 to 2005 (Table 1.3). At the same time the fiscal deficit remains at an unsustainably high level.

Figure 1.6 Portugal's growth performance in comparison



1. The average growth rate of GDP per capita is calculated on constant 2000 prices USD (PPPs) over the period 1996-2004. The level of GDP per capita is for 2004.

Source: OECD, Main Economic Indicators database; OECD, National Accounts database.

1.35 The high growth rates until 2000 allowed some catching-up in living standards with the European Union average. The *per capita* GDP (ppp) rose from less than 60% of the OECD (and EU 15) average in 1986, to a peak of 70% in the early 2000s. The slow growth since 2001 has meant that the income gap has widened relative to EU 15 averages, and in particular to high income countries such as the United States and Ireland (Figure 1.6). OECD analysis foresees a growth rate below 2% over the period 2005-10, which is insufficient to raise Portugal's living standards towards higher income OECD countries, and to narrow the income gap with the Euro area average (OECD Economic Survey of Portugal, 2006).

1.36 The reasons for the tapering off of growth rates are instructive for tertiary education policy. The OECD Economic Survey (2006) suggests that both productivity gains and higher labour inputs, which had contributed to Portugal's growth performance up to 2000, are no longer at work. Among other factors, Portugal's trade specialisation and its human capital now appear to be inadequate to allow rapid adjustment to the changing international environment. There is growing recognition that a better-educated population may be generally more innovative and better able to adapt to technological change, a prerequisite for Portugal to remain competitive and to catch-up to higher productivity levels.

1.37 Portugal has been losing its trade exports share since the mid 1990s, except for the 2001-03 period. Portuguese firms have remained largely specialised in the production of labour-intensive and low value-added traditional goods but these markets are now more and more lost to new major players with lower labour costs, in particular vis-à-vis new EU members and emerging economies in Asia or North Africa. Portuguese firms were unable to reorient exports to the more dynamic markets on a sufficient scale.

1.38 The low level of labour productivity per hour worked in Portugal, only about half that in the United States -- the main explanation for the income gap *vis-à-vis* higher income OECD countries and the European Union average (Figure 1.5, Panel B) -- is related to the structure of the economy with its relatively high share of relatively low-skilled labour intensive sectors. The pattern of labour utilisation shows that Portugal has one of the highest levels of labour force participation for those people with the lowest level of literacy.

1.39 It is interesting to note that data on entry rates of new firms show that entrepreneurial activity in Portugal has been typically high (OECD 2006). The problem appears to be that Portuguese firms find it difficult to adopt more modern production techniques and organisational practices and to market new products effectively. The OECD analysis argues that an important factor explaining why many firms remain stuck in low-productivity activities and do not adopt more widely ICT and other modern techniques is the relatively low educational level of the population at large. An overall better-educated population is also more able to adapt to technological change and is generally more innovative. Initial education is not enough to meet the rising and changing demand for competences. Portugal, which began to shift its trade specialisation in favour of technology and capital intensive products in the 1990s, needs to strengthen this process now and this requires upgrading of country's human capital.

1.40 As Chapter 5 of this report documents, Portugal suffers from low levels of R&D and innovation in Portugal, well below the OECD average, especially in business R&D intensity. This lag is all the more worrying as cross-country evidence has shown that spending in this sector has the most direct long-run influence on economic growth (OECD 2003). Another area of weakness is the lack of competences such as scientists and engineers and managers well-trained in marketing, which are key for the modernisation of the economy and its adaptation to global competition. [3]

1.41 These arguments for investment in higher education are supported by the evidence on the rates of return in Portugal: the earning premium for people with tertiary education relative to those with only secondary education is high and has been increasing - by 1 point per year on average in the late 1990s - broadly in line with the increase in other OECD countries (Cardoso 2004). These results are in line with OECD estimates of private rates of return to tertiary education (OECD*, Economic Survey of Portugal,* 2003). A further supporting evidence comes from the evidence that the proportion of graduates working in jobs below their education level (*i.e.* not requiring a university degree) has been falling (OECD 2006).

---

[3]. According to opinion surveys (IMD, 2004), Portugal lacks qualified engineers, while OECD indicators suggest that Portugal is weak regarding PhDs in Science.

1.42 There are, therefore, firm economic grounds for greater investment in human capital in Portugal: he level of tertiary level attainment in Portugal is still quite low compared to its competitors and the need for raising productivity levels and its international competitiveness, which is essential for improving economic growth prospects. There are, of course, other social objective arguments, which are discussed more fully in the chapter on equity. The level of resources devoted to human capital formation would, therefore, need to expand in the long-term. The important task over the immediate term is to fully and efficiently use the excess capacity that exists in the tertiary sector.

1.43 The level of public expenditure on tertiary education in Portugal, 1.04% of GDP (BR, Figure 2.7, page 68, 2001 data), while similar to the average for EU-15 countries, and is significantly below such countries as Denmark, Finland and Sweden. Even though these data across countries are not strictly comparable because of problems of coverage and definition, it is important to note that the countries that are trying to catch-up with more developed tertiary education systems are likely to need more investment as a proportion of the GDP compared with more advanced countries. Public expenditure on tertiary education will need to expand progressively over the long-term in line with the expansion in enrolment that would need to be stimulated.

1.44 Public investment in higher education expanded significantly only after Portugal joined the EU in 1986, with the financial support from the European funds. Until then, the expansion of the tertiary system since the early 1980s was achieved through the development of private institutions, both universities and polytechnics. Spending per student in Portugal is relatively low (excluding R&D activities), both by OECD standards and *vis-à-vis* other levels of education (Figures 1.6 and 1.7).

REFERENCES FOR CHAPTER 1

BR, Background Report (2006), MCTES, May version.

CBR, Country Background Report, (2006), prepared by MCTES for the OECD thematic review of tertiary education.

Cabral, S. (2004), "Recent evolution of Portuguese export market shares in the European Union", Banco de Portugal, *Economic Bulletin*, December.

Cardoso, P. (2005), "Household behaviour in a monetary union: what can we learn from the case of Portugal?" ECFIN *Country Focus*, Volume 2 Issue 20, December.

OECD (2003), *The sources of economic growth in OECD countries*.

OECD (2006), *Economic policy reforms: going for growth*.

Conceição, P., and M. V. Heitor (2005), "Innovation for All? Learning from the Portuguese path to technical change and the dynamics of innovation", Westport and London: Praeger.

CHAPTER 2: SYSTEM DIVERSITY AND SYSTEM CO-ORDINATION

A. INTRODUCTION

2.1 Diversity within higher education is an important policy question in most higher education systems. In general policymakers believe that a differentiated or diversified higher education system (in terms of many factors – types of institutions, study programmes, modes of delivery, student profiles etc.) is essential if the needs of a diverse range of learners and the needs of complex knowledge societies are to be met. Many see increasing diversity as a necessary consequence of the rapid growth in higher education enrolments and the movement of many higher education systems from elite to mass systems.

B. THE CURRENT SITUATION IN PORTUGAL

2.2 In terms of systemic diversity Portuguese higher education is fairly diverse as regards the types of institutions that constitute the system. There are three major lines of institutional differentiation: a binary distinction between universities and polytechnic institutions,[4] a distinction between specialised schools typically with a single focus area and larger integrated multi-focused institutions, and finally the co-existence of both public and private sectors of higher education. The overall institutional landscape can be seen in Table 2.1.

Table 2.1 Number of university and polytechnic institutions, 2006

	University		Polytechnic	
	Universities	Other Schools (not integrated)	Polytechnic Institutes	Other Schools (not integrated)
Public	14	5	15	16
Private	13	35	2	60
TOTAL	**27**	**40**	**17**	**76**

Source: Background Report

2.3 These 160 higher education institutions range in size from five multi-faculty universities graduating around 3000 students each per year to 29 private institutions with an enrolment of less than 200 students each. Overall enrolments in 2004 were 209,000 university students and 165,000 polytechnic students.

2.4 The basis of the binary distinction between universities and polytechnics is a multi-faceted one. Decree-Law 74/2006 establishes the programme distinction between universities and polytechnics in the context of the Bologna three-cycle qualification structure. Both universities and polytechnics offer *licenciado* and master degrees, only universities offer the doctorate. University *licenciado* degrees are 180-240 ECTS while those in polytechnics are 180 except in very specific cases where national or European regulations or practice require this. Furthermore, polytechnic first degrees "must value particularly training actions targeted at the practice of a professional activity, ensuring a component of application of the knowledge acquired to the actual activities of the respective professional profile". At the master degree

[4] The binary line is a complex one: 18 polytechnic schools are part of universities.

level polytechnic degrees must "ensure predominantly that the student acquires a professional specialisation" in contrast to university degrees that must "ensure that the student acquires an academic specialisation resorting to research, innovation or expansion of professional competences".

2.5 The research function, like PhD studies, is seen as a university responsibility with polytechnics having an important role in R&D linked to local industry and regional development. The Background Report indicates that the "research university" model has been tentatively generalised within public universities while the "teaching university" model has been recognised mainly in private universities and public polytechnics. Nevertheless in submissions made to the panel it is clear that research is concentrated primarily in universities located in major cities and is not a major component of the work of all public universities, particularly as research funding becomes more selective. A number of private universities offer PhD programmes and have serious research aspirations.[5] Many polytechnics believe that they should be enabled to offer PhD programmes and are investing significant resources in upgrading staff qualifications to the doctoral level (in 2004, 10% of polytechnic staff held PhDs but there are many more in the pipeline).[6]

2.6 There are significant differences in governance structures, levels of autonomy, human resource management and funding arrangements between public universities and polytechnics. Some but not all of these differences have a logic that can be traced back to differences in the ascribed functions of the two types of institutions.

2.7 There are no formal requirements for the size of schools and integrated institutions in the public sector. Some 30 public schools enrolled less than 100 first year students in 2005. Compared to many other OECD countries the legal position of constituent schools/faculties within integrated institutions is a strong one. Six of the 14 public universities are organised on the basis of relatively independent schools. Schools are also important entities in the public polytechnic sector. The aggregation and disaggregation of schools into and out of larger institutional units has been a particular feature of the development of higher education in Portugal.

2.8 The private sector grew rapidly in the 1980s and 1990s but has begun to decline since then both in terms of student enrolments (from a high of 121,000 in 1996 to 98,000 in 2004) and the number of institutions (22 private institutions ceased activity in 2005). The newest private university was created in 1996 and the newest private polytechnic in 2001.

2.9 Beyond these major lines of sectors and size, regional and locational differentiation are also important: four of the 14 public universities are located in the interior of mainland Portugal, two on the islands and eight in the more developed coastal area. Seven of the fifteen public polytechnic institutes are located in the interior. This has significant implications in terms of the mission and focus of the institutions and, in general, institutions in the interior are experiencing the brunt of the declining number of entrants and the increased competition for students that this has brought with it. It is also evident that Portugal's higher education capacity is unevenly distributed: the eight universities in major coastal cities produce around 85% of the system's PhDs.[7] 40% of public and 70% of private higher education places are offered by institutions in Porto and Lisbon. While this mirrors demographic trends (the United Nations estimates

---

5 27 of the 433 FST accredited research centres are based at private institutions (and a further 14 at the Catholic University). Eight are based at public polytechnics.

6 Submissions identify weightings in the funding formula, the need for PhD staff if polytechnics are to offer master programmes, the use of the proportion of PhD staff as a quality indicator, and the aspiration to achieve university status as four of the underlying reasons for this trend.

7 Given that research funding is increasingly channelled through (multi-institutional) research centres rather than directly to universities this is a convenient indicator of institutional research intensity.

that 85% of the Portuguese population may be concentrated in Lisbon and Porto by 2015) it raises a series of questions concerning the role of higher education in regional economic development and the level of internal student mobility that is desirable and achievable.

2.10 In terms of programmatic diversity the picture is a mixed one: on the one hand Portugal has over 2600 study programmes registered for the 2005/6 academic year, yet on the other hand fully 1900 of these are "long-cycle" *licenciatura* programmes.[8] While submissions to the panel argued that a rationalisation of degree names would reduce the apparent number of distinct programmes considerably, the dominant position of longer cycle programmes is still striking. There were 80 three-year *bachalerato* programmes registered as well as 40 shorter-cycle technological specialisation programmes (*CETs*) although the latter programmes had a combined enrolment of only 1300 students. Equally striking has been the major growth in PhD enrolments and completions: Portuguese universities' production of doctorates grew from around 200 per annum in the early 1990s to around 800 per annum a decade later.

2.11 In terms of the mix of students by field of study the different sub-sectors have different profiles as can be seen in Table 2.2.

Table 2.2 Enrolments in Public and Private Institutions by disciplinary area, 1997/98

Scientific area	Private sector				Public sector			
	Polytechnic		University		Polytechnic		University	
	Number	%	Number	%	Number	%	Number	%
Education	9 614	35.7%	280	0.3%	10 276	14.1%	16 615	10.8%
Arts and Humanities	1 766	6.6%	7 599	8.1%	2 868	3.9%	19 006	12.3%
Social Sc., Commerce, Law	9 570	35.6%	61 523	65.5%	22 321	30.7%	38 031	24.7%
Sciences, Maths, Informatics	1 089	4.0%	5 925	6.3%	1 349	1.9%	23 188	15.1%
Engineering, Manufacturing and Building Industries	1 162	4.3%	9 324	9.9%	23 518	32.4%	35 166	22.8%
Agriculture	0	0.0%	59	0.1%	3 379	4.6%	6 441	4.2%
Health and Social Protection	2 651	9.8%	5 864	6.2%	6 560	9.0%	8 925	5.8%
Services	1 065	4.0%	3 340	3.6%	2 420	3.3%	6 579	4.3%
Total	26 917	100.0%	93 914	100.0%	72 691	100.0%	153 951	100.0%

Source: Background Report - from OCES, 2005

2.12 In terms of diversity of the student population the background paper highlights important changes in the social composition of the student body: women are now in the majority in all sub-sectors (although not all subjects) while access for students from families with low educational qualifications has increased considerably although middle and upper class groups are still significantly over-represented, particularly in the most prestigious institutions and programmes. Differences in student background are more significant between universities and polytechnics than between public and private institutions.

8 The first two-cycle "Bologna" programme proposals were submitted in spring 2006.

Table 2.3 Distribution of enrolments by level of schooling of the household (%)

Level	63/64	91/92	1997				2004			
			Public univs.	Public polytech.	Private	Total	Public univs.	Public polytech.	Private	Total
Illiterate/ –	35.2	25.3	39.3	53.3	47.2	45.0	30.0	50.0	27.2	34.9
Secondary	27.4	19.2	35.7	36.3	34.4	35.4	29.2	29.6	29.4	29.4
Voc. degree	8.7	8.1				6.5	–	–	–	–
Higher education	27.5	18.1	24.7	10.4	18.3	13.1	40.8	20.4	43.4	35.7
Other/NA	1.2	27.1					–	–	–	–

Source: Background Report - from Vieira 1995; CNASES 1997; DGES 2005

Table 2.4 Enrolments by level of household income, 2004

Household income €	Public university %	Public polytechnic %	Private institution %	Total %
Less than 720	13.6	20.1	11.2	14.8
721–1440	28.5	38.8	26.0	30.7
1441–2160	21.6	22.2	19.3	21.1
2161–2880	15.2	10.9	16.9	14.5
More than 2880	21.1	8.0	26.6	18.9

Source: Background Report - from DGES 2005

C. CURRENT CHALLENGES AT A SYSTEMIC LEVEL

2.13 The Background Report prepared for the panel identifies the following major challenges at the systemic level[9].

- Regulating and accrediting the supply of tertiary education: how to foster diversity and quality, with the necessary specialisation? Which level of public regulation to facilitate the adequacy of the supply of tertiary education to the labour market?

  - The overall structure and network of tertiary education institutions is a major concern. The system grew unabated in the last decades, with a number of institutions achieving excellence, but many others still requiring the necessary human resources to provide quality education and research.

  - The objective and mission of public and private universities and polytechnics needs clarification, while the rationalisation of the overall system has been questionable.

  - Main issues to be assessed include the number and type of higher education institutions; the accreditation of degree courses; the geographical spread of higher education institutions throughout the country.

  - How can the binary model (university – polytechnic) best meet the needs of Portuguese society in Europe, given the historical context in which these higher education institutions developed?

[9] The following two paragraphs have been taken (in edited form) from the Introductory Note.

- Governance and institutional autonomy in higher education: Which legal statutes and systems to foster modern institutions?

    - New structures of governance of tertiary education have been layered in Portugal, as well as in many other OECD countries, creating an amalgam of complex, and sometimes ineffective, systems of governance.

    - Tertiary education needs modern and efficient governance systems, focusing on emerging challenges and opportunities facing institutions and their resources. They need to be attuned to the social and economic needs of the market and society, as well as to the increasingly emerging opportunities of science and technology.

    - Tertiary education institutions need to be more responsive to societal needs, but in a way to foster their own independence in guiding the frontiers of science and knowledge.

    - How can policy measures facilitate tertiary education institutions to attract new publics for life-long learning, adult and vocational training?

2.14 On the basis of extensive discussions within Portuguese higher education, the panel has identified the following additional challenges: declining enrolments (and their differential impact by sub-sector), the existence of cohorts of potential students with ability that are not catered for at present, low through-put rates within higher education, a very limited emphasis on short-cycle programmes, and the inward focus of much of the Portuguese higher education system (reflecting a strong academic culture and the limited involvement of external stakeholders in systemic policy formulation and institutional governance). While a number of these challenges are considered in more depth in the chapters on access and governance it is important that they are borne in mind when considering how best to steer the system so that it is able to respond effectively to these challenges.

Current steering mechanisms

2.15 This section considers how key elements of the Portuguese higher education system are currently co-ordinated and managed and the steering instruments that are available to those responsible for system-level co-ordination.

Institutions and study programmes

2.16 One of the most fundamental issues of system co-ordination is the number and type of institutions that constitute the system and their respective roles and responsibilities. Within the broad binary framework outlined above, the Portuguese government exercises close supervision over the entry of new institutions into the system. Public institutions are established by an Act of Parliament – the last public university to be established was the University of Madeira in 1988 and the newest public polytechnic is the Tomar Polytechnic that started in 1997. In terms of public institutions the Portuguese higher education system has thus experienced a decade of stability following rapid developments in the two preceding decades. In the private sector the situation has been far more dynamic. Over 100 private higher education institutions have been approved since 1986 within the framework of legislation on private and cooperative education enacted in 1979, 1989 and 1994. The role of the Ministry in the establishment of new private institutions is to ensure that they meet legal, financial, capacity and programme offering requirements. The question of the need for new institutions, demand for their programme offerings and how they will fit into the existing network of tertiary institutions are not explicit criteria.

2.17 Once established, institutions, both public and private, are free to determine their own missions and strategies within the broad binary framework but subject to the important proviso for public polytechnics and private institutions that all new study programmes need approval from the Ministry (public universities need only to register new programmes). Once again however the basis for approval is whether the programme meets formal requirements and whether the institution has the capacity to offer the programme. Demand for the programme and how it will fit into the existing regional and national pattern of programme provision are not explicit criteria. For public institutions a further constraint is that if new programmes require an absolute increase in staffing levels at the institution this needs the approval of the Ministry of Finance, which is difficult to secure.

2.18 Even if legislation made provision for the demand for new institutions/programmes and for their place within the existing network of institutions/programmes to be criteria used in assessing proposals for new institutions/programmes, there is no clear basis on which this could be done. Although the Portuguese Technological Plan and the current government have developed ambitious targets for higher education, successive governments have managed the higher education sector without an explicit national plan or planning framework. In the absence of such a framework judgements about the appropriateness and relevance of new institutions/programmes become very difficult to make on a transparent basis.

2.19 The current system of programme approval has the further limitation of attempting also to register/approve curriculum changes within existing study programmes. This coupled with the volume of new programme proposals (almost 400 in 2005) has made the procedure almost untenable with many submissions to the panel suggesting that it can take a year or more to hear the outcome of a proposal. Clearly this is a major constraint on institutional responsiveness and curriculum relevance, as well as an understandable source of considerable frustration for the institutions. Decree-Law 74/06 makes provision for a national accreditation system based on best international practice and a report has been commissioned from the European Network for Quality Assurance in Higher Education (ENQA) on a new structure for quality assurance and accreditation.[10] There is a strong expectation within the higher education community that the new system and procedures will treat institutions on an equal basis and that the preferential position of public universities (registration of new programmes only) should come to an end.

Students and study places

2.20 The Ministry plays an important role in steering the overall size and shape of the higher education sector through overall access[11] and admissions policies and through the determination of *numerus clausus* limits for new students for all study programmes in both the public and private sectors. As indicated in the previous section it does so without a formal national higher education planning framework indicating desired growth patterns or desired changes to the student mix across broad study fields. It is clear that *numerous clausus* limits have been used in an attempt to steer the regional distribution of students but the basis on which this is done, and the extent to which this acts as a break on access is not known.

2.21 A first key steering instrument is the determination of the minimum national admission requirements for tertiary education. At present this is an upper secondary school leaving certificate together

---

[10] The panel has not given detailed consideration to these questions given that the ENQA review was taking place in parallel to its work. In terms of steering mechanisms it is however fair to conclude that the existing quality assurance system (CNAVES) despite evaluating over 1500 degree programmes since 1995 was not used by successive governments as a steering instrument as no action or consequences flowed from the outcomes of these assessments.

[11] The question of enhancing access to tertiary education is considered in more detail in a separate chapter of this report.

with a minimum grade of 95/200 in the national access examinations. The latter requirement was introduced in the 2005/6 academic year and is the subject of some controversy in terms of it limiting access within an already limited cohort of students that complete upper secondary education. A number of institutions set additional requirements over and above this minimum standard. The current emphasis on greater selectivity contrasts enormously with the situation in the late 1980s and early 1990s when admission requirements were reduced and a reform of upper secondary education facilitated access to tertiary education thus creating a significant increase in demand that the public sector could not accommodate. (Private sector enrolments increased from 24% of the total in 1989 to 36% in 1996. In 2004 this share had dropped to 26%.) In a context of declining numbers of candidates, a more selective access policy has major implications for less popular institutions and programmes. Institutions in the interior of the country (and particularly the polytechnics) are the most vulnerable given strong student preferences to study close to home, in the coastal cities and in university programmes.

2.22 In the 2004/5 academic year the number of study places in public institutions was equal to the number of eligible candidates. Given that the private sector enrolled some 25% of the new entrants it is evident just how competitive the situation has become for higher education institutions. Many submissions to the panel argued that, despite the extensive *numerus clausus* system, admissions are not effectively regulated (rather being left to the market and student preferences) and that this has perverse consequences in terms of admission criteria, the proliferation and copying of popular programmes and a growing number of institutions, both public and private, facing serious challenges to their sustainability. The Review Team believes that a major factor behind these perverse consequences is that the level of public information on course content, programme goals, quality, career opportunities and graduate employment is inadequate or unavailable.

2.23 An important access policy change is the recent provision for students over the age of 23 years to enter higher education without having met the minimum admission requirements outlined above. This potentially creates a new target group for higher education providers but will require programmes that articulate well with the learning backgrounds and experience of this new group of students.

Financial and human resources

2.24 In many higher education systems a complex set of financial incentives and rewards have become the dominant mode of system steering. While the specific features of the Portuguese system of resource allocation in higher education, tuition fee policies and public provision for student financial aid are the subject of Chapters 4 and 6, a number of general observations are important to this discussion of steering mechanisms.

2.25 The direct basic ("teaching") funding of higher education institutions despite the recent introduction of quality indicators in the funding formula is predominantly driven by student numbers which is a major contributing factor to the highly competitive situation. While the concept of "students enrolled for courses approved for public funding" is part of the legislative provision, the option of not funding certain study programmes at public institutions has only been adopted since 2005/6 in terms of the Ministry's decision not to fund students in programmes with an intake of less than ten students (rising to 20 in 2006/7). Nevertheless, this provision together with the setting of *numerus clausus* limits could provide the basis for a more proactive approach to managing the size and shape of the (public) higher education system.

2.26 Alongside this direct basic funding are contract funds for specific programmes and development activities. These "earmarked" funds could provide a useful policy lever for the Ministry to encourage institutions to develop in areas seen as high priorities for the system such as the introduction of professionally orientated short-cycle programmes or the admission of increasing numbers of adult learners.

2.27 Student financial aid provision is an important element in broadening access to higher education and is available to eligible students irrespective of whether they decide to study in the public or private sectors. At present there is no attempt to link student financial aid policy to other higher education policy priorities but it might be possible to make such links in the future (for example, special grants to students to study at institutions with excess capacity or in study programmes judged to be important for socio-economic growth).

2.28 Tuition fees are an important source of income for public institutions and the major source of income for private institutions. Since 2003, public universities and polytechnics have been free to set tuition fees for graduate programmes within a range set by the Ministry. Most universities have set tuition fees at or close to the maximum of €900 per annum, while tuition fees in the polytechnic sector are generally lower (mainly in the €500 - €700 range). At postgraduate level and in the private sector there are no maximum limits. The introduction of the "Bologna" degree structures will broaden the range of (second-cycle) programmes where fees are not regulated by the Ministry. The extent to which price is a major determinant of student choice and hence a critical factor in institutional competition for students is not clear although the scope for price differentiation at the graduate level is fairly limited in the public sector. Private institutions continue to attract significant numbers of students despite there being unfilled places in the public sector which suggests that location (particularly the ability to stay at home) may be a more influential factor than tuition fee levels.

2.29 The question of the funding of research and innovation is considered in depth in chapter 5 of this report. It is worth noting here, however, the very different steering approach used in this regard. Research funding has been strongly brought into line with an overall strategy to enhance Portugal's capacity in science and technology. This has entailed new and innovative approaches and procedures including direct performance based funding of research units (linked to periodic international review), competitive funding for R&D projects and the establishment of new organisational units with more financial and human resource flexibility than universities.

2.30 In the area of human resources policies and management Portuguese public higher education institutions have very limited degrees of autonomy. While the situation varies between the university and polytechnic sectors (the latter having less autonomy in this respect), the overall situation is one of staff members (academic and support) being employed by the institutions as civil servants, the Ministry of Finance controlling the overall numbers of staff as well as those that can be hired on a permanent basis, salaries and conditions of service (including teaching loads which are nationally monitored) being set on a national basis with very little room for institutional innovation or merit-based reward systems, and the academic career structure being prescribed in law for both the university and polytechnic sectors. All of these regulations have a profound effect on the public higher education institutions and limit their ability to respond flexibly to the challenges identified earlier. These issues are considered in more depth in chapter three on institutional governance.

D. FUTURE GOALS: PORTUGUESE HIGHER EDUCATION 2010

2.31 The work of the panel has been helped enormously by the clarity of the Portuguese Government's goals for 2010 in the context of the Lisbon Strategy and the Portuguese Technological Plan. These goals include ambitious targets for 2010 in terms of increased enrolments and through-put in higher education both for the traditional age cohorts and for adult learners, and a particular emphasis on science, engineering and technology. The Background Report identifies a number of priorities for the government in the area of higher education system reform that will be necessary if these targets are to be met. These include [12] implementing the Bologna European process, reform of institutional governance, institutional

[12] The following points have been taken (in edited form) from Part IV Main Issues and Challenges.

autonomy, a national programme accreditation system, student access issues and equality of opportunity and the relationship between the university and polytechnic systems.

E. ACHIEVING A DIVERSE AND RESPONSIVE HIGHER EDUCATION SYSTEM

2.32 In the judgement of the review panel, Portugal will not achieve the ambitious goals it has set for its higher education system in the context of the Lisbon strategy unless significant reforms and policy changes are made in three key areas relating to system co-ordination and six important aspects of system diversity.

System co-ordination

Development of a national higher education planning framework: A National Council for Higher Education

2.33 A number of key goals for Portuguese higher education in 2010 are clear and ambitious. How they will be achieved and what they mean for the shape and size of the higher education system is less clear. The panel does not believe in detailed blueprint planning of higher education systems and understands the reservations of institutions that see the introduction of a planning framework and process as just one further bureaucratic demand on their time and resources. Nevertheless the panel strongly recommends that the various goals and policy objectives that impinge on higher education be integrated into a single planning framework that is translated into a broad picture of what this may mean for the system in terms of changes in student enrolments in different sectors, fields and programme levels over the next five years, and how this will be resourced. This broad system-level picture of the future "size and shape" of the system (updated on a regular basis) is a pre-requisite for effective institutional level strategy and planning.

2.34 The integration of these various goals and objectives into a single planning framework is a task of fundamental importance to Portuguese higher education: it entails cross--portfolio co-ordination between different Ministries; and provides an opportunity to involve external stakeholders at the highest level of higher education policy development. The need to integrate policy across different policy areas is clear: a vibrant Portuguese higher education sector needs reform in upper secondary education, must be well-articulated with the science and technology system, needs to be linked to developments in the labour market and to Portugal's ambitious plans flowing from the Lisbon strategy. What is needed is a structural way of ensuring that this happens. Putting the argument another way: higher education is of central importance to Portugal's economic strategy and its development of a knowledge economy; this implies that high-level strategy for the sector must involve high-level input from the state, the market and academia.

2.35 The Review Team proposes the establishment of a new national council charged with responsibility for overall higher education strategy in Portugal. It has noted the new organic law of the Ministry of Science, Technology and Higher Education (Decree-Law 214/2006 of 27 October 2006) that makes provision for such a council: the *Conselho Coordenador do Ensino Superior (CCES).* The Review Team proposes that CCES should be a "statutory committee" not a new statutory organisation with its own staff. It would meet three or four times a year and would be charged with developing proposals for the overall strategy for the higher education system. The Review Team suggests that the composition of CCES might be based on the following suggestions: that the Chair be the Prime Minister (or nominee) while the Deputy Chair be the Minister of Science and Technology and Higher Education (or nominee); the Secretary to CCES should be the Director of the office responsible for HE Policy within the Ministry of S&T and HE (GPEARI as outlined in the new organic law). A membership of some sixteen persons should be considered – the State Secretary of S&T and HE, 5 Senior representatives (but not Ministers) of cognate government Ministries/Agencies (responsible for Education, Labour, Finance, Research and Innovation

etc.), 5 Members drawn from business, industry and civil society and 5 Senior academics (but not Rectors or Vice-Rectors), the latter two categories being appointed by the Prime Minister for a five year term after a public call for nominations and subsequent consultation with key representative stakeholder bodies. These members would thus be appointed in their individual capacities as "wise persons" and not as representatives of particular constituencies). [13]

2.36 The terms of reference of CCES should be clearly focussed on higher education strategy and not on the co-ordination of the system within this strategic framework, which should be the responsibility of the Ministry. In particular, CCES should be charged with developing:

1. Strategic goals and priorities for the development of Portuguese Higher Education including the relationship of the goals for the university and polytechnic sectors (for the approval of the Council of Ministers)

2. A HE planning framework flowing from these strategic goals, and its subsequent monitoring and adjustment on an annual basis.

3. A broad set of objectives based on this HE planning framework to provide the basis for the Ministry's negotiation of performance agreements with individual institutions (see below).

2.37 CCES should be supported by a new office of higher education policy in the Ministry (as indicated in the new organic law) with new staff members with high-level policy and information gathering/analysis skills. It should also have a substantial budget to commission research and policy papers, and to employ international experts. The latter suggestions are intended to give Government the capacity to benefit from independent advice, and the advantages this brings in developing arguments for reform; in having ideas floated publicly to take the debate forward but from which it can distance itself as necessary politically; and in having an arms-length evaluative capacity. The Council could establish task forces (typically including Council members augmented by other experts), or commission independent analyses, or invite speakers to address it. This enables Government to engage in the discussion without having to own any particular idea. Importantly too, the Government is able engage with information that otherwise might have been lost, or not as well integrated, in the normal flow of advice from the separate ministries.

2.38 In fulfilling its mandate, CCES will clearly need to consult with the key representative bodies (Rector's Conference, Academic Unions, Student Organisations). Its proposals for strategic goals and priorities for the development of Portuguese Higher Education can be challenged by any of these bodies, and by other Ministries, with the final say held by the Council of Ministers. This places final responsibility for higher education strategy at a very senior level of government, which is appropriate given its central importance to the achievement of Portugal's Lisbon strategy goals.

Negotiated institutional contracts

2.39 The contribution of institutions to the achievement of national strategic goals for the higher education sector will vary according to their particular niches. The challenge in co-ordinating a diverse

[13] A number of countries have such high-level advisory structures concerned with higher education, science and technology or research and innovation (including Finland, Australia and the Netherlands). The panel believes that the challenges facing higher education warrant a body whose primary focus is on strategy development for the higher education system, recognising that its tasks will have to be carefully articulated with those bodies responsible for closely related policy areas (Science & Technology, Research and Innovation). Portugal may wish to study these structures in other countries in more detail in coming to its own formulation of how a CCES might best operate.

higher education system is how to steer the system in such a way that this differential contribution is realised. Earlier in this chapter the current steering mechanisms were outlined. In important respects these constitute a mixture of under-regulation (new programmes, heightened institutional competition for students and mission drift) and over-regulation (human resource management, curriculum changes and financial controls).

2.40 One policy approach to this sort of challenge that the review panel believes would offer much to Portugal is the idea of performance agreements or contracts negotiated between the Ministry and individual institutions. Such agreements recognise that national objectives need to be differentially translated into institutional plans in a way that is very difficult to achieve through funding formulae, general policies and accreditation procedures. Such agreements or contracts allow goals such as increasing the number of short-cycle graduates to be addressed directly (institution X agrees to graduate Y professional diplomates over the next 5 years and this is part of its agreed funding package and of its evaluation criteria in the next round of negotiations) but require a significant change in steering philosophy. This sort of differentiated policy cannot take root in a system based on "one size fits all" co-ordination mechanisms and "equal treatment" – it requires legitimacy,[14] "fair treatment" and the explicit recognition of institutional diversity. It also requires considerable discipline on the part of the Ministry not to make the contracts, negotiations and assessment too detailed - covering numerous aspects of the institution's core business. The arguments for a broad - brush, strategic, priority-driven approach are strong ones. The Review Team recommends that the basic "teaching" funding[15] of higher education institutions be allocated through performance contracts negotiated by the Ministry with each institution on the basis of broad objectives determined by CCES.

Strengthening steering capacity

2.41 The differentiated steering approach to a more diversified Portuguese higher education system that is proposed in this chapter will require considerable additional steering capacity in the Ministry and other central agencies. This policy and planning capacity is fundamental to the success of the changes proposed by the panel. In general this is not a question of expanding the human resources of the Ministry and Directorate General but rather a question of changing tasks and responsibilities and reframing the focus of system governance onto broad-based goals and data-driven indicators of performance as the basis for the negotiated contracts with the institutions. Many of the time consuming over-regulatory functions would disappear and be replaced by a greater role in planning and policy matters, in the development of indicators and the knowledge base for the development of policy and in the systematic evaluation of the outcomes of such policies and plans. The Ministry and its proposed office for HE policy will also play a key role in bridging high-level strategy development (in its role of providing professional support to CCES) and the implementation of this strategy (in its role in the negotiation of institutional contracts). A high priority will need to be given to staff recruitment, training and development.

2.42 In some countries high-level councils such as CCES have their own professional support staff. The Review Team has not proposed this as it is of the opinion that a Ministry of Science &Technology and Higher Education should be a specialist "policy orientated" Ministry in contrast, for example, with a large Ministry of Education that is necessarily implementation and delivery orientated. In this context it makes little sense organisationally to out-source key policy and information gathering/analysis responsibilities. The Ministry would also be better able to service the national innovation strategy (in terms of skills formation and research capacity development) if it had more professional policy capability of its own.

---

[14] The question of how this legitimacy might be structured in Portugal is considered in the chapter on system and institutional governance.

[15] Unlike the current contracts that cover only a very small proportion of public funding (1%) these contracts would replace the current formula derived basic funding for teaching.

System Diversity

New publics, new programmes

2.43 The Review Team strongly supports the conclusion of the Background Report that "Contrary to what is sometimes affirmed, Portugal does not have too many graduates, but actually has too few". The key question is what sort of graduates does Portugal need more of? It is evident from a number of submissions that the major source of new graduates will not rely only on an increase in the number of traditional upper secondary school leavers following the general education stream. The "New Opportunity Programme" aims to increase the offer of vocational programmes in upper secondary education by 100,000 places so that these programmes enrol half of the upper secondary school population by 2010. The change in access policy that allows students over the age of 23 to enter higher education without the traditional entrance requirements creates a further opportunity to increase the number of graduates if higher education institutions can respond effectively to the challenges of recognising prior learning and providing programmes well articulated to the need of these new learners.[16]

2.44 In this context it is of paramount importance that the diversity of study programmes be increased significantly. The Review Team is of the firm opinion that Portugal does not need increasing numbers of graduates from research-orientated long-cycle university programmes solely. A significant area of growth should be first-cycle professionally orientated programmes and short-cycle vocationally orientated certificate and diploma programmes. These programmes fit with the profile of the new student groups outlined above, but their provision within a higher education system where university professors and academic values play such a dominant role is a major challenge. In short, we argue for an increase in higher education student numbers and a rebalancing within these increased numbers in favour of vocationally oriented bachelors programmes and particularly, short-cycle vocationally oriented programmes in the polytechnics (as is already evidenced in the five-fold increase in students enrolled for Technical Specialisation Courses in 2006/7, primarily in the polytechnic sector).

Clarification of institutional types and their functions

2.45 Within the broad binary framework confirmed in Decree-Law 74/2006 the primary institutional location of first- and short-cycle professional programmes should be the polytechnic sector. Yet the aspirations of many in this sector are in the opposite direction: the further development of Master programmes, an increase in the proportions of staff holding PhDs, an attempt to secure the right to offer PhD programmes, the expansion of research programmes and eventually the achievement of university status. To some extent these aspirations reflect traditional academic values (that drive academic drift in many countries), but they are also strategic responses to the inadequacies of the current policy environment within which the polytechnic sector works. The mechanisms for resource allocation, levels of institutional autonomy, programme accreditation procedures and human resource management policies all need to be reformed to create a policy environment in which professionally orientated polytechnic institutions can create a sustainable future that is distinct from traditional universities. Equally important is the corollary of the creation of this new policy environment: universities should not be rewarded for entering programme areas that are outside their core area of business in an attempt to recruit students in an increasingly competitive market. In short, the Review Team proposes that the binary framework be maintained and strengthened. The major mechanisms for doing this should be the negotiated performance contracts outlined above as well as the significant changes in institutional autonomy and governance proposed for both universities and polytechnics in the next chapter.

---

[16] A third source of new graduates is obviously to reduce the non-completion rates amongst those who do enter higher education.

Differentiated increases in institutional autonomy

2.46 The forms of co-ordination appropriate for institutions in different stages of development, and with different institutional missions and capacities may vary significantly. Are different approaches possible? This leads to another question of differentiated policy, to the challenge of moving beyond uniformly applied (one size fits all) co-ordination and to what this might mean in Portugal. The essential argument is that while goals and targets for the system are essential, and while systemic co-ordination is a necessary pre-condition for achieving these goals and targets, the contribution of each institution to the overall objectives will be different, and the optimal co-ordination mechanisms appropriate for each institution may vary. In Portugal this is particularly important given the high levels of institutional diversity within the system: from large urban multi-faculty universities to institutions in the interior facing declining enrolments to small single-discipline schools.

2.47 The panel heard a number of submissions that stressed the importance of finding a new legal status for universities and polytechnics which could (progressively) provide them with more autonomy, opportunities for institutional development and human resource flexibility. Different alternatives such as a Foundation or a new type of public entity were suggested. This is a complex and technical Portuguese juridical question that is beyond the competence of the review panel. Nevertheless, the panel is convinced that resolving this question is of paramount importance so that Portugal's public higher education institutions can be granted a significant increase in institutional autonomy. This is an essential prerequisite for achieving a diverse and responsive system, and for creating the conditions in which a system of negotiated institutional contracts can be introduced. The Review Team believes however that this increased institutional autonomy needs to be introduced differentially and over time depending on the capacities of the institutions (including internal governance and management reform), and the extent of the challenges they face. This question is addressed in more depth in the chapter on institutional governance.

Programme licensing and accreditation, and the "Bologna opportunity"

2.48 Differential contributions to national goals should also lie at the very heart of the programme approval process. As indicated earlier the panel has not paid detailed attention to the question of the envisaged new accreditation structure and process given that this is the subject of a separate review by ENQA. Nevertheless it is important that the "planning/relevance/fit with the national programme network" dimensions of programme accreditation are not overlooked. The current provisions in the funding system that allow the possibility of approved programmes that are not publicly funded coupled with the negotiated institutional contracts proposed above are a better approach to these dimensions than burdening the (new) accreditation agency with questions of planning and programme priorities. In other words, programme accreditation by the new agency should not carry any right to public funding. The latter will be determined in the process of negotiating institutional contracts where criteria of relevance will be a key consideration. This separation of "quality" and "relevance" is particularly important given the enormous workload the new agency will have, not least in the context of the current introduction of the new three-cycle degree structure.

2.49 Programme approval enters new territory when it moves beyond new programmes to the withdrawal of funding from existing programmes. The Portuguese national programme landscape has grown rapidly over the past decade and there are strong arguments for rigorous programme planning and rationalisation. Here the possibility of differentiated autonomy arises once again. Annual or periodical programme negotiations and the setting of numerous clausus limits may be necessary for institutions with no tradition of rigorous institutionally based programme approval procedures but unnecessary for institutions with clear and sound missions and demonstrated strong internal planning procedures. The issue is not a simple one and designing the rules is always a challenge, but the point is a clear one. Similar points could be made in the area of quality assurance and institutional accreditation: allow "self-accreditation" or

lengthy intervals between external evaluations for institutions that have proved the effectiveness of their own systems. What is important is that the criteria behind such different requirements are clear, transparent and capacity-based. The current differential requirements for universities and polytechnics and for public and private institutions should not be continued; neither should detailed control over curriculum changes.

2.50 It is recognised by the Ministry that the implementation of the "Bologna process" provides a unique opportunity for the renewal of study programmes in Portugal, and for a reconsideration of educational processes with a greater focus on student learning and outcomes, as well as a more explicit concern for the links between study programmes and the labour market. These issues are considered in chapter four on educational programmes, access, quality and relevance. In terms of the focus of this chapter – system diversity and system coordination – it is of paramount importance that this window of opportunity is used to the fullest extent. Portugal finds itself in a difficult position in that the first wave of "Bologna" study programme proposals are flooding in at a time when the structure and procedures of the new accreditation agency are still under review. The Review Team believes that in this context it is important that careful attention is paid to the nature of the transitional arrangements (leaving the window of opportunity for change open), the initial priorities of the new accreditation agency, and the development of steering capacity more generally within the Ministry and other central agencies.

Rationalisation of the institutional landscape

2.51 The need to both diversify and rationalise the *programme* landscape has been stressed in previous sections. A key question raised in the Background Report is whether there is a similar need to rationalise the *institutional* landscape. This section focuses on the public higher education sector while approaches to the private sector are considered in a subsequent section. As a fundamental point of departure the Review Team believes that in a context of planned growth, broadened access and limited resources existing higher education capacity should not be lost, and that while existing institutions may need to be "down-sized" they should not be closed. The real focus of the rationalisation question is then organisational reconfiguration including possible mergers.

2.52 The first form of rationalisation concerns internal management and governance: in Chapter 3 on governance the Review Team proposes a strengthening of the institutional level within universities and polytechnics that will have the effect of reducing the number of relatively autonomous organisational units within the system. A second question concerns the 21 universities and polytechnic schools currently not integrated into larger institutions. These are primarily military and nursing schools[17] and while the panel favours larger comprehensive institutions in general, it does not have enough detailed information on these two specialised sectors to make firm recommendations. (The proposals made above concerning differential policy would allow smaller single-focus institutions to be co-ordinated in a different way. It would not be sensible to add 21 schools to the negotiated institutional planning system in the same way as universities and polytechnics.) The third aspect is whether there should be a rationalisation of institutions within the 14 universities and 15 polytechnics – either within the sectors or possibly also across them.

2.53 A strong case has already been made for preserving and strengthening the binary framework in Portuguese higher education, and the polytechnic sector has been identified as the primary area for growth in the system in terms of new student groups and new programme types. The Review Team believes that this is best achieved by the maintenance of the polytechnics as distinct institutions and ensuring that they are able to develop their own distinctive missions, goals, human resource policies etc. (In this context the success of the University of Aveiro in nurturing strong polytechnic (and CET) programmes within the overall environment of a "research university" is remarkable and very difficult to replicate.)[18] The Review

[17] Mergers are already in progress in the nursing schools in three cities.

[18] The panel did not visit the University of Algarve so is not aware of its experience in this regard.

Team recommends that mergers of polytechnics with universities and any further incorporation of polytechnic institutes into universities should not be encouraged. This then leaves the question of intra-sectoral rationalisation – within the polytechnic and university sectors.

2.54 With four exceptions Portugal's 29 public universities and polytechnics each produce over 1000 graduates a year (or will do so once the new Bologna structure takes effect). Two of the exceptions are the island-based universities and the others are the Polytechnic of Cavado and Ave and the University of Beira Interior, none of which were visited. The Review Team has serious reservations about whether this constitutes sufficient grounds for embarking upon a *national reconfiguration* of the institutional landscape involving a significant number of mergers, consolidations or closures of institutions[19] and whether this is a priority for Portuguese higher education, particularly given all of the other challenges and reforms already identified. Where there are particular problems with individual institutions or their sustainability these should be tackled on a case-by-case basis by the Ministry in the framework of the negotiated institutional contracts proposed above.

2.55 The same principle should apply where there are concerns about the viability of some branch campuses, faculties or programmes.[20] The Review Team believes that there are two possible approaches to such cases: the Ministry could intervene or initiate a review of particular instances where there are concerns about branch campus, faculty or programme viability; or these issues could be considered in the process of negotiating institutional contracts. The panel favours the latter approach as it should result in solutions tailored to each individual case, and an approach that encourages institutions to rationalise their own activities rather than relying on top-down "one-size fits all" government intervention. [21]

2.56 The Review Team recognises that discussion about institutional rationalisation is driven in part by concerns about the future and the sustainability of the universities and polytechnics located in the interior and island regions of Portugal. It is of critical importance for the achievement of wider access, Portugal's Lisbon Strategy goals and ongoing regional development that this significant capacity is not allowed to slowly wither away and die. There is a significant risk that this will happen if the process is unmanaged and left to the market and student preferences. It is probably inevitable that the share of Portuguese higher education provided outside the coastal area will decrease in both absolute and relative terms. Creating sustainable "regional institutions" will require differentiated policy approaches and funding criteria (and unit costs will almost certainly be higher). The planning/contract approach proposed above should help this process considerably.[22]

---

19 For example, as was undertaken in Australia and the Dutch polytechnic sector in the 1980s, in Hungary in the late 1990s and in South Africa in the early 2000s.

20 It is clear from the review team's visit and from submissions to it that there is considerable scope for increasing the internal efficiency of institutions in terms of branch campuses, programmes and faculties with small enrolments.

21 The current policy not to fund programmes with an intake of less than ten students is a good example of this one-size fits all approach. Nevertheless, in the current steering framework the Ministry does not have access to the approaches preferred by the panel so has little option but to respond in this way.

22 This is one area where international experience is of limited assistance. The need is for a "home grown" Portuguese solution that somehow addresses three socio-spatial phenomena – student preferences to stay at home, to study in major cities, and in university programmes. Creative solutions could be sought in student financing, in joint programmes involving periods of study at both the coast and in the interior, and in marketing polytechnics and their ability to produce graduates who find employment.

Strengthening the institutional network

2.57 In the paragraphs above the Review Team has cautioned against a major national reconfiguration of the institutional landscape via mergers, and has recommended a more case-by-case approach within a strengthened binary framework and through the mechanisms of institutional performance contracts. This does not imply that the functioning of the network of institutions cannot be improved in other ways. Subsequent to the review visit in May 2006 a number of voluntary initiatives involving institutional co-operation have been drawn to the panel's attention. [23] The Review Team believes that these initiatives have much to offer, that participating institutions should be strongly encouraged to move from "intent" to "action", and that similar initiatives should be developed in North-Eastern, Central-Eastern and Central Portugal. In the following chapter on institutional governance proposals are made for regional co-ordinating structures which would be well-placed to encourage this co-operation. International experience suggests that participating institutions and their students and staff can benefit by co-ordinated programme offerings, joint programmes, structured arrangements for student transfer, the sharing of infrastructure and capacity etc. Nevertheless, the panel urges that these initiatives be supported only where there is a clear emphasis on strengthening regional capacity while respecting the distinct missions of universities and polytechnics. Our earlier recommendations have already stressed the importance of maintaining the binary system and changing polytechnic schools into university schools via "co-operation" initiatives should not be allowed.

Co-ordinating the contribution of the private higher education sector

2.58 Of all the policy questions that have confronted the Review Team the question of the contribution of the private sector to system diversity and how this can be co-ordinated is one of the most complex and challenging. The role of the private sector in expanding access to higher education in Portugal and to increasing the number of Portuguese graduates has been substantial. Ten years ago more than one-third of Portuguese students were in private institutions but demographic changes, a more selective approach to access policy, investment in additional capacity in the public sector and the continued low out-put from upper secondary schools have reduced this share to around one-quarter.

2.59 The absolute decline in the numbers of students in the private sector has already led to institutional bankruptcy and to mergers and amalgamations in the sector.[24] The question of how national higher education policy should respond to this is highly contested. The private sector itself (which is very diverse) argues strongly for equal treatment (particularly on programme approval) and an open market in which state subsidies for higher education are given to students who are then free to study in the institutions of their choice. The Review Team has serious reservations about the latter position both in terms of overall public policy concerns and in the specific circumstances of Portugal in 2006 and the higher education goals it has set for itself. Such a "voucher" system would make it impossible for Portugal to steer its higher education system in the directions it has decided are important for the country's future well-being. At the other end of the spectrum we have heard the fairly hard-line view that the private sector has taken opportunities in a market where demand outstripped supply and if the market changes a significant part of the sector will simply have no alternative but to go out of business. We have also heard

---

[23] These include the expression of interest for the convention established among *Universidade Nova de Lisboa,* two polytechnic institutes and a private institution; initial conversations between the Universities of Évora and Algarve, together with polytechnics at Beja and Portalegre; consideration of the integration of the *Instituto Politécnico do Cavado e Ave* and the University of Minho; and the development of post-secondary education within the University of Aveiro through the development of the *Escola de Aveiro Norte.*

[24] In this context it is vital that legal provisions for the rapid recognition of merged private institutions are put into place.

concerns expressed about the quality of provision in parts of the private sector and have observed a tendency to exaggerate the "for profit" and "focus on popular but inexpensive study programmes"[25] aspects of this diverse sector.

2.60 The Review Team recognises that the right to the private provision of education is guaranteed by the Portuguese constitution so private universities and polytechnics are an integral and long-term part of higher education in Portugal. The new accreditation agency and its programme accreditation procedures should ensure (over time) the demise of any programmes that do not meet acceptable quality standards and also that private institutions are not subject to more rigorous procedures than public institutions. The policy question is should there be greater public support (beyond student financial aid) for that part of Portugal's higher education capacity that is located in private institutions? We believe that it is in Portugal's interest to provide additional support on a selective basis in the co-operative and not for profit sectors as a way of ensuring that valuable higher education capacity is not lost to the system.

2.61 The future vision outlined in this chapter is of a more diversified and larger higher education system catering for a broader range of students with a mix of programmes more focused on professional programmes and with a close link to the labour market. Private institutions may be well placed to respond to this challenge. The Review Team believes that a pragmatic policy approach would be for the Ministry to periodically issue tenders for the provision of study programmes where there is insufficient capacity in the system for which both private and public institutions could submit proposals. This would avoid adding additional public capacity where it is not needed and would help preserve the valuable private capacity that Portugal has and should continue to profit from. While the Review Team is not proposing that private institutions be included in the planning/contract system such selective funding of programmes might also create the space for negotiations on other issues that might help ameliorate some of the harmful effects of the current intensive competition between institutions.

F. CONCLUSION

2.62 In summary, the Review Team makes the following recommendations aimed at strengthening system co-ordination and system diversity and responsiveness within Portuguese higher education:

- A high-level **national council on higher education (CCES)** should be established to develop overall strategy for the system for the consideration of the Council of Ministers

- The various goals and policy objectives that relate to higher education should be integrated by CCES into **a single planning framework.**

- The Ministry should make a major change in its steering philosophy and funding mechanisms by introducing a system of **institutional performance agreements** or contracts negotiated between the Ministry (on the basis of objectives derived from the planning framework) and individual institutions.

- The **diversity in the nature of degree programmes** should be increased significantly with the primary area of growth being in the polytechnic institutes in first-cycle professionally orientated programmes and short-cycle vocationally orientated certificate and diploma programmes.

[25] The panel was able to visit only a small sample of private institutions but saw clear examples of high quality programmes in expensive fields of study (for example, Dentistry and Architecture) that are apparently offered at a cost less than equivalent public programmes.

- The **binary framework** should be maintained and strengthened. The mechanisms for resource allocation, levels of institutional autonomy, programme accreditation procedures and human resource management policies all need to be reformed to create a policy environment in which professionally orientated polytechnic institutions can create a sustainable future that is distinct from traditional universities.

- A significant **increase in institutional autonomy** should be introduced differentially and over time depending on the capacities of the institutions (including internal governance and management reform), and the extent of the challenges they face. (see chapter three)

- The current differential requirements for the **approval of new programmes** for universities and polytechnics and for public and private institutions should not be continued [26]; neither should detailed control over curriculum changes. Full use should be made of the unique opportunity provided by the implementation of the "Bologna process" for the **renewal of study programmes** in Portugal, and for a reconsideration of educational processes with a greater focus on student learning and outcomes, as well as a more explicit concern for the links between study programmes and the labour market.

- The Review Team does not believe that a major national reconfiguration of the institutional landscape involving a significant number of mergers and/or closures of institutions is a priority for Portuguese higher education. It recommends that the negotiated institutional contracts be used to address internal rationalisation questions in those situations where there are institutional/campus/faculty or programme inefficiencies resulting from small enrolments. It recommends further that existing inter-institutional co-operation initiatives move from statements of intent to the implementation phase where there is a clear emphasis on strengthening regional capacity while respecting the distinct missions of universities and polytechnics, and that other regions be encouraged to do the same.

- The Review Team recommends the provision of additional state **support to private higher education institutions** (in the co-operative and not for profit sectors) on a selective basis through the Ministry periodically issuing tenders for the provision of study programmes where there is insufficient capacity in the system for which both private and public institutions could submit proposals.

[26] These differential requirements were abolished by decree law 74/2006.

CHAPTER 3: INSTITUTIONAL GOVERNANCE

A. INTRODUCTION

3.1 The discussion in Chapter 2 focussed on system wide issues. It deals with the matter of governance of the national system, amongst many other topics of importance, and draws attention to the fact that the national system is related to the institutional level very directly. In short, the degree of local, institutional autonomy and accountability will reflect the attitude at central level to these same issues. If the systemic attitudes and structures place a premium on and give support to local initiative and innovation then institutional level governance and leadership will reflect that positive attitude- and the obverse is also true.

3.2 There are few more important topics which have a potential to help or hinder the university system and, therefore, individual nations as they seek to respond to the challenges that the emerging knowledge society sets for all of our nations. This issue of higher education governance is not merely to do with the governance of the university but it is about releasing innovation and creativity in our nations and therefore it is about the future. These are necessary but not sufficient conditions to achieve success. Without them a nation cannot hope to thrive in this increasingly internationally connected and highly competitive world. Handled correctly, the conditions are set for success.

3.3 The thrust of these thoughts is well captured by the OECD when it states: "In the 20th century in most OECD countries, governments exercised considerable control and influence over the sector, to help pursue objectives such as economic growth and social equity. Today, on the one hand, governments have a greater interest than ever in ensuring that educational institutions help meet economic and social needs, given their importance in knowledge-oriented societies. On the other hand, they accept that central planning of knowledge creation, teaching and learning is often inefficient, and that a thriving society and economy require institutions to operate with a degree of independence, while market mechanisms are often more effective than administrators in regulating supply and demand for diverse forms of learning delivered to diverse client groups. Thus the governance of higher education faces some difficult challenges. If higher education is indeed an important strategic lever for governments in seeking to pursue national objectives, can governments achieve those ends without compromising the independence of universities, or their dynamism in catering for new markets? 'And 'The art of policy-making will in future involve ensuring that public goals are met in higher education through influence rather than direction.' (OECD, 2003).

3.4 Many of the core issues regarding university governance were addressed in the seminal text (Rhodes, 2001). He distinguishes between governance and management and advises that governing boards focus on the former, leaving the latter to the rector. He stresses the leadership and visionary role of the rector and supports the competitive approach to the appointment of the university president in the USA. He states, furthermore, that without strong leadership by the rector no system of governance can be effective. Extracts on the university board and the president/rector are included in Appendix C 'History and Governance – some reflections', which also includes a more detailed review of the topic and some reference to international trends, are contained in Appendix C.

B. INTERNATIONAL TRENDS IN INSTITUTIONAL GOVERNANCE

3.5 New structures of governance of tertiary education have been layered in Portugal, as well as in many other OECD countries, creating an amalgam of complex, and sometimes ineffective, systems of governance. Nonetheless, tertiary education needs modern and efficient governance systems, focusing on emerging challenges and opportunities facing institutions and their resources. They need to be attuned to the social and economic needs of the market and society, as well as to the increasingly emerging opportunities of science and technology.

3.6 The issues which are most frequently referred to in relation to institutional governance in higher education include external stakeholder participation, the appointment of the rector, issues concerning institutional leadership, the size and composition of governing boards, the effectiveness and transparency of decision making, the governance and management of institutions i.e. the relationship between the governing body and the rector, the balance which needs to be struck between accountability of institutions to governments and their autonomy in financial and academic matters and the support of institutions for the achievement of national goals.

3.7 The responses of governments vary in some of the detail reactions to these and other governance issues. Nonetheless, there are distinct and common trends to be observed. Appendix C includes references to actions and initiatives taken in a number of countries.

3.8 On the matter of external stakeholder participation, the distinct trend and actions support their presence on the governing boards of most higher education institutions; often, the Chair of the body is held by a person external to the institution. Variations arise in relation to the balance struck between external and internal membership.

3.9 The trends in relation to the appointment of the rector are somewhat less clear as between internal election and public advertisement and competition. In Ireland, for instance five of the seven universities traditionally appointed their rectors/presidents on an elective basis essentially; over the past five years all but one have moved to a publicly advertised mode. The picture is less clear in other nations but it is well imbedded in the USA and the United Kingdom.

3.10 A major debate in most nations is around the balance to be struck between institutional autonomy and accountability and responsiveness to the community and to governments. The trend is arguably towards general understandings or agreements between institutions and governments with a general tendency to a reduction or elimination of micromanagement by government.

C. CURRENT POSITION IN PORTUGAL

3.11 The autonomy and governance of public universities and public polytechnics in Portugal are defined and provided for by law. However, it seems that government has moved from time to time to constrain that autonomy by individual interventions or regulations. This clearly raises the question as to how genuine the commitment to true institutional autonomy really is – or, rather, how narrowly defined it is *de facto*. Whereas one can understand that government must intervene when matters of grave national interest are at stake and that public institutions supported by government must be accountable to government, nonetheless, there appears to be a pattern of the routine promulgation of regulations and annual interventions which undermine that autonomy, create an uncertain climate for institutional management. These types of intervention do little to support the proper exercise of autonomy and tend to undermine confidence- and hence innovation and entrepreneurship- at institutional level.

3.12 What public universities and polytechnics have in common is that their academic and non-academic staffs are civil servants; as a consequence, salaries are national and are controlled by law,

although each institution hires their own staff and can also promote them, for instance, within a national framework laid down by the Government. This latter is a further example of undue and unnecessary interference in the internal operations of the higher education institutions. However, each institution must seek and obtain the clearance of the ministry of finance for any increase in tenured staff. This approval is not always forthcoming, particularly in times of financial stringency and is reported as being extraordinarily slow.

3.13 There are a number of features, which are different as between universities and polytechnics; consequently this section of the report will deal with them separately, drawing them together in the recommendations sector later in this chapter.

Universities

3.14 The public universities are regarded as either being an element of the State's indirect administration or of its autonomous public administration.

3.15 The University Assembly the superior body, its functions – which include the election of the Rector- and its membership, are specifically provided for. The law is framed in such a way as to ensure that all universities have identical governing structures. The functions and membership of many internal bodies within the university are also specified in the law. In fact, it goes so far as to define the range, functions and membership of bodies within schools, faculties, institutes and departments (to some degree). It appears that the law provides for a number of bodies for each such unit; these are the Assembly of Representatives, the Directive Council, the Pedagogic Council and the Scientific Council. The membership of these bodies is quite large; the Background Report states that membership of the University Assembly in 14 Public Universities varied between 64 and 331, while the corresponding figures for University Senates varied from 36 to 179. The university can create statutes which define the operational procedures, which these bodies must adhere to. A particularly definite provision is made for student and academic staff representation to be equal. Equally remarkable is that external representation on the University Assembly is not provided for. The Senate may have up to 15% external representation, subject to the statutes of the university; these members are recommended by the Rector; it appears that about half of the universities have made such provision and that the % ranges from a low of 3% to a high of 12%, none achieving the maximum provided for.

Polytechnics

3.16 The legal basis for the governance of the public polytechnics is enshrined in the Polytechnic Autonomy Act (Law 54/90). Law 46/86 –the Basic Law on Education refers to the autonomy of the polytechnics, though the Constitution does not. Schools appear to be independent entities within each polytechnic. Whereas the law defines the Governing Body, the statutes devised by the polytechnic define the internal organisational structure. The governance structures provide for a President, the General Council and the Administrative Council External participation in the General Council is provided for, although at a low level of some 13%. The President is elected by the General Council and can be internal or external to the polytechnic. External participation is relatively high in the Schools of the Polytechnic, reaching some 70% on average in the Advisory Council; it must be commented however that such substantial external membership is untypical of all other bodies where it languishes around 10% or less, typically. There is a network of bodies provided for within each School, as follows: the Director or the Directive Council, the Scientific Council, the Pedagogical Council, the Advisory Council and the Administrative Council. The polytechnics appear to be much less autonomous than the Universities. For example, they cannot create or eliminate programmes of study and their staffing is controlled by government to such an extent that some 50% of staff are hired under special contracts.

The private sector

3.17 From 1979, the publication of Law 9/79 - the Basic Legal Framework for the Private and Cooperative Education- provided the legal framework for the establishment of private higher education institutions. The specific regulations were promulgated in 1985 but, in the meantime, a number of private higher education institutions had received official recognition. The expansion of the private sector was enhanced by the regulations, it would appear. The conditions for the creation and operation of private higher education are established in the *Private and Cooperative Higher Education Act* (Decree-Law 16/94). As a result the founder must adopt the statutes of the higher education institution and present them for governmental approval. The law establishes that each private higher education institution must have at least the following governing bodies: a *Rector* (for university institutions) or a *President* (for polytechnic institutions); a *Director* or a *Directive Council*; a *Scientific Council*; a *Pedagogic Council*. Membership of any of these bodies including membership by external persons is a matter for the institution. However, a close control has been kept over private institutions; specifically they have less academic autonomy than public universities a matter of grave concern to these institutions.

D. ISSUES WHICH CAUSE CONCERN

3.18 In our discussions with the many individuals and institutions and representative bodies whom we met, a number of important issues concerning governance were raised by them. Many of these concerns were also adverted to in the Background Report. In our dialogue with individuals and institutions we were struck by the strong feelings expressed regarding the micromanagement of the system by the Government. Examples included detailed control over new programmes and modifications to existing programmes. This level of intervention by ministries would have been more typical of national systems some years ago; but many governments have moved away from such approaches in recent years, as the review in Appendix C on international practice indicates, relying, rather, on the constraints of the institution's budget. We advocate a similar disengagement of the Government in Portugal from the detail of institutional management and control to one of overview and strategic vision.

3.19 The following list of issues contains the major matters of concern, which have been articulated to us We believe that they are symptomatic of the governance and governance related issues which are perplexing and demotivating people within the higher education sector and beyond and which need to be addressed by government, institutions, institutional leadership and members of the institutions alike if Portugal is to realise its full potential as a robust, innovative and dynamic nation. The issues which seemed most prominent to us and most frequently mentioned in submissions and in discussions are as follows:

1. The degree of autonomy for public universities is considerably in excess of the public polytechnics; for example, universities own their buildings whereas polytechnics do not, and polytechnics cannot alter, close or open programmes of study without government approval. A related issue is that the degree of academic/pedagogic autonomy in the private sector is *de facto* much constrained by comparison with their public analogues; this apparently finds expression in consistently inordinate delays - frequently of the order of more than a year, it is claimed - by government in approving new programmes and, even, in approving modifications to existing programmes.

2. The lack of external membership on the University's Assembly and the rather modest representation on the Polytechnic Assembly is a matter which is difficult to understand in view of the movements in many countries to the contrary and to the increasing intersections between the higher education sector, its teaching and research and the needs of the community and the priority which the Portuguese Government has given to strengthening the economy. Whereas statutes allow for external representation on Senates – to a maximum of 15% - data shows (Simão *et al*,

2002) that only half of the universities had external members on their Senates; none achieved the maximum allowable and the range was between 3% and 12%. The absence of external stakeholders places a severe limitation on the institutions in their interaction with the external world, a world that they are meant to engage with and whose needs they are meant to serve and provide for. The effective formal separation of these two worlds, which are so mutually dependent in the knowledge society, is difficult to understand.

3. There is a perception, generally, that the leadership of institutions is weak. There are, of course, a number of exceptions to this observation; nonetheless, such feelings persist. They are attributed, in large measure, to the particular method of selection of the rector, to its totally internal focus and to the rather political process involved. In addition, the structures within the university do not place a premium on the exercise of leadership. If Portuguese higher education is to progress and to vie with its international competitors changing this negative culture of lack of leadership must be a priority.

4. The election rather than the selection of the Rector. The political process which is associated with the election of the rector and the claimed consequences; these include constraints on the freedom of the Rector due to promises having been made during the campaign and to the generation of 'opposite camps' when an contestant is not successful. This type of concern has been addressed clearly by the former distinguished Dean of Faculty of Arts and Sciences at Harvard University, Henry Rosovsky (Rosovsky, 1990) 'An elected administration…ensures that leadership is weak: those who are strong and espouse change are unlikely to be popular favourites' and, with reference to the USA '..chairmen, deans, Provosts…. are appointed – not elected – and they can be dismissed. This is crucial because academic elections tend to result in weak leadership'. The fact that the Rector is invariably from the institution itself is a direct result of the elective process and contributes to the insularity of the universities.

5. Yet another issue is the excessive value which is placed on collegiality within the individual institutions. The many layers of decision-making and the large representative bodies, which express this focus on collegiality, ensure that processes are labyrinthine. The ineffectiveness of decision - making arises from the multitude of statutory bodies and the excessively large size of these bodies. The slowness of decision - making and the lack of clarity and transparency of decisions when they are made seem to be an inevitable consequence of the structures and are totally out of step with modern and more effective approaches. Collegiality is a valuable concept in a higher education institution but we believe that this can be achieved within a framework of a reduced number of layers of decision taking and with bodies with much smaller membership. An example of an ineffective body is the Advisory Committee. It meets infrequently and has little or no influence on the development of the higher education institution. The Pedagogical Council appears to have little effect on the life and activity of the university also. The multitudes of bodies within faculties and departments, which replicate the university wide bodies, undermine any concept of interdisciplinarity, transparency or the prospect of institutional joint action or views emerging. The current approach to collegiality leads to other anomalous situations. One prominent such anomaly is that student membership is identical to academic staff membership on a number of bodies; a rebalancing of membership of this and other bodies is required.

6. The detailed control of government on staff numbers is understandable, at first glance perhaps, because they are civil servants. We have had many presentations, which have highlighted the annoyance, which this causes at local level. In Decree – law No. 448/79 of November 1979 (amended about nine times in the following ten year period) Government describes in great detail all manner of matters regarding the creation, appointment and promotion of university staff.. Government also places freezes on staff numbers and recruitment, if the national budget is under

pressure. Furthermore, Government also freezes institutional surpluses from time to time. All of these actions, whether taken individually or collectively, limit the freedom of the institutions to control their affairs and to plan and to act strategically. They severely limit the exercise of autonomy which is guaranteed in the constitution and raise serious questions as to what autonomy is meant to convey. It is difficult to imagine that any of the Portuguese institutions can achieve excellence and world-class status in these circumstances of uncertainty and unpredictability.

E. CONCLUSIONS

3.20 In the many meetings within institutions and with individuals whether in the private sector or within the public sector a number of common themes have emerged. The conclusion drawn is that the higher education institutions are less engaged with national needs, are less creative, responsive, entrepreneurial and innovative and less transparent in their decision-making than is required and expected by the country at large. It is also widely believed that the detailed control exercised by Government on the day-to-day operations of the higher education sector is considerable and out of touch with the trends which are evident internationally where governments influence and steer rather than direct institutions. In the light of the foregoing, the review team makes the following recommendations:

3.21 That government introduce comprehensive university and polytechnic legislation in which the autonomy of institutions is clearly defined. It is further recommended that advice on the content of the new HEI legislation should be sought from a panel of international experts It is suggested that the intention should be to apply this new legislation to all higher education institutions. Whereas the detail of such legislation is a matter for Government to determine it should, as a minimum, provide for the elimination of regulations which would delimit that stated autonomy; that faculty and staff of the higher education institutions would be defined as employees of the HEI and would no longer be civil servants; that salaries would be a matter for the HEI; that the creation of employee positions would be subject to an internal process involving the formal agreement of the governing authority of the HEI and that all appointments to those positions – and promotion mechanisms- would be fully transparent and subject to a formal advertising and appointment process involving a substantial number of members from outside of the institution, for example. The finances of the HEIs would be considered not to be State finances in such an arrangement. All of the above and other freedoms would be subject to any HEI producing a balanced budget in each year.

3.22 However, the autonomy and self-regulation which should be a feature of this legislation should not be applied to all institutions with immediate effect; on the contrary it must be introduced gradually and in response to application from individual institutions. It is suggested that such application be made to the *Conselho Coordenador do Ensino Superior (CCES).* The Review Team proposes that CCES should assess all such applications and make appropriate recommendations to the Ministry as to whether or not the new legal provisions should apply to the applicant institution. It is also recommended that the CCES would form panels of experts to assess each application and that the membership of such panels should contain a clear majority of international members. The details should be a matter for the expert panel to recommend but it is suggested that the degree to which the other recommendations in this report have been implemented successfully by the applicant HEI should figure strongly in the assessment of institutional readiness to make the transition. These freedoms will find expression in a new relationship with government. But the central matter is that, with excellent leadership and governance, the creativity of faculty and staff will be released; new initiatives will emerge and the ultimate result will be a responsive, excellent and engaged institution. Clearly such a prospect sould be regarded as of immense benefit throughout Portugal.

- We recommend that each institution of higher education be empowered and be required to establish a governing authority, styled as each decides. It should have responsibility for the control and direction of the institution, including the control of financial, human and physical resources; it should also be responsible for the appointment - and the dismissal - of the rector.

    - Government should stipulate the structure of membership, perhaps on the following lines. (If new legislation were introduced it should incorporate this provision explicitly). Its membership should not be large; while a Board of less than ten members would be desirable in the interests of efficiency it is suggested that it should not exceed fifteen persons including the Chair; a majority of members and its Chair should represent external stakeholders. The internal members should include members of academic staff – who should be in the majority within that category - administrative staff and students. The Chair, who should be a highly respected person, should be chosen from amongst its members or by invitation of the members to an external stakeholder.

    - It is furthermore recommended that the rector should be appointed – not elected – by the governing authority following a public competition using normal search and selection processes. The term of office of the rector should be for seven to ten years and should not be renewable. He/she should be a member of the governing authority. He/she should be entitled to chair the academic council and the executive committee, and to chair subcommittees of these bodies. Deans and heads of department should be appointed by the governing authority on the recommendation of the rector following consultation within the university.

- A statutory Academic Council/Senate should be established by the institution with overall responsibility for the academic affairs of the institution. While being representative of the academic community and elected it should not be a large body; perhaps its membership should not exceed 25. It should be chaired by the rector. Membership to be mainly of fulltime academics from all levels including research faculty including those from research units graded as being excellent or very good and from Associated Laboratories, for example; students to have a number of representatives e.g. a maximum of three is suggested. It should be free to establish as many subcommittees as will assist it in its work, but should not be empowered to devolve its powers as the responsible decision making academic body to any other body or person.

- An Executive Committee should be established in each university to take decisions on resource related matters. Chaired by the rector, its membership – not greater than ten – should be broadly representative of the university community, both academic and non-academic; it should have one student member. There should be no external members. Matters which it should deal with should include finances, human resources, facilities and equipment. It should also be responsible to the governing authority for the annual budget. In order to empower the community within the university it is suggested that budgetary responsibility should be devolved to the lowest possible level e.g. to Departments (academic and service/support) or schools or faculties.

- It is proposed that governing should be reluctant to establish additional statutory bodies and that the creation of such bodies would be subject to the most rigorous examination and justification. An objective should be that decision-making be efficient, effective and transparent. work. This will make a contribution to reducing the number of deliberative bodies in the institutions and will, therefore, reduce the numbers of academics engaged in meetings and thereby reduce the waste of the valuable time which academics currently devote to attendance of such meetings.

- *The Polytechnics*: We recommend that these same general structures and freedoms be put in place for polytechnics as for universities. This measure will also have the effect of achieving parity of esteem for the polytechnic sector.

- *The Private Sector:* We recommend that they be subject to the same quality controls as the public sector in relation to the provision and modification of academic programmes; these controls should be implemented in precisely the same way in respect of both the private and the public sectors. In addition it should be a requirement that private institutions put a bond in place to cover the possibility of failure or closure in order to ensure that the students who might be affected will be protected.

- *A Regional Council:* An oft repeated view which we have heard is that there is too little attention paid to local and regional concerns and needs, that there is little or no collaboration between higher education institutions located in a particular area or region and that this lacuna results in duplication of effort in higher education provision, a neglect of important local needs and a lack of coordination and cooperation between institutions. A suggestion has been made to us that there should be a 'regional council' formed in each region comprising all of the higher education and other educational and training providers together with a broad representation of stakeholders e.g. from business, trades unions, voluntary groups etc. The intention would be that such bodies would not have a statutory or a decision-making base but would be a vehicle for local joint initiative, for example. They could also have a role in recommending the realignment or formal new relationships between higher education institutions in the region to CCES. Annual reports on activities arising would be provided to the CNEES as an input to its national overview and also as an input to its annual contract discussions with individual institutions. We believe that there is much merit in this idea and we suggest that Government provide the necessary start up funding to support the administration of such bodies.

REFERENCES FOR CHAPTER 3

Association of Governing Boards of Universities and Colleges.

Glion Declaration II: The Governance of Universities, (Occasional Paper No.46, 2000).

.Australian Vice-Chancellors' Committee 2002.

Coaldrake Peter, Stedman Lawrence, Little Peter, 'Issues in Australian University Governance' August 2003.

OECD, "Changing Patterns of Governance in Higher Education," in Education Policy Analysis, 2003, (Paris: OECD, pp59-78), pp.63, 78.

Rhodes Frank H.T. (2001)*The Creation of the Future – The Role of the American University,* Cornell University Press, Ithaca and London. (2001).

Rosokovsky H. (1990), *The University: an owner's manual*, Norton, New York and London. Quoted but not referenced in "The Political University: Policy, Politics and Presidential Leadership in the American Research University," by Robert M. Rosenzweig, Johns Hopkins University Press, 1997.

Simâo J.V., Santos S.M. & Costa A.A. *Ensino Super: Uma Visâo para a Próxima Década. Gradiva. Pp421-422*

CHAPTER 4: EDUCATIONAL PROGRAMMES: ACCESS, QUALITY AND RELEVANCE

A. INTRODUCTION

4.1 The challenges facing Portugal in relation to higher education need to be understood against (a) the changing nature of labour requirements for the modernising Portuguese economy, and the need to expand the availability of skilled workers across a wider range of occupations and (b) historical deficiencies in schooling and the achievements that have been made in addressing those deficiencies. Job prospects for the less educated are likely to deteriorate markedly in the context of global competition. Increasing educational attainment and skills formation will be critically important to the objective of social equity and inclusion, as well as to the goal of improving national economic performance through higher value added manufactures and services.

B. THE CURRENT SITUATION

4.2 In the mid 1970s, around 20% of all persons aged 15 to 64 years were illiterate and fewer than 5% had completed upper secondary education to Year 12 (MCTES, 2006). Notwithstanding limits to the availability of teachers, and low levels of educational attainment of parents limiting the readiness of students, Portugal has achieved rapid growth in school participation over the last two decades. Near universal participation has been achieved for the compulsory years of schooling. Attainment of a Year 12 Certificate among youth aged up to 22 years has risen from 38% in 1993 to 50% in 2004 (Technological Plan 2006). Portugal's best students perform among the world's best. However, Portugal's general achievement falls short of the European benchmark of 85% for this age cohort. The Portuguese Technological Plan has set a target of 65% by 2010 towards that benchmark. Inadequate curriculum balance in school offerings, and low rates of student progression and success, mean that too many young people have limited options in entering the labour market and limited opportunities for participation in post-compulsory, vocational and higher education.

4.3 The stock of degree qualified graduates in the Portuguese workforce has risen from 2% to 11% over 1992 to 2003, and the flow has increased from 6,000 to 30,000 per year (Ministry of Labour and Social Security, 2006). This progress in expanding the production of graduates is overshadowed by a lack of adequate focus on the education and training needs of the mainstream current and future workforce. As noted in Chapter 1, Portugal has, after Turkey, the lowest share (20%) of its population aged 25-64 with educational attainment at or above upper secondary level.[27] Some 75% of the total workforce has completed fewer than nine years of schooling, 62% less than seven years, and 50% less than 5 years (MCTES, 2006).

4.4 Some 15% of students are currently not completing Year 9 of schooling (the compulsory level since 1986) and 60% are not completing Year 12 (70% for boys). Additionally, whilst higher education enrolments doubled over the last decade, some 40% of higher education students are not completing their studies and are failing to graduate with a degree. The high rates of repetition and drop out at the post-compulsory stages of education represent a waste of human resources that Portugal simply cannot afford. Nor can Portugal sustain the inefficiency associated with the high rates of repetition for those students who

[27] OECD, (2005), *Education at a Glance*, Table A1.1a

eventually succeed but take several years longer than normally expected. Students should normally progress beyond second level schooling before their twenties.

4.5 As shown at Table 4.1, the Portuguese population is one of the less well qualified of OECD member countries.

Table 4.1 Comparative Indicators on Tertiary Education, Portugal & OECD

% of 25-64 population with tertiary qualifications	Portugal	OECD mean	Portugal's rank
Tertiary-type B - total	2	8	23/24
Tertiary-type A - total	8	15	27/30
Advanced research programmes - total	1	1	9/12

Source: OECD, (2006), Comparative Indicators on Tertiary Education, Brief for the Review Panel

4.6 A major challenge for Portugal is evident from its falling position within the OECD in terms of the proportion of the population aged 25-34 with tertiary qualifications (See Chapter 1, Figure 1.5). Whilst Portugal increased its proportion from 9% to 16% between 1991 and 2003, OECD countries increased their average participation of that age cohort from 20% to 29%, and Portugal's performance rank on that measure slipped from 18/21 to 25/30 (See Appendix E).

Demographics and future demand for higher education

4.7 The combination of falling birth rates, rising life expectancies and low levels of immigration has given rise to an ageing society in Portugal as in other advanced economies. As shown in Table 1.2 (Chapter 1), the youth population is projected to decline in the order of 100,000 or 20% over 2005-2020 (MCTES, 2006). The age group 15-29, which constitutes the main traditional source of student demand for higher education, is projected to fall by 500,000 over the same period, that is, by an average annual rate of 30,000 or 1.4%. Different regions of the country will be affected differently, with the harshest impacts being felt in regions of the interior.

4.8 Declines in student demand for higher education began to be experienced in 1994, but the supply of places continued to expand. As the demand-supply imbalance became apparent, several private institutions and, as a means of sustaining their numbers, some public higher education institutions sought to enrol students whose prospects of success were relatively low in a system dominated by academic criteria. Various policy measures were introduced to intensify the examination of the suitability of students for higher education, presumably with a view to safeguarding student input quality. Concurrently, the costs of student participation rose, with tuition price increases being introduced in 1997, and rising again in 2003. There is no available evidence relating to tuition prices suggesting that they do or do not deter student applications for enrolment or acceptances of placement offers. However, student enrolments have declined from 1997 gradually across all sub-sectors, especially since 2000, with the rate of decline in private enrolments being two and a half to three times that for public institutions (MCTES, 2006).

4.9 Interestingly, the overall average annual rate of higher education enrolment decline in recent years of 3% is double that of the demographically-driven decline, suggesting that there is more to the problem than the demographics alone. There are also some fluctuations from year to year. An increase in the year 2006/2007 largely attributed to increases in adult and part-time students. There appears to be some interaction between the changes to Government policy settings and the specific positioning strategies of institutions that is accentuating the general problem. Any further across-the-board tightening of requirements governing student eligibility for admission, and reductions to programmes with small student enrolments, may exacerbate the pressures on institutions and prospective students alike. Changes in student demand call for a more graduated policy approach than has been in evidence in Portugal.

4.10 The decline in the participation of 18 to 24 year olds is not only driven by demographics but also by the failure of students to complete secondary education. If success rates in secondary schooling were higher and more students passed through, it is likely that there would be more than enough additional students to compensate for the fall of overall numbers in the age cohort. However, to improve participation, progression and success rates, it will be necessary to change fundamentally two worrying aspects of Portugal's secondary education system: its overly academic orientation to the disadvantage of students who could benefit from a more vocational orientation and practical approach to learning; and a culture of failing students who do not meet expected norms of performance to the neglect of the developmental needs of diverse learners.

4.11 There are other age cohorts, too, who could benefit from access to appropriately structured higher education, and whose increased participation could increase overall demand for higher education services. Greater attention needs to be given to the provision of formal and informal learning opportunities for adults. This will require the development of new forms of learning support, and new modes of education and training delivery at places and at times and in ways convenient and appropriate to the learners.

4.12 The Government's *New Opportunities* programme represents an important recognition of the need to draw in a wider range of learners and to cater for their varying needs in innovative ways. Of particular note are the strategies for double certification (general and professional) for initial vocational training courses, increasing from 22% to 50% the proportion of technological programmes available to upper secondary students by 2010, and building bridges between general, technical and professional streams. These measures should help to make upper secondary schooling more attractive and relevant to those young people whose needs have not been adequately recognised in the past. They involve changing the apparently widely held perception of technical skills options as a fallback for academic failure rather than as a valid choice, and of building esteem for technical careers with social worth. Additionally, new training schemes will be developed for the workforce, with the aim of involving one million current workers in quality training over five years, building on the base of the successful *Skills Recognition, Validation and Certification* processes initiated in 1999. The Portuguese Technological Plan also has set a target of raising participation in lifelong learning from 4.8% to 12.5% of the population by 2010. These changes offer opportunities to HEIs to develop programmes to attract a diversified group of students and the involvement of the polytechnics sector in these initiatives would be desirable and appropriate.

Labour markets and higher education

4.13 In 2006, 14% of the employed population had a higher education degree (MCTES, 2006). The target of 15% for 2010 of the Portuguese Technological Plan may well be exceeded. The flow of degree graduates to the labour market as a share of total new entrants has risen from 2% in 1992 to 11% in 2002. For the age groups 20-23 and 23-26 years, graduates comprised 47% and 40% respectively of new entrants in 2003 (MCTES, 2006). Several submissions to this review suggested that Portugal is now beginning to over-supply the labour market with degree graduates. Others commented that the fit of graduates to labour market needs is less than optimal. Some indicated that there are problems of balance between graduate labour supply and demand, but that these problems are more of a qualitative than quantitative nature.

4.14 Between 2000 and 2005, the number of persons with a higher education degree has risen from 472,000 to 687,000 or at 9 per cent per annum on average (Ministry of Labour, 2006). The increased output of graduates has been absorbed into the labour market, despite a contraction in total employment over the period. In 2005, there were 46,200 registered unemployed graduates (Ministry of Labour, 2006).This number includes graduates for public service positions, notably teachers, subject to cutbacks reflecting fiscal and demographic pressures. That is, the modest rise in graduate unemployment reflects problems on the demand side of the labour market rather than problems with graduate supply. The unemployment rate for graduates (6.3%) was lower than the average rate (7.6%) and lower than that of

persons with lower qualifications (8.0% secondary education, 7.8% basic education) (Ministry of Labour, 2006). The average duration of unemployment for graduates (8 months) is much lower than the national average period (15 months). Graduates generally have faster rates of labour market absorption, lower spells of unemployment, and higher incomes than non-graduates. In 2003, graduate earnings were 2.3 times those of average earnings, and 3.4 times those of the least educated workers (Ministry of Labour, 2006). There is no evident problem of graduate over-supply.

4.15 The question of appropriate graduate fit to labour market requirements is more complex. The Portuguese Technological Plan has set a target of raising the number of graduates (aged 20-29 years) in science and technology to 12 per 1000 population, up from 8.2 currently. This target reflects a concern that Portugal has relatively low rates of skills formation in the fields of science and technology that might power the next wave of economic growth. Table 4.2 shows changes in the composition of higher education graduates entering employment in the private sector, by field of study between 1994 and 2004. The share of graduates in engineering and natural sciences fell by 2.6 percentage points, from 25.1% to 22.5%, over the period. However, recent trends in the composition of total higher education enrolments, shown at Table 4.3, are more consistent with the desired directions of Government policy. Three observations may be made about the tables. The first is that the Portuguese system, despite the *numerus clausus* strictly applying in medicine and other medicine related programmes, does not appear to be rigid in terms of student enrolments by field of education over time. The second observation is that the declines in the shares of enrolments in arts and social sciences reflect, in part, the winding back of private provider offerings over the period. That is, the apparent system flexibility reflects a contracting private sub-system. What is unknown is the extent to which the apparent shifts also reflect changes in student demand, or provider offerings, or labour market conditions, or some combination of all those factors. The decline in agriculture enrolments and graduates is likely to reflect labour market changes more than provider structures, given that several institutions continue to offer courses in agriculture despite the lack of students. Other shifts possibly reflect the feminisation of higher education enrolments, with large proportions of women in the humanities and social sciences, education and health sciences, and associated deficiencies in the preparation of students in mathematics and science in secondary schools. The third observation is that a significant and growing proportion of students and graduates appear destined for service sector jobs, consistent with the changing structure of the Portuguese economy. Of graduates entering private employment in 2000, only 15% took up jobs in manufacturing industry and less than 1% in primary industry. There is no evident gross mismatch of graduate labour supply to labour market requirements.

Table 4.2 Graduate entrants to the labour market by field of their degree, 1994 & 2002 (%)

Field of Education	*1994*	*2002*
Economics/Management	22.2	19.8
Engineering	18.7	17.2
Arts	3.4	6.2
Natural Sciences	6.4	5.3
Education Sciences	7.6	4.6
Health Sciences	4.7	4.2
Social Sciences	7.9	16.0
International Relations	3.1	2.3
Agriculture, Forestry etc	3.7	1.0
Other	22.2	23.4
Total	100%= 7342	100%= 28372

Source: Source: Escaria, V. & Madruga, P. (2006, preliminary), "Entry of University Graduates in the Portuguese Labour Market". Draft Working Paper, unpublished

Table 4.3 Composition of the Higher Education Student Body, 1995/96 & 2005/06 (thousands)

Field of Education	*1995/96*	*(%)*	*2005/06*	*(%)*
Education	30.3	(10.0)	26.3	(7.2)
Arts & Humanities	28.6	(9.1)	31.6	(8.6)
Social Sciences & Law	125.5	(40.0)	116.3	(31.6)
Science & Technology	87.5	(27.9)	107.4	(29.2)
Agriculture	8.9	(2.8)	7.0	(1.9)
Health Sciences	21.7	(6.9)	58.8	(16.0)
Services	10.8	(3.4)	20.5	(5.6)
Total	313.4	(100.0)	367.9	(100.0)

Source: Ministry of Labour and Social Security (2006), Employment and Unemployment of Higher Education Graduates

C. THE NEED FOR MORE INCLUSIVE AND EFFECTIVE EDUCATIONAL PARTICIPATION

4.16 Higher education programmes will need to cater more effectively for two new groups of participants: an expanded cohort of school leavers who have undertaken technological and other specialised programmes of study; and adult learners who seek to upgrade their qualifications, with recognition of their prior learning through experience. A variety of new pathways will need to be opened for learners, including post-secondary and further education diploma courses, short-cycle degrees and standard degrees. The Government's *New Opportunities* initiatives should work to increase the number of students presenting for higher education and diversify the composition of the student body. It will be necessary for higher education institutions to respond not only by expanding their enrolments but also by offering new types of programmes via new modes of delivery to cater for a much wider diversity of learner backgrounds, experiences, aptitudes, motivations and learning opportunities. Just as a wide range of measures for transforming the nature of upper secondary education is envisaged for accommodating a more diverse mix of students, with different backgrounds, aptitudes and aspirations, so too, higher education will need to be transformed.

4.17 The task of transforming higher education will be a complex one, not least for the institutions themselves, and especially the public universities and polytechnics. Very few have structured consultations with industry, and many reflect poor understandings of labour market trends and requirements. Many of them appear neither to have understood nor accommodated the shift from elite to mass higher education participation over the last two decades, where students are drawn from diverse backgrounds and institutions have responsibilities to respond to the diversity of their circumstances and needs. Too many persist in a culture of refusing to accept responsibility for the success of those whom they admit. The review team was rather shocked by the expression of attitudes on the part of some universities to their students, especially those that draw from the highest achieving school leavers yet design to fail two out of five of them. The further diversification of learners participating in higher education will necessitate a radical rethinking by public universities and polytechnics of their basic role and purpose in contemporary Portugal.

4.18 Private universities and private polytechnics currently cater mainly for demand for qualifications in business and management, and health sciences. Several institutions provide niche courses (e.g. aeronautics), and a number serve particular areas of private sector activity, such as in education. Many private institutions have expressed concern that, in a context of declining student demand, and their need to charge higher prices than institutions with the advantage of Government subsidies, they will continue to lose enrolments and market share. A number are looking to the adult learner market, given the more flexible admission policy for those aged 23 years and over, as a source of new growth. Many private providers are also innovative and flexible in their arrangements for learning, including evening classes,

weekend classes, special arrangements for adult provision, and delivery in workplaces. They can be expected increasingly to offer customised packages to meet industry and enterprise requirements, at times and places convenient to learners. They can also be expected to contain their prices through various cost-cutting measures. The expansion of private providers into areas of non-traditional demand will give rise to the need for new quality assurance measures that are at the same time robust and appropriate to innovative forms of delivery.

D. A RENEWED ROLE FOR POLYTECHNICS

4.19 Across various national and sub-national systems of higher education, polytechnics generally differ from universities in four main ways: they have lower graduate unit costs; they give emphasis to practical learning; they supply graduates to specific (mostly intermediate) segments of the labour market; and they do not offer higher degrees by research (PhD and Master by Research). Polytechnics thereby make an important contribution to the sustainability of a mass, as distinct from elite, higher education system, and indeed, to the further transition from mass to universal participation. Polytechnics enable efficient expansion with equity. They typically admit students who may not otherwise gain access to a university, and thereby raise the participation rate. They normally support their students to progress and succeed at acceptable standards of learning. The participation of students from disadvantaged backgrounds offers a ladder of opportunity for inter-generational upward social mobility.

4.20 Polytechnics typically produce graduates at a faster rate than universities. Their graduates are prepared particularly for sectors contributing to national productivity growth through skills application and technology adoption. In some fields of education, polytechnic course costs come close to those of a university. In aggregate, however, polytechnics are intended to produce a greater volume of graduates, and a greater volume of graduates through shorter programmes, than those provided by universities. The overhead costs of a polytechnic are typically lower than for a university that sustains research capability as well as teaching capacity. Hence, the annual unit costs per student are lower for polytechnics than for universities. Additionally, the duration of polytechnic studies is shorter on average than university courses.

4.21 The exclusion of polytechnics from research and research education is normally justified on three main grounds: limits to the availability of quality research capability, and the need to concentrate rather than disperse that capability; the high costs of sustaining research excellence, and the need to contain overall costs of the research and research training system; and the need for polytechnics to focus on knowledge transmission and application, rather than on knowledge generation and preservation. Polytechnics contribute to the national innovation system primarily through skills formation and technology transfer.

4.22 The effort to define the boundaries clearly between the university and polytechnic sub sectors of higher education systems has not been remarkably successful in a number of countries. The conventional lines of separation of institutional types by mission are fraught with difficulty, whether ‘heads V hands’, ‘theoretical V practical’, ‘academic V vocational’. There are vocational dimensions to the preparation of professionals via university courses, such as in Medicine, Engineering and Accounting, just as there are theoretic dimensions to the preparation of nurses, teachers and technicians.

4.23 The boundaries of a binary divide are arbitrary, and there is inevitable blurring at the edges, especially when new ‘knowledge-intensive’, paraprofessional and technician, occupations are forming. On the one hand, academic norms tend to push relegated institutions to emulate university characteristics. On the other hand, universities are not always reluctant to trespass onto the disciplines and programme types that have been designated for the polytechnics, especially in times of contraction of conventional student demand. Hence, there is typically a tendency for a convergence of roles, and policy makers eventually resort to some form of compromise, such as including parts of the polytechnic sub-sector with the

universities, merging institutions, or loosening the limits on polytechnic activities. The success with such arrangements is variable across countries, and often depends on the clarity of vision of the institution's leaders and the quality of leadership, a commitment to serving different constituencies, and reporting requirements relating to service to different constituencies.

4.24 Portugal's Law of 1979 was a reasonably clear statement of expectation of the orientation of polytechnic education, both in terms of educational emphasis and graduate destination. Polytechnic education was defined as: "education with a greater applied and technical emphasis and strong vocational orientation, for training intermediate level technicians for industries, service companies and educational units."

4.25 The review team was provided with indications of the commitment of individual polytechnics to the economic and cultural development of their regions. This commitment was expressed in various ways. At its best it involved the polytechnic in programmes of active engagement with prospective students and their schools, alongside knowledge transfer to enterprises and creative outreach services to communities. Most representatives of polytechnics acknowledged that they had been established with expectations of promoting equity of access, especially for disadvantaged young people, women, and people of the interior regions. Not all could demonstrate that they were seriously addressing these priorities. In the context of enrolment decline and consequential reductions in funding levels, the contemporary appeal to foundational roots and commitment to the 'principle of proximity', in some cases, presents as a bid for special assistance.

4.26 Notwithstanding a few exemplary practices, the Review Team concludes that Portugal's polytechnics have largely lost their way. There is nothing distinctive about polytechnic education, despite the rhetorical statements of sectoral role and institutional mission. Almost all the polytechnic representatives indicated in the course of discussions with this review, that they aspire to becoming universities. On the basis of the evidence available to the Review Team, they are not looking to work with industry. Their curriculum approach is primarily content-based and theoretical, in emulation of university education. Their programmes do not provide sufficient work experience placements and internships. They are providing very little professional education and training short courses. The polytechnics are not contributing to improving success rates in upper secondary education. They are also neglecting the post-secondary and technical offerings that are needed to cater for students who are not well suited to academic learning and who have gone missing from Portuguese education.

4.27 On the whole, the polytechnics could do much more to balance the pursuit of institutional interests with contributions of community benefit. They need to return to their core mission of developing employable graduates with practical know-how, underpinned by analytical and problem-solving abilities. They also need to see themselves, and have the community see them, as a major source of post-compulsory education and training, encompassing further education and higher education, for Portugal's new participants – the previously excluded youth and adult learners who are the subject of the *New Opportunities* initiative.

4.28 The Government has sought to reinforce the expectation that polytechnics will be different from universities, and that they should be valued for their different and important role. The Law 74 of 2006, refers to the university and polytechnic subsystems having "equal dignity and exigency but with different vocations". The particular demarcations are indicated in the expectations of the qualifications offered by polytechnics and universities. For the polytechnic Masters degree, the expectation is that the graduate 'acquires a professional specialisation', in contrast to the 'research innovation' expected of a university Masters graduate from a research environment. For the polytechnic Licenciado, the expectation is that it:

> "must value particularly training actions targeted at the practice of a professional activity, ensuring a component of application of the knowledge acquired to the actual activities of the respective professional profile."

4.29 At the same time, the polytechnics are hearing mixed messages. They are enjoined to upgrade the qualifications of their faculty to PhD level, indeed they are now funded, in part, according to their performance in raising the qualifications of their teaching staff. Yet they are not to be research institutions and not to provide research education, and they are reminded that their approach to higher education should be application-oriented. They hear of consideration being given to the selective integration of some polytechnic schools with universities. They hear that they may be required to provide post-secondary short-courses within their current operating budgets. And they see part of the enrolment shares they have worked to build up over the years, and on which their budgets are based, being eroded through competition from universities and private providers. A more explicit statement of the role of polytechnics is needed, one that conveys an expansive vision of their distinctiveness.

4.30 On the basis of considerations of student demand, labour demand and cost-effectiveness of educational supply, there is no evident or compelling need to expand student numbers in the university sub-system, other than for higher degrees by research, and then only in fields where Portugal performs at the highest standards of international research excellence. Future growth in higher education participation should be overwhelmingly concentrated in the polytechnic sub-sector. This implies an acceptance of fundamental differences of mission of the sub-sectors in terms of both student inputs, production costs and graduate outcomes. The Review Panel cannot assess the extent to which the institutions and the various communities of interest – especially students, parents and employers – are willing to embrace differentiated expectations on a horizontal, rather than vertical, basis. On the one hand, history and culture are powerful forces. On the other hand, growth and survival depend on adaptation to changing environmental conditions.

F. EDUCATIONAL QUALITY

The Bologna process in Portugal

4.31 The Decree Law 74/2006 outlines expectations of Portugal's transition to a reorganised higher education system within the scope of the Bologna process. It is made clear that this process "cannot, in any circumstance, be faced as a mere formal change", and it draws attention to the key element of the change envisaged:

> "A core issue in the Bologna Process is the transition from a passive education paradigm based on the acquisition of knowledge to a model based on the development of competences, both generic – instrumental, interpersonal and systemic – and specifically associated with the training area, where the experimental and project components play an important role. Identifying the competences, developing the adequate methodologies for their accomplishment, implementing the new model – these are the challenges which the higher education institutions must face."

4.32 The institutions were engaged in submitting their proposals for Bologna-compliant programmes during the course of this review. In discussions held with institutions, the focus of their attention was on restructuring programmes to the three degree cycles and enumerating ECTS credit points for study elements of the cycles. There was less discussion of the Diploma Supplement, and barely a mention of the transformation of approaches to learning from curriculum to competence (actually a mix of both). There is a concern that, in Portugal as in many other European countries, as to whether the rapid repackaging of courses to meet the Bologna degree cycles is occurring with regard to the desired capabilities of graduates, the learning outcomes of the new programmes, the new ways and means of learning required for

developing the capabilities, and the methods to be used for the demonstration and evaluation of learner competences.

4.33 As Chapter 2 argues, a rush to Bologna compliance, if it involves superficial attention to the envisaged changes to the practice of learning and teaching, would constitute a missed opportunity to shift the focus of Portuguese education to a process of learning as the development of abilities. If that shift is not made, it will be difficult for Portugal to realise its objectives for bringing excluded youth into upper secondary education, and broadening higher education participation among young people and adults. The predominant Portuguese approach to teaching as telling, and learning as passive reception of knowledge, rather than interaction, questioning and practical experience, is a principal reason for low rates of educational participation and success. The culture and practice of failing large proportions of students at various stages of the education process, and the inordinate repetition rates, reflects the dominance of a curriculum approach using norm-referenced assessment. The Bologna reforms envisage a competence approach using criterion-referenced assessment, along with learning modes that engage students actively, maintain their interests and widen their mental horizons. This far-reaching change in the educational mind-set, with all of the changes to culture, procedure and skill that it entails throughout the schools, polytechnics and universities, is fundamental to increasing learner participation, progression and success.

4.34 Discussions with institutions focussed on the first 3-year undergraduate cycle. Several institutions indicated demand niches for shorter-duration programs, say 18 months or two years, especially for studies leading to paraprofessional occupations. There is nothing in the Bologna agreement to prevent the offering of short-cycle higher education programmes, and institutions ought to be advised that they are able to do so. There was little opportunity to explore intentions regarding second cycle degree patterns and funding options. Some institutions appeared confused as to their options regarding 3+2, 4+1, integrated 5 year programmes, and other alternative configurations.

4.35 Several firms complained during this review that while graduates are generally well prepared theoretically, and have good analytical skills, they are afraid to make recommendations for solving practical problems, afraid to make mistakes, and lack the "soft skills" of contextual understanding, initiative, project management, teamwork and interpersonal skills. This list of alleged deficiencies as perceived by employer bodies is a familiar one, across many countries and Portugal may not necessarily have greater challenges than other countries. Nonetheless, such feedback is instructive for directing policy attention to the effectiveness of learning for diverse purposes. This matter is discussed below in the context of quality and the Bologna process.

4.36 Portugal currently lacks systematic processes of quality assurance in higher education. The previous system of provider evaluation is discredited, not only because of deficiencies in its approach but also because of the failure of authorities to take action when an institution refused to cooperate or was found to provide inadequate programmes. The Decree-Law 74/06 provides for a new national accreditation system, and the European Network for Quality Assurance in Higher Education (ENQA) has provided a separate report to the Portuguese Government, with recommendations for implementing procedures for the registration of new programmes that will not discriminate by type of institutional provider. Such an approach gives emphasis to the nature of educational programmes and the capabilities of graduates, and the standards of qualifications awarded on completion of those programmes.

4.37 In discussions with faculty and administrators of higher education institutions, students, and employers of graduates, it became evident to the Review Panel that standards of a degree vary, and are known to vary, across public and private institutions, despite an official policy of 'parity of esteem' of awards for public employment. Private employers appear to be more discriminating; several indicated that they hire graduates only from some universities and do not hire polytechnic graduates. The available data on graduate employment also suggest that graduates from some institutions obtain employment typically

within three months after graduating, while graduates in the same fields from other institutions can take up to 18 months to find a job. It is not clear to what extent these differences in employer hiring preferences and graduate time to employment reflect merely the positional status of institutions. The lack of any reputable evaluations and comparisons of graduate performance across fields relieves traditional institutions of pressure to improve their performance, and denies graduates of innovating institutions a fair opportunity to compete in the labour market.

4.38 Portugal faces the predicament of needing to increase student access and throughput without reducing standards. There is no reliable way of knowing at present whether adequate standards of quality are being maintained. The Review Team was advised that changes to student admission requirements (e.g. the 95/200 score) have been driven by a concern to safeguard standards of quality, but was presented with no evidence linking the input requirements to student success or graduate capability. The current policy of student admissions does not seem to pay adequate attention to its impact on quality. Meanwhile, policy incentives are encouraging higher rates of student throughput and graduation, without checks on the quality of student progress.

4.39 The current approach to 'quality control' on the basis of norm-referenced inputs is excluding too many students. A narrow curriculum-based approach to examinations is failing a disproportionate number of students, in the schooling and higher education systems, and a developmental approach to learning needs to be adopted. An enlarged and more diverse upper secondary student population will present at the point of entry to higher education with a more differentiated profile of educational attainment than the current cohort. The present system of student examinations for higher education admission is essentially a cascading of the matriculation requirements of universities, given that secondary education has lacked its own purposes, and courses that do not count for university admission have been regarded as inferior to those that do. There are cultural as well as architectural dimensions to this challenge. In the changing circumstances, a one-size-fits-all approach to quality assurance, either in relation to the student inputs or the graduate outputs of the higher education system, would produce perverse outcomes. Rather, a 'fitness for purpose' approach to quality assurance is warranted, within a framework of minimum standards for attainment of an educational qualification, consistent with the Bologna competences. This approach would allow greater diversity of student inputs and wider choices for students, without diminishing quality. Secondary students would have stronger incentives to undertake courses that suit their interests and aptitudes and, on the basis of their performance in those courses, to gain access to higher education studies that fit their needs, and to better fit those of the labour market, consistent with the intent of Government policy. It will be necessary for schools to report student attainment in terms of standards of performance; that is an individual's report needs to show how well the student has performed against the evaluative criteria of each course of study. It will be necessary, too, for the polytechnics to identify the learning capabilities of commencing students and provide bridging programmes and learning centred support services, as required, to help students achieve.

4.40 Operationalisation of a fitness-for-purpose approach to quality assurance could be facilitated through the development of a National Qualifications Framework. Such a framework would outline the structure of educational qualifications in Portugal, the educational meaning of each qualification, and the relationships among qualifications. That is, the qualifications framework should describe the expected capabilities of graduates for each level of qualification, and will become the reference for evaluations of the effectiveness of educational programs. Expected standards of graduate capabilities, including the minimum acceptable standard for the award of a degree, can be determined through joint processes of scholarly and professional comparisons of students' work and the assignment of grades for those works. Such 'standards-referenced' evaluation and reporting are key components of a focus on learning outcomes.

4.41 For higher education, the architecture of qualifications would reflect decisions made in relation to the Bologna process, regarding the nomenclature, length and purpose of awards. The educational meaning

of a qualification, consistent with Bologna principles, would be defined by descriptors of expected graduate capabilities and attributes (competences) for each level of educational qualification. The learning experiences of students, and their achievements in relation to the expected capabilities, would be documented via the *Diploma Supplement*, thereby demonstrating the distinctiveness and value-added of a Portuguese degree. The qualifications framework would also identify the pathways available to students to build their personal portfolio of educational credentials, including upgrading of qualifications by further study, with recognition for prior learning through earlier qualifications and/or through work experience. To evaluate the quality of an educational program, reference would be made to the extent to which graduates have achieved the specified competences for the qualification awarded to them. That is, qualitative evaluation would focus primarily on learning outcomes. In the case of higher education qualifications, to give effect to a fitness-for-purpose approach to quality evaluation, the descriptors for university qualifications and polytechnic qualifications would need to be distinct. University graduates, for instance, would be expected to demonstrate generic analytical skills of a high order suitable to different contexts. Polytechnic graduates, on the other hand, would be expected to demonstrate the application of technical skills in a professional occupation at a high order of competence. The expectations of university graduates in terms of conceptual skills could be framed to be more exacting than those expected of polytechnic graduates, whereas the expectations of the ability to apply advanced technical skills could be framed to be more exacting for polytechnic graduates than for university graduates. Subtleties of difference in the depth of expectations of university and polytechnic graduates could be expressed across the breadth of their capabilities including communication, teamwork, and problem-solving skills.

4.42 The development of a National Qualifications Framework and associated descriptors for awards is best undertaken through processes of consultation that are inclusive of all interests: Government and parliament, employers of graduates, professional bodies, scholars, students and community organisations. An inclusive dialogue is particularly necessary in Portugal, given the cultural legacy affecting contemporary attitudes to education, as a basis for forming a new social commitment to a differentiated higher education system, where graduates from polytechnics are valued for the particular capabilities they can bring to raising productivity and serving community needs. An inclusive consultation would also help to link those involved in secondary education, vocational education and training, adult education and training, higher education, and further education. Such a process could help sharpen the differences and clarify the commonalities in the various programmes and, importantly, expand opportunities for flexible learning pathways between the programs.

4.43 The ENQA Review Team has given more detailed consideration to accreditation structures and processes than this Review Panel has been able or tasked to do. The ENQA preferred approach involves programme by programme evaluation, complemented by periodic quality audits for the total institution. It is understood that the frequency, and perhaps the intensity, of quality audits would vary according to the track record of institutions. Such an approach is endorsed in principle by this review team, and its application is seen to be capable of extension in two main ways.

4.44 First, the application of programme-specific quality evaluations could be extended beyond the authorisation of new programs, and the verification of acceptable standards for programmes delivered by established institutions. A consultative process of programmatic evaluations, involving providers, employers, professional bodies and students, could help to build a national consensus of expectations about standards of learning outcomes for university and polytechnic awards in particular subject areas, such as in engineering, accounting, law, nursing, or teaching in secondary schools. Such a process could enable consideration of: (a) the knowledge, understandings and skills and other attributes a student should have on successfully completing a program; (b) the conceptual framework that gives a discipline its identity and coherence; (c) the intellectual demand and challenge in terms of the skills needed to develop understanding in the subject; (d) the types of learning experiences that are likely to enable students to develop the expected knowledge, understandings and skills; and (e) the forms of assessment appropriate to measuring

student achievement of the intended learning outcomes. In this way, the reforms envisaged via the Bologna Process could be given substance and dimension appropriate to Portugal's circumstances.

4.45 Second, programme-specific quality evaluation could be extended, at the level of higher education institutions, to promote a developmental approach to quality improvement. Here the focus of consideration would be on matters of institutional responsibilities for curriculum design, learning opportunities, assessment of learning, and student achievement. At this level, the processes of internal discussion, and engagement with external stakeholders, would be directed at identifying the distinctive ways by which an institution constructs, delivers and evaluates its educational programmes, consistent with its mission. Feedback from external evaluation panels, as part of the programme review cycle, would be an important element of the quality improvement agenda.

4.46 Attention to educational outcomes is a necessary but not a sufficient approach to assuring educational quality. A national qualifications framework sets out generic expectations, without limiting the forms of provision of educational services, such as between public and private suppliers. Such an approach is consistent with the principles of contestability of supply of services, within nations and internationally. However, there are further matters of public interest that also must be safeguarded. These relate to the integrity of providers, the character of the student experience, and the protection of students. In terms of provider accreditation, the principle of competitive neutrality requires that all providers should be expected commensurately to demonstrate acceptable standards, especially in educational leadership, curriculum & pedagogy, access to learning resources, financial viability (protection for students in event of insolvency, break-up or merger), and probity.

G. CONCLUSION

4.47 Taking account of the above considerations, the Review Team offers the following recommendations for action primarily by the Government:

An enlarged role for polytechnics

- Future growth in higher education at the undergraduate level should occur primarily in the polytechnic sub-sector, at least until 2010.

- For Portugal's new participants – previously excluded youth and adult learners – polytechnics should be the main source of higher education, encompassing vocational training and further education as appropriate to meet learner needs.

- Polytechnics should be specifically tasked to develop employable graduates with advanced technical skills and practical know-how, underpinned by analytical, problem-solving and communication abilities of a high order.

- Polytechnics should be resourced specifically to develop new delivery modes and services to meet the diverse learning needs of the enlarged student body.

- A variety of new pathways will need to be opened for learners, including post-secondary and further education diploma courses, short-cycle degrees.

A National Qualifications Framework

- A National Qualifications Framework should be developed, through wide consultative processes that outline the structure of educational qualifications in Portugal, the educational meaning of each qualification, and the relationships among qualifications.

- Higher education qualifications should be described in terms of the knowledge, understandings, skills and other attributes expected of graduates.

- For each level of award, the qualifications of university graduates and polytechnic graduates should be defined separately and distinctively.

- The different roles of universities and polytechnics should be clarified in terms of the different capabilities and attributes expected of graduates who successfully complete a programme of studies leading to the award of a Portuguese qualification.

A strengthened system of national accreditation and quality assurance

- All higher education providers should be expected to demonstrate acceptable standards, in educational leadership, curriculum & pedagogy, access to learning resources, financial viability, and probity.

- The accreditation of all new higher education programmes should be based on rigorous evaluation by an independent external authority.

- The continued provision of higher education programmes should be subject to periodic external review, programme by programme, and at the whole-of-institution level. The frequency and intensity of quality auditing of institutions should reflect their performance records.

- A consultative process of programme by programme evaluations, involving providers, employers, professional bodies and students, should be undertaken to build a national consensus of expectations about standards of learning outcomes for university and polytechnic awards in particular subject areas.

A more outward-looking orientation

- Universities and polytechnics need to understand better, and to articulate formally, their particular roles in Portugal's system of mass higher education.

- Universities and polytechnics should consult more broadly and systematically on the development of their educational programmes, including with employers of their graduates.

- Universities and polytechnics need to give greater attention to the destinations of their graduates, to monitor changes in destination patterns, to seek structured feedback from graduates, and to evaluate their programmes in the light of graduate feedback and experience.

A focus on learning outcomes and a commitment to continuous improvement

- Universities and polytechnics need to take responsibility for the educational success of their students. They should set internal limits on acceptable rates of student failure, repetition and

wastage, monitor the progression of students, and provide additional programmes and specific learning support services as required to increase rates of success.

- Systematic student feedback on the quality of teaching and a commitment to make the feedback known and to improve performance should be a feature of all higher education institutions.

REFERENCES FOR CHAPTER 4

Cabinet of the National Co-ordinator of the Lisbon Strategy and the Technological Plan, (2006), Portuguese Technological Plan; A Growth strategy based on Knowledge, Technology and Innovation Presentation Document, Page 18.

Ministry of Labour and Social Security (2006), Employment and Unemployment of Higher Education Graduates.

Ministry of Science, Technology and Higher Education (2006), Tertiary Education in Portugal, Background Report, Version 1.1, Table 1.13

Ministry of Science, Technology and Higher Education, MCTES (2006), Tertiary Education in Portugal, Background Report, Version 1.1, Table 1.6

Ministry of Science, Technology and Higher Education (2006), Tertiary Education in Portugal, Background Report, Version 1.1, Table 2.1

Ministry of Science, Technology and Higher Education (2006), Tertiary Education in Portugal, Background Report, Version 1.1, Table 3.38.

OECD, (2005), *Education at a Glance*, Table A1.1a

CHAPTER 5: RESEARCH, INNOVATION AND INTERNATIONALISATION

A. INTRODUCTION

5.1 Globalisation and increased competition from the new EU member countries and emerging economies in Asia and North Africa make it necessary for Portugal to diversify the structure of its economy. It has to move gradually away from a reliance on traditional low value-added products.

5.2 The Portuguese Government has started to develop processes of national strategy formation, especially in the context of implementation of the Lisbon strategy. Its strategic objective is the modernisation of Portugal, and central instruments are education, knowledge creation and its application to society and economy. The quality of human resources, a more developed research system, as well as social and economic stimuli to innovate is essential for any such national objectives.

5.3 The Government is committed to continue the accelerated catching up process also in research and innovation. Research and innovation form a key position in the growth strategy and competitiveness programme of the Government (Technological Plan). It is defined as "an action plan to put into the practice an articulate set of policies aimed at stimulating the creation, dissemination, assimilation and use of knowledge". If implemented, this strategy will greatly enhance the Portuguese adaptability to advances in the global economy and its capacity to meet the competitiveness demands. The strategy should be seen also in the context of Portuguese challenges in fulfilling the targets of the European Stability and Growth Pact. As mentioned earlier, the building of science base and capacity is based almost exclusively on government investment. The Portuguese budget deficit sets strict limits to these investments during the next few years.

5.4 In terms of science base and capacity building key targets of the strategy are:

- To raise the share of S&T graduates in the population aged 20-29 by 50%, to raise the PhD production to 1,500/year (to double new PhDs/ 1000 population aged 25-34)

- To double GERD financed by the Government and triple the BERD/GDP ratio.

- To double the total number of R&D personnel of the population, more than double number of researchers/ 1000 population

- To increase by 50% the number of scientific publications per million population

5.5 The implementation of the public investment part of the strategy has had a good start. Firstly, the budget for 2006 has research and innovation as a key priority. The Government has presented in May 2006 in Parliament a special Commitment with Science- document and the approved budget for 2007 confirms the target of 1% of GERD to be achieved by 2009. The state budget for 2007 considers a net increase of 77 % in S&T funds for MCTES and a net increase of 90 % in national funds for S&T. Secondly, increasing the number of new PhDs is advancing as planned, even if there is a need to strengthen and qualify post-graduate education (see next section). Thirdly, many of the remaining targets, e.g. increasing scientific productivity, follow almost automatically from the attainment of the two main objectives.

5.6 The key stakeholders in the system – Government, research and innovation policy makers and university leadership – seem to agree on an accelerated modernisation effort, even if pockets of resistance to change exist. Political will to make major investments and changes is exceptionally strong.

5.7 The concept of a national innovation system (NIS) is now in common use in the development of science and technology policies all over the world. It rests on the premise that the linkages among stakeholders in the system are key to improving the performance, not only in innovation, but also in research. The system is composed of the public research system (universities, polytechnics and public research institutes), firms and different intermediary institutions (e.g. science and technology parks as well as regional development organisations). It includes also funding and policy institutions at national and regional levels. The quality of institutional and organisational linkages, the degree and quality of knowledge and information flows as well as human resource flows in the system are essential for the dynamism and performance of the system.

5.8 The present state of the Portuguese NIS makes the accelerated reform efforts rather demanding. The more or less developed subsystems and actors are there but the linkages between them and cooperative mechanisms are missing to a great extent. The major missing linkage is that between the public research system and private R&D and innovation. The government policy must deliver both a supply of knowledge plus highly qualified manpower and incentives to the private sector to utilise them and to invest in innovation.

5.9 As will have been clear from a reading of the other chapters of this review the perspective of this evaluation – as expressed in its objectives – is both strategic and systemic. The focus of this chapter is threefold. It has been well established, from the historical catching-up efforts of other European countries, that high investment figures alone are not sufficient to bring about considerable enhancements in research performance; necessary qualitative changes in the research system and its management are necessary and are therefore reviewed in the following. As PhD production is the focus of the Portuguese policy, the problems of careers and mobility as well as post-graduate education will be amongst the most demanding challenges in the near future and these are treated in this chapter. The internationalisation of the system is topical not only from the point of view of better quality of research and innovation, but also for the attractiveness of Portugal as a site of international investments in R&D. In the long-run the general position of science and research in Portuguese society is vital, and therefore its place in the secondary education is commented upon.

B. RESEARCH AND INNOVATION

Building the science base and capacity

5.10 Though the Portuguese research system has been growing exceptionally fast in the latter half of the 90's and in recent years, the absolute figures are still relatively low. The expenditure on R&D , in 2003, was one of the lowest in Europe, at 0.78%/GDP, although it is growing again. In addition, the public sector funding of R&D is over 60% while the EU 15 average is around 35%; it is less than 30% in the more developed knowledge-based economies like Finland and Sweden. As a result the Government has a large role in the system; this pattern is characteristic of the countries that are trying to catch up to more advanced country standards. This is evident also in the key position of public universities and polytechnics in the system; more than 38% of GERD was performed in the higher education sector, the second highest figure in the OECD area after Greece (OECD, 2005c).

Table 5.1 Gross expenditure on R&D (GERD) as a percentage of GDP in selected OECD countries

	1995	1999	2000	2001	2002	2003
Canada	1.72	1.82	1.93	2.08	1.97	1.95
Czech Republic	0.95	1.16	1.23	1.22	1.22	1.26
Finland	2.26	3.21	3.38	3.38	3.43	3.48
Greece	0.49	0.67	..	0.65	..	0.62
Hungary	0.73	0.69	0.80	0.95	1.02	0.95
Ireland	1.28	1.19	1.14	1.11	1.12	1.19
Norway	1.70	1.65	..	1.60	1.67	1.75
Portugal	0.57	0.75	0.80	0.85	0.80	0.78
Spain	0.79	0.86	0.91	0.92	0.99	1.05
Sweden	3.35	3.65	..	4.29	..	3.98
United Kingdom	1.95	1.87	1.86	1.87	1.89	1.88

Source: OECD, Main Science and Technology Indicators, November 2005.

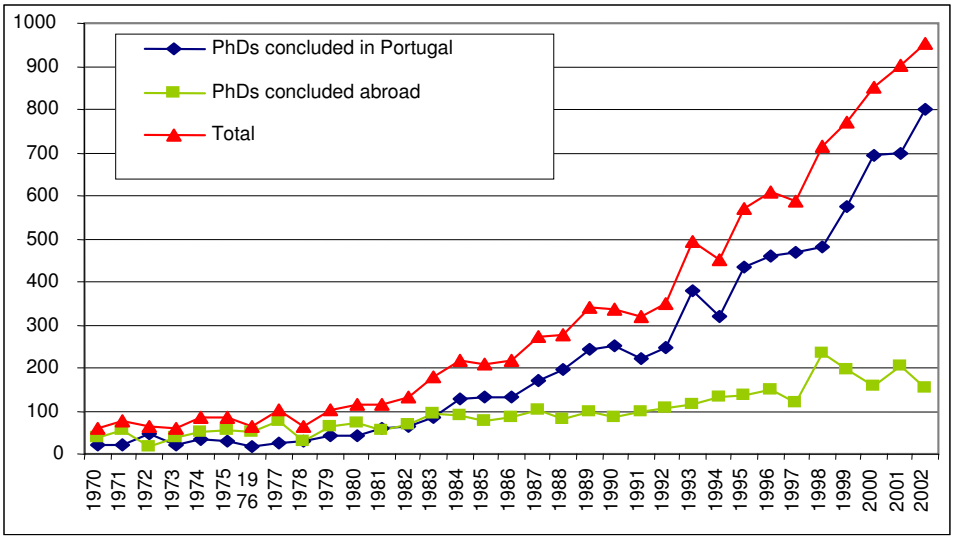
Table 5.2 Gross domestic expenditure on R&D (GERD) by source of funds (%)

		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Government	**EU15**			36.8[s]	35.9[s]	35.5[s]	34.1[s]	33.8[s]	33.7[s]	33.7[s]	34.7[s]
	Portugal	59.4[e]	65.3	66.9[e]	68.2	69.1[e]	69.7	64.8[e]	61	60.5[e]	60.1
Industry	**EU15**			53.4[s]	53.6[s]	54.2[s]	55.5[s]	55.5[s]	55.6[s]	55.3[s]	54.6[s]
	Portugal	20.2[e]	19.5	20.5[e]	21.2	21.3	21.3	27.1	31.5	31.6[e]	31.7
Abroad	**EU15**			7.7[s]	8.2[s]	8.2[s]	8.2[s]	8.4[s]	8.5[s]	8.7[s]	8.5[s]
	Portugal	15.0[e]	11.9[b]	8.7[e]	6.1[b]	5.7	5.3	5.2	5.1	5[e]	5

EUROSTAT estimate; e – Estimated value; b – Breaking series; Source: EUROSTAT, 2005

5.11 While Portugal has had one of the lowest numbers of researchers (FTE), pro rata, both in EU-15 and EU-25, it has caught up with the European average since the beginning of the 1990's. However, the number of researchers with a PhD, or its equivalent, working in industry was only 189 in 2003. Portugal has one of the highest growth rates of new science and technology PhDs per thousand population aged 25-34. As can be seen in Table 5.3, the growth rate has been 7-10% in recent years. The rapid growth has been due to the implementation of the CIÊNCIA programme in the beginning of the 1990's and the programme of advanced training fellowships funded by the Science and Technology Foundation (FCT). The funds for the fellowship policy of the Foundation have grown exceptionally quickly, by as much as 80% from 2000 to 2005.

Figure 5.1 PhDs concluded or recognised by Portuguese universities and abroad, in the period 1970-2002



Source: Science and Higher Education Observatory, PhDs concluded or recognised by Portuguese Universities, April 2003; Official Journal (II Series):Semestrial break down of PhD diplomas obtained abroad and recognised in Portugal under the scope of Decree-Law 216/97, of 18 August; Director-general for Higher Education: Registry of PhDs obtained in the European University Institute of Florence under the scope of Decree-Law 93/96, of 16 July.

Table 5.3 PhDs completed or recognised by Portuguese universities by scientific field, 1970-2005																			
	1970-1979	**1980-1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**Total**
Mathematics	31	134	20	21	24	25	26	27	23	27	31	35	48	37	42	58	61	63	**733**
Physics	77	155	16	25	12	33	23	25	34	26	44	29	40	38	54	57	36	55	**779**
Chemistry	87	116	15	9	21	32	31	35	50	44	41	37	51	53	52	49	47	64	**834**
Biological Sciences	33	114	23	31	27	40	36	55	59	75	64	60	74	86	90	110	89	136	**1.202**
Earth and Space Sciences	30	44	13	10	12	9	10	26	14	24	22	27	45	63	38	41	41	35	**504**
Agrarian Sciences and Veterinary	56	136	32	13	25	23	28	24	17	21	38	39	34	20	55	39	41	38	**679**
Health Sciences	145	301	47	43	47	58	57	74	70	75	73	89	84	85	78	67	76	81	**1.550**
Mechanical Engineering	28	92	16	12	9	17	17	16	24	20	22	23	22	25	31	35	44	53	**506**
Material Sciences and Engineering	6	33	6	6	4	10	10	7	13	12	11	21	16	13	16	12	18	22	**236**
Civil Engineering and Mining	24	98	13	9	18	19	16	24	24	28	21	32	21	19	30	23	41	29	**489**
Biochemical Engineering	-	9	1	7	2	4	3	13	13	11	22	21	21	16	35	33	30	20	**261**
Chemical Engineering	47	107	10	15	9	21	14	19	32	19	26	21	18	20	31	26	28	33	**496**
Electrical Engineering and Computer Science	38	153	22	17	24	28	30	44	55	36	57	67	55	80	82	90	111	106	**1.095**
Economics	21	130	9	20	19	22	19	20	21	15	28	19	33	40	45	30	33	32	**556**
Management	-	15	1	5	4	3	8	15	7	9	14	16	24	22	24	35	46	53	**301**
Law	17	14	7	6	5	3	3	5	8	7	12	11	13	18	15	24	17	21	**206**
Political Science	2	12	3	1	4	2	1	1	-	1	3	5	4	9	7	7	11	7	**80**
Sociology	9	37	7	3	9	7	13	10	15	6	9	17	20	29	27	30	39	49	**336**
Demography	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	**2**
Anthropology	-	18	1	3	2	3	9	11	13	7	5	9	7	9	13	19	13	10	**152**
Geography	8	17	2	3	-	9	2	8	4	4	4	12	7	6	11	8	8	11	**124**
Education Sciences	9	56	10	10	15	29	28	24	34	25	44	46	32	52	43	49	57	58	**621**
Psychology	4	37	7	11	11	19	13	20	13	23	16	22	35	30	26	30	36	39	**392**
Linguistics	9	29	7	4	3	3	8	3	6	9	8	13	22	17	11	19	19	17	**207**
Communication Sciences	1	4	1	2	-	2	2	2	3	2	6	8	5	7	11	15	12	9	**92**
Philosophy	24	34	10	7	10	9	5	6	9	4	10	12	12	13	25	9	16	17	**232**
History and Archeology	30	70	15	10	16	31	14	28	24	28	32	27	43	28	20	40	49	52	**557**
and Urbanism	2	2	7	3	2	12	7	11	3	10	3	10	11	10	19	13	9	10	**144**
Literature	30	93	16	13	16	20	16	12	19	20	44	38	53	53	33	46	38	42	**602**
Art	2	4	-	-	1	-	4	6	1	2	8	6	9	8	20	11	14	15	**111**
Total	**770**	**2.065**	**337**	**319**	**351**	**493**	**453**	**571**	**608**	**590**	**718**	**772**	**860**	**906**	**984**	**1.025**	**1.080**	**1.177**	**14.079**

5.12 The vast majority (over 10 000) of PhDs have remained in the universities. The increasing number of new PhDs has been employed in academic research, which is organised in research units. Over 90% of them are associated with public universities. About 1 500 are employed as teachers in the polytechnics, which is just over 10% of the whole teaching staff. If the system expands at the current rate – and the official target is even higher – it is clear that the existing structures will not be able to utilise the growing supply of highly qualified manpower. The expansion of highly qualified manpower and of research personnel is clearly desirable but it is equally clear that the present structures and rules will need to be changed if optimal economic and social benefits from the increased supply are to be reaped.

5.13 The number of research units has increased from 270 in 1996 to 473 in 2003 and the number of PhDs in the units has increased from 3,575 in 1996 to 8,324 in 2003. The number of research units per scientific discipline is considerable in areas such as electrical and computer engineering, health sciences, economics and management and history, where it is over 30. Many units are too small for effective research work. The co-operative/competitive mechanisms between the research centres are also unclear. The funding agencies should give priority to the creation of larger research units and centres and to encouraging an effective cooperation between them through various competitive funding instruments, e.g. programme funding.

5.14 The implementation of a new model for the assessment and funding of these units was launched in 1996. The assessment, which has occurred three times to date, has been managed by the FCT and undertaken by evaluation Review Panels composed mostly of international members; this accords with international good practice. Those units which have been awarded the lowest grade have lost funding. By contrast, it is quite common in many countries, that only units/projects which get the highest or second highest grades have their funding continued. The present funding policy should be reviewed as soon as possible in order to ensure that the results of the evaluations have a stronger influence on the funding decisions.

5.15 It should be mentioned in this context, that the Portuguese Government clearly recognises the benefits of competitive funding in policies to enhance quality and institutional development by evaluation.This can be seen in the budget for 2007, where the share of competitive and semi-competitive funding is increased from 26% in 2006 to 37% in 2007 as a part of the increased public funding of S&T. The continuation of this policy is important in developing excellence in higher education, research and innovation.

5.16 The issue of research university has been taken up in the Portuguese discussion. In this section the issue is considered only from the point of view of research excellence in university research; there may be also other considerations.

5.17 The concept of research university has various meanings. On the one hand, in the vocabulary of International Alliance of Research Universities (IARU) it means a research-intensive university which has developed itself to the present position during centuries (eg. Oxford, Yale). The same applies to European league of research universities. On the other hand, eg .the Indian government has announced in 2006, that it will establish five research universities, Indian Institutes of Science Education and Research (IISER). They will be small institutes, ca 3000-5000 master and doctorate students and a relatively large faculty, 1000- 1500 or so.

5.18 There are many ways to develop excellence in university research in Portugal. One possibility would be to build on the Research Unit and Associate Labs policy. This policy should be connected with a stronger competitive funding policy. The advantage of this solution would be an existing institutional basis and internationally well-defined principles for competitive funding in creating research excellence.

Table 5.4 Human resources registered at Research Centers and Associate Labs per field (status 31.12.2005)

	Researchers		PhD	
	Head Count	%	FTE	%
Biology and Biotechnology	2739	13%	1204	8%
Engineering Sciences	5718	27%	2507	16%
Health Sciences	2549	12%	1056,75	7%
Earth and Space Sciences	665	3%	665	4%
Marine and Environmental Sciences	1368	6%	1368	9%
Exact Sciences	2622	12%	2622	17%
Social Sciences and Humanities	5825	27%	5825	38%
Total	21486	100%	15247,75	100%

Source: Ministry of Science, Technology and Higher Education, 2006b

5.19 The research units are the main route to a research career for academics. They are the principal instrument for building science capacity in Portugal together with the Associated Laboratories (AL's). These AL's have been formed in 2000 from those research units which had been evaluated as being excellent or very good or which are working in areas of high relevance and significant research capacity. They now number 21, with 2,200 researchers, of which 1,450 are PhDs; the total financing allocated over 10 years is €268 million. Each one has a contract with the Ministry of Science, Technology and Higher Education. They have also some socio-economic impact aims, defined in the contract as public services or the creation of new businesses. The main part of the financing comes from FCT on a competitive basis. If AL's are looked at from the policy point of view, they can be seen to be a science capacity builder, as the Portuguese system of centres of excellence and the main employer of talented young scientists. The policy of the Ministry is to enlarge the AL system.

Table 5.5 Funding of Foundation of Science and Technology by main programmes2000-2005 (a)

Programs	2000	2001	2002	2003	2004	2005
FCT funding of Research Projects	9.281.747,22	21.835.801,15	33.005.582,17	25.489.747,50	24.800.935,90	28.709.005,99
FCT Funding for Fellowships	47.707.008,00	53.693.889,00	61.507.795,00	68.758.307,00	73.414.101,00	82.809.828,00
FCT Funding for Research Centres and Associate Labs	(b)	(b)	(b)	17.582.744,60	56.481.164,04	56.074.224,54

Source: Ministry of Science, Technology and Higher education, 2006b

(a) The three sub-totals do not accomplish the total funding of FCT, which was in 2005 about 218 million euros. The remaining part consists of minor programmes and some current expenses.

(b) Not presented here because of different methodology used in the process of gathering data.

5.20 An important new infrastructure investment should be noted in the context of the science base and capacity building. The creation of a 'virtual campus', an information network, links higher education institutes and research centres, libraries as well as elementary and secondary schools by broadband One of its objectives has been the creation of a Network Science and Technology Library connecting all member institutions to common library resources online and to international databases. The timing of the

investment has been excellent and it can be expected to produce high returns in economic, social and scientific terms.

5.21 Clearly, Portugal is still in the phase of building of a functioning research system and an effective national innovation system. The future success of the system building will be conditioned by the answers to the following questions: How to define and manage the sustainability of the system in the long run? How to organise and manage human resources and form linkages and networking in the system? Which incentives to create in order to generate dynamism in the system? What incentives to put in place in order to generate competition and cooperation in the system?

5.22 A basic condition of sustainability is that everything is done openly, transparently and equitably. This has recently been the aim of the policies of the Portuguese Government. The introduction of an evaluation culture with the involvement of international evaluators is important. This is essential, not only in education and research, but also in S&T policies.

5.23 Building the Portuguese science base and capacity using the present targets and plans is strongly recommended. However, the responsible persons must develop new steering and management procedures and processes, the most important objective of which is to form linkages and networking in the system.

Careers and mobility

5.24 The management of human resources is a demanding area of expertise. It is today seen in Portuguese institutions to a great extent as an instrument of organisational control while it would be more beneficial to see it as a central instrument in the formation of creative research and teaching environments. This is a part of the wider problem of micromanagement in the Portuguese tertiary education system. These and other related matters are treated in other chapters in this review.

5.25 The rapid growth of the number of PhDs has been achieved to a large extent with 'in-house' training programmes. This pattern should be altered in the near future. One possibility – which has been used in many more developed OECD countries for years – is to create a Portuguese graduate school system. The graduate schools are usually networked projects jointly run by several universities, in which experienced and younger researchers work in research groups together with students. This creates an innovative environment conducive to research quality and an inspiring learning environment. They provide systematic education with foreign expertise and versatile guidance for students. The graduate schools could be jointly funded by the MCTES, universities and FCT.

5.26 The incentive system for career development has had the effect of discouraging mobility. International comparisons and Portuguese data (see Soler 2001 and Athans 2001) show, that the level of inbreeding (estimated as the percentage of teaching staff who have published in international journals of ecology or zoology, trained at the same university) is highest in Portugal (91%) among 14 European countries. A comparison with the US demonstrates that Portuguese practices have incentives for inbreeding and very few, if any, incentives for good/excellent research performance. Portuguese data show (Ministry, April 2006), that the inbreeding rate at the two largest engineering schools in Portugal is 80-90%.

5.27 The essential elements of that system encourage graduates to pursue higher degrees in their 'home' university. They then are guaranteed progression into tenured academic positions over a number of years having achieved the Ph.D. *inter alia*.

5.28 A big disincentive - especially for young Portuguese faculty members - is that promotions are based on "openings" rather than on merit. This together with the almost complete occupation of the full and associate professor positions can have serious consequences for the quality of research and teaching in many universities. The promotions and tenure decisions should be based solely on research and teaching

achievement. Processes should be competitive, transparent and open; the evaluation of merit should be performed by outside peers in the field and preferably supported by recommendations from international experts.

5.29 The consequences of serious inbreeding can be damaging for the productivity and effectiveness of the system. Inbreeding does not facilitate structural changes or new approaches to scientific research and education.

5.30 In this context the concept of the creative research environment is crucial. It has certain characteristic features that are common across different scientific domains regardless of their different subject matter. The creative research environment must offer a relatively broad knowledge base, allow intellectual space to develop a diversity of approaches and ideas and creates an 'open space' that encourages intensive horizontal interaction and learning. Its scientific and organisational structure allows participation in many types of projects. It brings together researchers in various stages of their careers and provides them with opportunities for personal development and creativity. Many studies also show that inbreeding is a serious obstacle to the diffusion of new knowledge and new forms of organisation and management. Recruitment from various institutional, national and cultural backgrounds, on the other hand, increases diversity, which contributes to creativity. Mobility in and out of the research environment is essential as well as effective communication networks and numerous partnerships and contacts inside and outside the country.

5.31 The Portuguese system has also one channel of mobility. Research units and Associated Laboratories– besides being science capacity builders- are also instruments for dynamism and change, as has been mentioned by many international panels in the course of the evaluation processes of these units.

5.32 The young researchers' mobility mainly occurs under the scope of these research environments, often at the post-doctoral level. Portuguese policy makers acknowledge that this dynamic has had little impact on university structures and academic careers.

5.33 The independence of young post-docs should be encouraged by FCT, for example, by a competitive funding instrument which makes it possible for talented post-docs to form their own research groups. All PhD students should study even for short periods at foreign universities and young Portuguese researchers should be strongly encouraged to spend some time in a high-quality research university outside Portugal.

5.34 Mobility inside the public research system leads to better research and teaching, as it contributes to, renewal and to the cross-fertilisation of ideas and skills. However, this is not enough. The Government is fully aware that mobility out of the system is necessary for reaping the socio-economic benefits from the scientific potential. It has designed various programmes and measures to achieve this:

- Research laboratories and networks with the participation of enterprises
- Tenders in strategic research areas aiming at financing research projects developed through partnerships between enterprises and public research institutions
- Creation of qualified jobs in the area of S&T: filling – in a competitive way and open to all nationalities – of additional 1000 vacancies for R&D in public administration and to stimulate the hiring of PhDs by the private sector
- Scientific jobs "stock exchange"

5.35 The Ministry of Science, Technology and Higher Education together with FCT and Agency for Innovation is responsible for the implementation these programmes. They are targeted at the mobility of researchers and cooperation between the public research system – basically universities- and firms. This policy aim is strongly recommended; more active measures should be developed.

5.36 The most essential recommendation for developing careers and mobility is to design and implement a new system of academic careers as described above. It should be introduced as soon as possible. During the preparation of the necessary legislation and rules it would be beneficial to make an empirical study on the R&D personnel, mobility and careers in Portugal and form alternative scenarios of its longer term development.

5.37 At the same time the MCTES should consider launching research careers in universities. This issue has been a topic of vivid discussion in many OECD countries and also in OECD itself. A fresh Finnish policy report puts forward that a four-stage research career system should be developed in Finland. The system encompasses research career in universities, research institutes and other sectors as well when applicable. The premise is that different stages of research career are clarified, nomenclature is simplified, and career evaluation is based on external assessment according to uniform criteria (Ministry of Education, 2006).

A differentiated university sub-sector

5.38 With the large part of growth in higher education student participation occurring in the polytechnic sub-sector, the future role and structure of the university sub-sector needs to be redefined. The review Committee was no more impressed with university representatives than their polytechnic counterparts in identifying institutional goals. Portugal has a very insular university system by any international comparison. Too many university representatives conveyed little sense of engagement with the broader needs of the Portuguese society. In international terms, the research performance of Portuguese universities is not overwhelming. Only a few researchers are publishing in internationally cited journals and a very few researchers have quantifiable citation impacts. University representatives presented to the Review Committee as if they should not be accountable for the value of their performance. They did not seem to appreciate the need for them to clarify and validate the quality and worth of their work. Very few indicated any sense of responsibility for the learning experiences, progress rates, or outcomes of their students. There was effectively no interest on the part of university faculty in the professionalisation of teaching, the systematic recording of student and graduate feedback, or training in delivery and assessment methods.

5.39 A number of Government resource allocation instruments recognise differences in the research capability and performance of universities, notably the Associated Laboratories programme. Fiscal capacity limits imply the need for an even stronger concentration of government-funded resources within the university sub-sector. The Associated Laboratories approach has the advantage of exposing Portuguese research performance to international benchmarks and peer review.

University research in the innovation system

5.40 Private investment in R&D in Portugal is one of the lowest in OECD countries, at 0.26% of GDP, compared to an average of 1.23% in the EU-25. Portugal's overall innovation performance (European Commission, 2005) places it 18th out of 25 EU member states. Business funding of university R&D, in 2003, was the lowest in the OECD area after the Czech and Slovak Republics: it amounts to only 18% of the EU average.

5.41 Portuguese firms are generally good in modifying and adapting technologies developed outside Portugal but the share of firms, which are capable of developing innovations in-house, is exceptionally low. It seems evident on the basis of international comparisons, that Portugal's innovation system performs much better at innovation diffusion than on innovation creation (eg. European Commission 2005).

5.42 Because of the structure of the public research system in Portugal universities are almost the only source of research and knowledge based innovation for firms. Unfortunately, the links between universities and firms have traditionally been very weak. Some good examples can be cited, but universities and firms do not utilise the opportunities which legislation permits. It has been claimed by a few Portuguese experts during the visit of the Review Team, that many bureaucratic practices inside universities dissuade firms from attempting to collaborate with them.

5.43 Usually cooperation takes the form of short-term consultancy, which can include learning processes and be beneficial for both parties. Foreign companies, in Portugal or abroad, have been most active in developing links and longer- term cooperation with academic research; Portugal is actually an attractive site for multinationals to have their research and development activities there (OECD 2005b, pp. 32-33).

5.44 Experiences of more developed innovation systems demonstrate, however, that long term cooperation and networking with many partners is necessary for successful innovation activities to thrive. The Technical University of Lisbon and University of Aveiro are good examples of this kind of activity in Portugal. More than half of the revenues the engineering school of UTL come from contracts, especially with industry. A number of Polytechnics have developed good working relations with regional and local businesses in the provision of both education and research services. Their proper mission is to work as regional forces with a strong regional impact. If the universities, polytechnics, regional authorities and firms could form networks to enhance cooperation ('regional academia') each of the partners would derive considerable benefits as would the local and national communities which they serve.

5.45 The basic condition for better and more active links with academic research and firms is increasing private investment in R&D. It is possible to get some results solely with government investments in R&D capacity and facilities but it is not enough in the long run. The present official policy target is to triple BERD before 2010 and to have at the same time more R&D done through co-operation between the public research system and firms as well as to have new research careers for PhDs in firms. The present system of tax reductions alone is too passive to reach these targets; it favours more technology adoption and modification than knowledge based new products and processes. If Portugal wants to develop as a knowledge based economy and society, it must have more active instruments which include stronger incentives for higher education institutions and firms to work together in research and not only in transferring technologies developed elsewhere. Moreover, building links in the innovation system was seen by the Review Team as the most important problem in research and innovation policy.

5.46 There are a number of examples of good practices that use funding as an active instrument for networking research in higher education institutions and firms. They should be seen in the context of developing strategic cooperation between public and private sectors in the innovation system, as most of the firms are too small to pursue their own R&D or absorb existing knowledge and would benefit from cooperative research. For example, the number of links between HEIs and innovative firms has been highest in Finland among EU member countries. This is due, to a great extent, to the funding rules of the Finnish National Agency of Technology and Innovation (Tekes). It funds strategic research, applied research and R&D in HEIs, research institutes and companies. The evaluation of the applications for Tekes support includes the criteria of the size, quality and strategic value of co-operation and networking domestically and internationally. Co-operation between academic research and R&D in firms is seen as the precondition for receiving Tekes funding.

5.47 Associated Laboratories have the right to establish spin-off companies based on their research and they together with research units of the universities are expected to be important actors in science-based innovations. However, the required competence in the issues related to Intellectual Property Rights does not seem to be as well developed as it could. As the patenting activity is one of the lowest in the EU-25, it would be possible to see this as a non-issue, but it is also an attraction factor for foreign investors and should be seen as such.

5.48 University management, strategic planning and research administration should be stepped up. The strategic management of the universities should be overhauled with emphasis on the growing demands due to the rapid increase of qualified research personnel, changing university missions and operational environments.

C. INTERNATIONALISATION

5.49 The internationalisation of tertiary education as well as research and innovation is coupled with the general trend towards the greater global movement of capital, goods, services and labour. The enhancement of the attractiveness of research environments and innovation systems for foreign researchers and firms is on the agenda of governments all over the world. Tertiary education is engaged in a strong process of internationalisation: global markets of educational services are developing, for example. From 1998 to 2005 the absolute number of foreign students in the OECD area has increased by nearly 50 %, much faster than the total number of students.

5.50 The internationalisation of tertiary education yields both costs and benefits at the individual and national levels. Governments have established schemes and policies to promote it, especially those relating to the mobility of students, teachers and researchers. Internationalisation can be seen also as an opportunity for smaller and/or less developed educational systems to improve the cost efficiency of their education provision. Training opportunities abroad may constitute a cost- effective alternative to national provision, and could allow countries to focus limited resources on educational programmes where economies of scale can be achieved (OECD, 2005a, p. 252). For HEI's it is a matter of strategy; if they want to develop the quality of their teaching and research and if they want to offer their students and teachers more opportunities, they must design long term internationalisation strategies and form strategic alliances with foreign HEI's.

5.51 Students move across countries for a number of reasons:

- International experience has pay off in the labour market;
- The perceived quality of the foreign educational experience;
- The ease of access to higher education in the foreign country, including the costs and the language of instruction;
- The general attractiveness of the intellectual, cultural and political climate.

5.52 Foreign students constitute 3.9% of all tertiary enrolments in Portugal. The figure is comparable with countries like the Netherlands, Hungary, Iceland and United States and is not among the lowest in the OECD area (OECD, 2005 p. 267). Three percent of the total tertiary enrolment of Portuguese students (over 11 000 students) is studying abroad. It is a relatively high figure compared with the figures for countries such as Belgium, Denmark, Finland and Germany. The most popular destination country is France followed by UK, Spain, Germany and United States (OECD, 2005a pp. 270-271).

5.53 According to the OECD's Science, Technology and Innovation Scoreboard Portugal is second after Canada as a target country of highly skilled people from non-OECD countries and at the average for the EU15 for skilled personnel from OECD countries. On the other hand, Portugal is high on the table as a source of highly skilled migrants to other OECD countries.

5.54 A substantial number of the scientific elite (in the sense of excellence) has been working for longer periods abroad (e.g. in US, UK, France, Germany and Switzerland). These scientists and scholars have lasting scientific relations and contacts with the institutes in these countries. This can be one explanation – besides their quality – of the relatively high share of internationally co-authored papers by the Portuguese.

5.55 Over one third of the PhDs awarded to Portuguese students in the 1970 – 2004 period have been awarded by foreign universities. Even if the figure is raised considerably by numbers of the years 1970-90, when almost 90% of the degrees were awarded abroad, the figures for recent years are still from 15% to 30%. Between 2000 and 2005 FCT awarded over 12 000 fellowship grants for Masters, PhDs and post doctoral students.. The majority of the Fellowships are located in Portugal (54%), but 29% are undertaken abroad and 17% have a mixed modality between Portugal and abroad. There has been in recent years a slight increase of the former FCT scholarship holders working abroad. In some documents of the Portuguese authorities a danger of brain drain is mentioned, but there is not any clear evidence for that.

5.56 The international mobility picture is less satisfactory, if we analyse the range of the countries where the students come from. Almost 60% of them come from former Portuguese colonies in Africa and Asia and 16% from Latin America, the vast majority of which are from Brazil. Only ca 3 000 of the total 18 000 foreign students come from Europe. The only group which has been growing during the last years are African students.

5.57 Language and culture are evidently the determining factors governing the intake of foreign students in the Portuguese tertiary education system. There are also special access arrangements for entry to higher education for students from ex-colonies, both in public and private HEI's. It would be desirable to develop this culturally and also politically valuable feature in the system to include many other countries.

5.58 An increasing number of institutions in non-English speaking countries now offer courses in English to overcome their linguistic disadvantage in attracting foreign students. This trend is especially noticeable in the Nordic countries. Portugal, on the other hand, was (2003) among the eight OECD countries, which offered none or nearly no tertiary education programmes in English (OECD, 2005a). The Review Team noted that some positive developments have occurred in this regard. The change has been remarkable in some institutions and in some faculties; a good example is the faculty of economics at the New University of Lisbon, where 48 out of 50 assistant professors are foreign and are selected by an open competitive process. Even if the example is untypical of the Portuguese system as a whole, it is evident that some Portuguese higher education institutions, especially universities, are ready to internationalise their teaching staff.

5.59 It is not clear how actively different tertiary education institutions are utilising the opportunities offered by EU training and education programmes. There are evidently some institutions, which have been active in this respect and Portugal as a whole is not in the lowest quartile *e.g.* the Erasmus statistics (Erasmus, 2006). It should be remembered that some of these programmes include also an element, which enables tertiary education teachers to work abroad for a period of time. A more active use of this opportunity could be a useful instrument for the enhancement of teaching quality and an interesting method by which channel for the teachers could develop further their knowledge and skills.

5.60 Internationalisation should be a natural part of the work of every higher education institution. It can be seen as a mechanism that can be used for profiling institutions, increasing the recruitment of qualified staff and students and for developing partnerships, strategic alliances and networks with domestic and foreign institutions, in addition to being a means of improving the quality of education and research.

5.61 It is recommended that the Ministry of Science, Technology and Higher Education take steps to encourage the higher education institutions to take on a more proactive internationalisation role. It could be achieved in various ways, but experiences from other OECD countries show that an effective procedure would be to include a special internationalisation strategy as a part of the annual negotiations (see Chapter 2) between the Ministry and higher education institutions. The strategy of each institution would include, among other things, the development of study programmes in foreign languages, the establishment of joint degrees offered in collaboration with foreign partners, the development of international research cooperation and the planned use of EU programmes. The OECD experience shows also, how strengthening the administrative and organisational structures for international cooperation within HEI's can make a decisive contribution to internationalisation.

5.62 The policy makers are using also some targeted instruments, of which International Partnerships in science, technology and higher education with some US universities (MIT, CMU) are a good example. The Government has decided to invest €141 million in these partnerships for the next five years. European co-operation in science and technology has offered good opportunities for international cooperation and networking. Portugal has used this opportunity especially for building the science base and capacity, for example, by the creation of new education and research infrastructures.

5.63 Some new measures have already been taken to increase interaction between higher education institutions and firm (see Portuguese Technological Plan). There is a clear belief among policy makers that networking and partnerships (domestic and international), as well as mobilising and reorganising existing resources are more important than investing big sums of new public money. The Portuguese/Spanish R&D Institute (Iberian Nanotechnology Laboratory) is a good example. These partnerships and networks will enhance – together with the intended doubling of science investments in four years' time-- the attractiveness of Portugal as an R&D site for foreign (multinational) firms. This is a realistic policy target for future.

5.64 Portugal is in a relatively favourable situation to internationalise its research system than many other European countries. It has international traditions, its geographical position and climatic conditions are excellent, the infrastructure for research exists and the standard and quality of life is good for professional classes. It is therefore reasonable to have - as the Portuguese Government quite clearly wants to have – as a major strategic goal, that Portugal's research environment will be attractive for talented foreign scientists and that Portugal will be an attractive site for the R&D sectors of foreign firms. This strategy has many policy implications. A more active policy of recruiting foreign researchers to work in the higher education institutions and other research environments would be an important part of establishing creative research environments in Portugal. It cannot be done effectively before career and recruitment policies are reformed as described above.

5.65 While preserving the culturally and politically valuable traditions of offering instruction in Portuguese for students from PALOPs, East Timor and Brazil, the higher education policy makers should design some effective incentives for HEI's to enlarge the basis of internationalisation. Increasing instruction in English is crucial. This could be done at the same time as the new European quality assurance system is being introduced as a result of which the quality of institutions and programmes will be more transparent to European and Asian students, for example.

D. EDUCATION AND SCIENCE

5.66 Primary and secondary education is the basis for the future of scientific research and manpower development, in Portugal as in all countries. It is important to realise that attitudes to various career options are formed at an early age as are general attitudes to science as a system of knowledge based on evidence. It is ever more important to have not only science but also an introduction to project work as a part of school education. It would have many beneficial pedagogic and cultural impacts including independent and critical thinking and it would help prepare young people for more independent type learning.

5.67 The Portuguese authorities have implemented a special Ciencia Viva-programme since 1996 to enhance the position of science education in basic and secondary schools. The programme as such has been important and evaluated well in European comparisons, but its effects have not been as good as desired.A survey included in the Institute of Management Development competitiveness measurement (IMD 2006) gives results which should be alarming for the Portuguese education authorities. Portugal is in 48th place in relation to the emphasis placed on science in school and is in the 52nd place – among 61 countries - in the interest which students express in the subject. It should be mentioned that education in Portugal as a whole was evaluated much higher, at 34th.

5.68 It is recommended that the Ministry of Education and Ministry of Science, Technology and Higher Education should review the position of science and research in the future curricula of Portuguese education. The promotion of science and society relations at large should be part of the legally defined missions of the higher education institutions and seen as such in the annual negotiations between the Ministry and HEI's.

E. CONCLUSION

5.69 The foregoing considerations lead to the following recommendations:

- Building the Portuguese science base and capacity with the targets designed in the Technological Plan and by the measures taken by the present Government is recommended on condition that the authorities develop appropriate new steering and management processes, the main objective of which should be to form linkages and networking in the system. Training in the best practices of human resources management should be enhanced.

- The tertiary education and S&T policy makers should develop a stable and coherent S&T policy evaluation structure, which should be based on a more complete database, with the information and knowledge of the working of the whole system.

- The establishment of the Portuguese graduate school system could be considered to assure the quality of graduate education, to provide systematic education and guidance, to increase efficiency and to network the HEI's.

- A new system of academic careers and the clarification of research careers should be designed and implemented in order to eliminate inbreeding and to enhance teacher and researcher mobility.

- The promotions and recruitment decisions within institutions should be based solely on teaching and research merit. Processes should be competitive, transparent, and open and the evaluations should be performed by external peers supported by international recommendations.

- International evaluations should have a stronger influence on a more selective funding policy. The change toward more competitive funding schemes should be continued.

- The Portuguese Government should complement the tax reduction policy for R&D in firms, with more active instruments in order to encourage firms to have incentives to invest in R&D, to work together with higher education institutions in research and to enhance mobility between firms, universities and polytechnics.

- As the system of Associated Laboratories is enlarged and higher education institutions are expected to be important actors in science-based innovations, it is recommended that expertise in Intellectual Property Rights be enhanced.

- It is recommended that the Ministry of Education and Ministry of Science, Technology and Higher Education review the position of science and research in the curricula in secondary education with a view to increasing the interest of youth in careers in science and to emphasise its position in the schools. The science and society relations should be part of the legally defined missions of the HEI's.

- The Ministry of Science, Technology and Higher Education should encourage higher education institutions to adopt a more proactive role in internationalisation. An internationalisation strategy for each institution should be part of the annual negotiations of the contract between the institution and the Ministry. At the institutional level, greater attention should be paid to providing instruction in foreign languages, especially in English.

REFERENCES FOR CHAPTER 5

Athans, M. (2001), Portuguese Research Universities: Why not the best? Unpublished manuscript

Cabinet of the National Coordinator of the Lisbon Strategy and Technological Plan (2006), The Portuguese Technological Plan, Lisbon May 2006

Erasmus (2006), htpp://ec.europe.eu/education/programmes/socrates/erasmus/stat

European Commission (2005), European Trend Chart on Innovation: Innovation Strengths and Weaknesses, Arundel, A. and Hollanders H., December 5, 2005

Heitor, Manuel: Fostering research careers through institutional building: learning from the Portuguese experience. Joint OECD-Spanish workshop "Researcher careers for the 21st century", 26-27 April 2006, Madrid

IMD (2006) IMD World Competitiveness Yearbook 2006, Lausanne 2006

Ministry of Education (2006), Report of the committee on the development of research careers, Helsinki 2006 (only in Finnish)

Ministry of Science, Technology and Higher Education (2006a), Tertiary Education in Portugal, Background Report, April 2006

Ministry of Science, Technology and Higher Education (2006b), Reply to request for further information and answers to additional questions by team of examinatores subsequent to review visit to Portugal in May 2006, July 2006

OECD (2005a), Education at a Glance – OECD Indicators 2005, Paris 2005

OECD (2005b), OECD Science, Technology and Industry Scoreboard, Paris 2005

OECD (2005c), Main Science and Technology Indicators, Volume 2005/2, Paris 2005

OECD (2006), Economic Survey of Portugal, Paris 2006

Ritzen, J.M.M. (2006), Scenarios for Higher Education 2020 or When Will China Invade Iran?, Keynote Address at the OECD Ministerial Meeting, June 27th, Athens, Greece

Soler, M. (2001, "How inbreeding affects productivity in Europe", *Nature*, Vol 411, 10 May 2001

Teichler, Ulrich: Research careers: some reflections from Europe. Joint OECD-Spanish workshop "Researcher careers for the 21st century", 26-27 April 2006, Madrid

CHAPTER 6: FINANCING OF TERTIARY EDUCATION

A. INTRODUCTION

6.1 Finance policies are the single most important steering mechanism in higher education. An ideal system should be guided by investment strategies to achieve national goals for higher education, recognising different roles for public and private contribution. This chapter argues that funding practices should support decentralised decision making to the maximum extent possible while meeting appropriate goals for efficiency and effectiveness in the use of resources. They should be supported by budget allocation and accountability metrics that aim to maximise efficiency, ensure adequacy, stability and predictability in funding, and demonstrate internal and external accountability for performance.

6.2 Current Portuguese tertiary educational finance practices reflect historic governance structures, between the Minister's office and the institutions, and for the sector as a whole. The Review Team believes that Portugal is well positioned to evolve toward greater differentiation of governance, with the national Government more squarely focused on policy, and institutions given wide latitude for accomplishing public priorities consistent with their missions. As that transition occurs, a realignment of funding policies and financial accountability practices will be needed to support the transition away from centralised administration and toward stronger policy capacity.

B. CURRENT FUNDING ARRANGEMENTS FOR TERTIARY EDUCATION

6.3 Budgetary constraints. Funding for tertiary education in Portugal is particularly constrained at the present time, and is likely to remain so through 2009, because of steps being taken to reduce the national budget deficit below 3% pursuant to theStabikity and Growth Pact of the European Union. At the same time, overall enrolments in tertiary education have been declining.

6.4 Per capita public spending on tertiary education in Portugal in 2002 averaged $6960 (US dollars) per full-time student (from all revenue sources including student fees) – just ahead of its rate of spending in secondary education of $6921. However, when R&D expenditures are excluded from the tertiary averages, funding per student dropped to just $4693 – near the bottom among EU countries (OECD, 2002).

6.5 Revenues for tertiary education are recorded in three major categories: general tax revenues, private funds including student tuitions, and European Structural Funds (Table 6.1). Portuguese tertiary education has historically been heavily dependent on state funds; in 2002 (the most recent year for which comparative data are available), over 90% of tertiary educational expenditures came from public sources, in contrast to the OECD average of 78% (See Appendix E). This is changing, as tuition revenues and private funds are increasing.

6.6 Current expenses – the operating support for institutions of higher education – are funded predominantly from the state budget, including general tax support and student fees. Private institutions generally do not receive direct state support, but their students are eligible to receive scholarship assistance. European Structural Funds are used for strategic investments in science and technology and the information society, and for capital outlay. Private funds, primarily in the form of contracts for research and development, are typically restricted by the donor and not available for general purposes. However,

current financial information combines all private funds, and does not identify which funds are available for general purposes.

Table 6.1 Revenue sources and distribution for Ministry of Science, Technology and Higher Education for 2006

	State Budget	Private Funds (including tuition fees)	European Structural Funds	Total
Science and Technology	219.989.671	21.112.182	151.130.519	392.232.372
Information Society	42.434.946	3.343.534	102.126.344	147.904.824
Higher Education	1.266.038.728	380.242.049	120.581.028	1.766.861.805
Admin & Gen Services	11.909.545	110.689		12.020.234
Total	1.540.372.890	404.808.454	373.837.891	2.319.019.235

Source: Ministry of Science, Technology and Higher Education, Tertiary Education in Portugal, Background Report (2006), Table 2.20, p. 70.

Student tuition revenues

6.7 Revenue from student tuition and fees represented around 17% of total revenues in 2006, close to the OECD average of 19%. Although public higher education institutions have nominal authority to set tuition levels, they may only do so within limits set by national law. That law, passed in 2002, requires minimum tuition levels for first degree programmes of no more than 1.3 times the minimum monthly wage, and a maximum based on tuition charged in 1941 updated only for inflation. Current tuition levels among most public universities are close to the maximum of €902 annually; charges among the polytechnics are lower, averaging closer to €500 per year. Institutions are free to set tuition levels for postgraduate programmes; in 2005 those fees averaged €1,820. Tuition revenues have been growing as a proportion of revenues in Portuguese higher education, growing at an average annual rate of change of over 21% since 2000, in comparison to less than 1% growth in public funds (see Table 6.2). The biggest jump occurred in 2003-04 following the tuition increase passed with much controversy in 2002. Unless there is another change in the tuition policy – or institutions significantly increase post-graduate enrolments – the rate of growth in tuition as a source of revenue is likely to stabilise in the future.

Table 6.2 The annual rate of change of the budget of public higher education institutions in Portugal – 2001-2004

	Income-Annual Variation Rate (%)				
	Public Budget	Fees	Earned Income	Investment	Total
2001-02	3.64	11.80	6.55	-0.30	4.46
2002-03	0.42	8.46	-0.28	1.17	0.85
2003-04	-1.77	44.59	18.26	-16.99	4.87
Average	0.76	21.62	8.18	-5.37	3.39

Source: Background Report, Table 2.33, p. 86.

6.8 Despite the difficult budget situation, the national Government has protected spending in the strategic areas of science and technology, where funding increased in 2006 by 17% in contrast to just under 2% in institutional funding (Table 6.3). he increases in 2007 are in excess of 60%. This is consistent with its priority to invest in scientific and technological areas with the greatest potential to contribute to future economic growth in Portugal.

Table 6.3. Overall annual budget for Science and Technology, Information Society, and Higher Education, for 2005 and 2006

	2005	2006	2007	Variation 2006-2007
Science and Technology	335.022.495	392.232.373	630.285.120	61%
Information Society	138.998.098	147.904.824	133.156.916	-10%
Higher Education	1.734.338.129	1.766.861.805	1.711.473.392	-3%
Current expenses	*1.420.189.201*	*1.468.370.035*	*1.407.567.061*	-4%
Social support	*191.900.499*	*204.744.588*	*209.011.332*	2%
Intra-structures	*122.248.429*	*93.747.182*	*94.894.999*	1%

Source: Background Report, Table 2.19, and p. 69.

Allocation of current expense funds

6.9 Current expense budgets for public institutions are allocated based on prior year appropriations, adjusted for changes from year-to-year using a performance-based budget formula. The performance-based approach was introduced in 2005 and implemented for the first time in 2006. Prior to 2005, allocations were distributed using cost-and enrolment-based formula, where the major cost drivers were the student/faculty ratio, the qualifications of the teaching staff, the field of study, and the proportion of students in post-graduate programs. The legacy of the historic funding formula is that universities enjoy a funding advantage over the polytechnics for initial training programmes, averaging €4,403 per student in universities in contrast to €3,383 in the polytechnics. Institutions also obtain higher state funding for post-graduate programmes, averaging €5,052 per capita in the universities, and even higher at €5,371 for the relatively small number (114) of students in advanced programmes in the polytechnics (Ministry of Science, Technology and Higher Education, 2006).

6.10 The new funding formula is designed to provide a stable basis for institutional planning, while providing incentives to institutions to improve performance in degree completion. The formula is also adjusted to stabilise funding changes from year-to-year, through a “cohesion factor” designed to insulate low-performing institutions from excessive budget cuts. The criteria for the new formula are shown in Table 6.4.

Table 6.4 Funding formula for tertiary education

Overall number of students	Number of students for all of the courses approved for public funding
Cost factor to allow considering specific institutional characteristics, as well as areas of study	Staff average costs (qualifications) Teacher/student ratios Teacher/non-academic staff ratios Funding depends on reference costs calculated using the same criteria for each institution, using a predefined relationship between other current expenses and personnel costs (15/85)
Quality indicators	Level of the academic staff qualification (fraction of the staff holding PhDs) Graduation efficiency rates Post-graduation efficiency rates (masters and PhDs awarded)

Source: Background Report, p. 73.

6.11 Institutions have the autonomy to decide how to spend funds internally once they receive them from the Government. The Background Report notes that some institutions adhere to the national formula, but we do not have details about actual spending by the institutions. Also, civil service laws restrict institutional ability to shift funds in programmes with a high proportion of permanent staff. These restrictions on personnel policies effectively limit autonomy at the institutional level, despite having the technical authority for independent action.

Investment (capital outlay) finance

6.12 Capital outlay funds are provided through the investment budget, which is separate from current expense funding. Revenues for the investment budget come from a combination of general tax revenues and EU Structural Funds. Capital funding is determined on a project-by-project basis, and is based on regional development plans. Funding – averaged over the last fifteen years – has been roughly €5,162 per student in the universities, and €3, 881 in the polytechnics (Ministry of Science, Technology and Higher Education, 2006. Investment decisions are negotiated directly with the Government through DGES. Investment funding has been reduced quite severely since 2004, as a result of the national budget cutbacks (Table 6.2).

Scholarships and Social support

6.13 Higher education has developed in Portugal on the assumption that the family rather than the state is responsible for the sustenance of students. This understanding reflects another assumption, that the state is primarily responsible for sustaining the fabric of the public higher education system. Slightly more than half of Portugal's higher education students currently come from the relatively better-off families. Around 40% come from families in the lower-middle socioeconomic groups. Some 70% of students derive their income from their families, and about 50% of students live at home. Only 20% of students undertake some form of paid work.

6.14 Following the introduction of tuition fees in 1994, and the consequent shift in the balance of funding responsibilities for the supply of higher education as between student beneficiaries and general taxpayers, the Government has increased student support expenditure. Student support has been increased primarily in the form of means-tested grants for tuition and living costs. The Government also has extended coverage to students in private as well as public institutions. State funding for scholarships and student social support is provided in a separate budget. Funds go for direct support (means tested scholarships to needy students), and indirect support (housing or housing subsidies, subsidies for meals, and other student services). Total public funding for scholarships and social support in 2006 was slightly

over €204 million, €155 million from state funds and the remainder from private revenues, predominantly tuition fees (Ministry of Science, Technology and Higher Education, 2006). According to the Background Report, approximately 53% of the state budget for scholarships and social support in public institutions went for grants to students; another 27% went to student support personnel (Ministry of Science, Technology and Higher Education, 2006).

6.15 Scholarship aid is provided on a means-tested basis to pay for tuition costs for needy students. The formula for the student grants is based on student (or family) income, and cannot exceed the minimum wage. Scholarship awards to pay for tuition fees go directly to the institution rather than to the students. Scholarships are available for students attending private institutions as well, through a formula that provides more for students in that sector in order to recognise the higher tuition levels in private institutions. Approximately 17% of students in public institutions receive some form of grant assistance, compared to around 14% in private institutions. The average scholarship for students in public universities was €1,481 per student, in contrast to just €1,201 for students in the polytechnics, and €1,698 in private institutions. This is a source of concern, as polytechnic students on average have lower incomes (Ministry of Science, Technology and Higher Education, 2006).

6.16 Government policy has notionally targeted the means-tested grants for tuition and living costs to the 15-25% of students most in need. A recent study undertaken for the Higher Education Directorate has found that while 29% of students receive some support, including those who receive only a waiver of their tuition fees, only 10% obtain income support from the state. The amount of the grant for living costs is modest by comparison with other EU countries, and is intended as a supplement to family support, rather than a replacement of it. A student is not expected to survive on the state support alone.

6.17 Allocations of scholarship and student social support funding are based on a formula newly introduced in 2006 as part of the performance-based methodology. The formula is designed to somewhat equalise scholarship funding between the universities and polytechnics, and to reduce administrative costs. The formula for social support services has two elements:

- the service level of each support service, measured through the number and average cost of scholarships, meals and occupied places in residences, and

- The efficiency of each support service, in terms of direct support grants given to students as a percentage of overall service expenditures (Ministry of Science, Technology and Higher Education, 2006).

Funding for science and technology

6.18 As mentioned previously, funding for science and technology represents the largest growth area in spending in the last few years; reflecting government priorities to invest in new technologies despite national budget constraints. Funding is via separate institutions in the research centres and associated laboratories, or through contracted funding arrangements with the institutions. Policies for science and technology are outlined in the Portuguese Technological Plan, under the general direction of the Cabinet of the National Co-ordinator of the Lisbon Strategy and the National Technological Plan. Priorities are developed as strategies to achieve national goals, measured by the impact indicators of the national technological plans. These indicators fall into three broad categories, and different performance measures and targets for growth are embedded within them.

Table 6.5 Targets for the Impact Indicators of the Technological Plan

INDICATORS	Proposed Target 2010	Indicator on the Base Year		
Qualification and Knowledge (Qualifying the Portuguese people for the knowledge society)		**Portugal**	**EU (25)***	**Year**
1. Population having a higher education degree (% of age 25-64 years)	15%	11.0%	22.5%	2003
2. Population having a secondary education degree (% of age group 20-24 years)	65%	49%	76.7%	2004
3. Population having a diploma in science and technology per 1000 inhabitants (between 20-29 years)	12	8.2	12.5	2003
4. Researchers per 1000 employers	5.3	3.5	5.3	2001
5. Percentage of households having a broadband internet connection	50%	12%		2004
6. Lifelong training	12.5%	4.8%	9.4%	2004
Science and Technology (to overcome the scientific and technological backwardness)				
7. Population having a recent PhD in S&T per 1000 inhabitants (between 24-35 years)	0.45%	0.3%	9.48%	2000
8. Scientific production per million inhabitants	609	406	639	2003
9. Total Personnel (ETI) in R&D per mill of working population	7.5	4.3	9.4	2001
10. Researchers (ETA) per mill of working population	6.0	3.6	5.4	2004
11. Public Expenditure in R&D as % of GDP	1.0%	0.6%	0.7%	2002
12. Company expenditure in R&D as % of GDP	0.8%	0.3%	1.3%	2002
Competitiveness and innovation (Giving a new momentum to innovation)				
13. Employment in medium and high-tech industries as % of total employment	4.7%	3.1%	6.6%	2003
14. Employment in high-tech services as % of total employment	1.8%	1.4%	3.2%	2003
15. Added value of medium and high-tech sectors in industry	6.2%	4.9%	15.8%*	2002
16. Added value of high-tech services	6.0%	4.9%	6.4%	2002
17. Exports of high-tech products as % of total exports	11.4%	7.4%	17.8%	2003
18. Creation of enterprises in medium and high-tech sectors as % of total enterprises created within the same period	12.5%			
19. EPO Patents per million inhabitants	12	4.3	133.6	2002
20. Community trademarks registered per million inhabitants	50	21	59*	2004
21. Investment in venture capital as % of GDP	0.15%	0.12%	0.11%*	2004
* Data are for EU 15 only.				

Source: 'The Portugese Technological Plan' Cabinet of the National coordinator of the Lisbon Strategy and the Technological Plan, May 2006.

C. PROBLEMS AND CHALLENGES TO ADDRESS

Funding adequacy and efficiency

6.19 Given the high returns on investment in education, and the need to grow human capital needed to increase labour force productivity, as noted in Chapter 1, a higher level of public and private investment in higher education is warranted in the longer term as enrolment in the tertiary sector is expanded to meet the needs of the knowledge society. At the same time, the system is not as efficient as it could be. Student staff ratios (SSRs) at some 13/1 or better are considerably more favourable than in many other developed nations by as much as 20% or more; for example the SSRs in Australia are ca. 18/1 while in Ireland they are in excess of 20/1. And despite declines in enrolments in the past several years, staffing has increased, particularly non-academic staff. The relatively low levels of utilisation mean that unit costs are unduly high. Low enrolment and duplication of courses is common. There is too little evidence of cross-institution cooperation to share facilities, consolidate programmes, and ensure a higher level of quality with greater efficiency. Student mobility across institutions for portions of their degree work is still very low, and could be encouraged.

Investment and revenue strategy

6.20 Stronger national policy capacity for tertiary education should rest on a comprehensive long-range investment strategy for the sector, backed up with policies for ensuring revenues needed to support it. The current administration has a clear investment and revenue strategy for science and technology– which is to increase funding in research and development, build external sources of capital, and target resources to activities with the highest probability of delivering returns to the broader society. This is a very sound and straightforward policy, and should pay off well for research and workforce development.

6.21 For the majority of the tertiary education sector, in the short term, at least, public resources are not likely to grow significantly, especially given the decline in enrolments and the nation's overall fiscal situation. This then raises the question of whether growth in funds should be accomplished by raising tuition revenues, or if the priority in the near term should be to increase system efficiency. The Review Team heard several arguments in favour of a change in policy to increase tuition revenues to more fully reflect true costs of delivery. As well as rationalising the system to achieve efficiencies and increasing the size of the private sector, some would argue that this investment strategy would stimulate competition among the institutions, and better target public subsidies to students who would otherwise not be able to attend college.

6.22 Students in public institutions are paying of the order of 15% of average course costs currently. On the basis of practice elsewhere, it could be expected over a decade or so that the student contribution to costs should rise towards 40% on average. We were advised that Portugal's tuitions are already among the highest within the EU, although at €900 per annum at the upper limit they remain quite modest in comparison to prices in UK, Australia, and the United States. And we received no evidence to suggest that tuition is a deterrent to participation currently.

6.23 However, public resistance to student tuitions is very high, and a deliberate strategy to increase general student tuitions would create a storm of protest against tertiary education, which would be distracting at best. Furthermore, experience in other countries that have moved to market-based, high-tuition strategies - the United States being a prime example - shows that high-tuition strategies can exacerbate rather than narrow existing funding disparities between institutions, separating wealthy institutions that serve high achieving (and higher income) students from other institutions (Kane, 1995; Winston, 2001). We are also not persuaded that consumer information– including transparent public

measures of learning outcomes, job placements, resource use and other measures of quality – is sufficiently developed in Portugal to support informed consumer choice essential to a market-based system.

6.24 Most important, the Review Team is concerned that current funding practices favour subsidies for students who are relatively advantaged over the improvement of access to previously excluded groups. At the broader level of policy consideration, what should be the priority for Portugal: to deepen the provision of student support on a per capita basis for those in need among the current participating groups, to extend the coverage of assistance among the current participants, or to dedicate any additional expenditure to supporting the access and success of new groups of participants? The questions are important in view of the need for enlargement of higher education participation, improvement of success rates, and the intention in the future to draw in new participants predominantly from lower socioeconomic circumstances. When resources are scarce, and the capacity for resource growth depends on productivity gains that derive from increasing the skills of the nation, the Review Team believes the first priority must be to enabling the expansion of participation, rather than improving the conditions for more of those already participating, especially given the high private internal rates of return to higher education graduates.

6.25 The Review Team does encourage greater price differentiation for post-graduate and professional students, and increasing enrolments of international students, to increase tuition revenues. Tuition levels should be allowed to increase for post-graduate students, to rates closer to the full costs of those programs. We are also comfortable that increasing enrolments of international students is a net positive for Portugal, beyond the revenue-generating possibilities. However, continued expansion of post-baccalaureate academic programmes may not be an equal priority, particularly if the primary market for the programmes' graduates continues to be employment within Portugal higher education. And post-graduate programmes are inherently more expensive to offer –at average cost levels of over €6,000 annually—so even with the higher tuitions (averaging €1,820) they still do not return net revenues to the general fund. Even without an immediate change in undergraduate tuition policy, the Review Team believes some changes to the system of student scholarship and social support may be in order. The Review Team is concerned that the system of funding student scholarships may be in need of an overhaul. We did not see evidence that qualified students are being kept away from higher education because of inadequate scholarship support, but the rise in tuitions in combination with low levels of scholarship aid are probably contributing to the problem of low aspirations for higher education. We suggest attention be given to three areas: 1) reducing administrative costs in the support programme; 2) considering ways to increase opportunities for student employment while in school; and 3) considering the implementation of a comprehensive programme of income-contingent student loans.

High administrative costs for scholarships and student support

6.26 It appears that currently almost a quarter of the funding in scholarships and student support goes for administrative overhead in the programme. We are concerned that combining administrative staff and institutional subsidies with scholarships may end up driving costs in a way which dilutes funding availability for direct aid to students. The formula that was put in place in 2006 is designed to provide incentives for institutions to control these costs, but it has only been in place a short time and it is not clear whether the incentives are powerful enough to control administrative costs.

Student employment opportunities

6.27 Currently, only 20% of students undertake some form of paid work. The Review Team was unable to ascertain the reasons for such a comparatively low rate of student participation in the workforce. In the Review Team members' home countries it is not uncommon for full-time students to work for some twenty hours a week, most in service sector jobs, such as cafes, restaurants and bars. Perhaps in Portugal

there are labour market conditions and policies limiting student participation. Perhaps there is a student culture of expectations that others should look after them. Greater access to paid work might improve the financial circumstances of many students.

Student loans

6.28 In procedural terms, this approach has apparent advantages in the current circumstances, where there are strict limits on the Portuguese expenditure budget. Additional state support could be extended to students using capital raised from the commercial sector, with the costs to the government budget being limited to the gap between the commercial rate and the student rate, times the number of students taking out a loan and the amount of their loans. The main risks for the Government are the demand-driven nature of the proposed program, an upward movement in interest rates, and any expectation on the part of lenders that the Government would underwrite the loan liabilities. Potential cost escalations could be managed through limits to borrowings per student, conditions on student eligibility, the fixing of the interest rate gap for the application of the subsidy to a narrow range of percentage points, and an insistence by the Government that the lenders carry the risk of default. However, it should be noted that when the default risk is borne by the lenders, financial institutions can be expected to impose strict conditions on loan eligibility, and those conditions may lead to the students most in need being the least able to access the loans.

6.29 At the time of the Review Team's visit, consideration was being given to a new measure of student support via loans rather than grants, and involving government provision of an interest rate subsidy to reduce the borrowing rate for students below normal commercial terms. The rationale indicated for this form of support was that higher education students need to be able to exercise greater autonomy than is normally possible under the current system which prolongs dependency on family support.

6.30 Financial institutions advised the Review Team that the demand for commercial loans from higher education students in Portugal has been low, and tends to be small, mainly for specific items such as personal computers. They advised also that they tend (though policies vary slightly) to target students with above average performance, in courses with good probabilities of employment, and that they vary interest rates, and close or open the supply of capital, according to student performance expressed in units passed and grade point averages. Graduates typically have up to four years to repay principal and interest. The financiers normally obtain guarantees from parents to offset the risk of student default in repayments of loan liabilities, and some also require personal life insurance to be taken out by the student borrower.

6.31 In policy terms, the proposed approach of an interest rate subsidy gives priority to the current group of participants in higher education, and then, according to the arrangements for the loans, probably not for the most needy of the current group. Such schemes that enable categories of borrowers to obtain preferential rates typically attract free-riders; e.g. a second family car is purchased on a concessionary loan because it is bought in the name of a student. Unless conditions of eligibility are very tight, loan interest rate subsidies can become regressive, with subsidies accessed by the better-off being paid by the less well off. Yet, when the conditions are tight, those most in need are often excluded from assistance. Hence, the proposed initiative to extend support through loans may help achieve the objective of widening the proportion of students who can access living costs support, and perhaps, promote their independence. An enhanced grants programme or an income-contingent loans scheme, as discussed below, would be better alternatives for the objective of improving the lot of those students most in need.

6.32 The Review Team believes that Portugal should give serious attention to the design of an income-contingent loans scheme as a basis for the equitable expansion of the system to help achieve the nation's social and economic objectives. An expanded student loan programme may be a good option for Portugal, because of the need to prioritise public expenditure in the context of limited fiscal capacity.

Loans also are less regressive than subsidy schemes that require general taxpayers, many of whom do not enjoy the private benefits of higher education, to pay the costs for those who derive significant private benefits in the form of higher lifetime incomes. The equity argument for beneficiaries to pay is the stronger to the extent that those enrolled in higher education come from relatively advantaged families, given that government subsidies for them represent a redistribution of taxation resources to those who as children were relatively privileged and who as adults are likely to receive higher economic benefits. Studies of rates of return typically find that graduates enjoy a return on their investment of the order of 12-15% per annum, and command lifetime earnings some one and half to two and a half times those of people who complete only secondary schooling (Borland, 2002; Dearing, 1997; Johnson, 2000).[1] The relative benefits of a degree have been found to vary significantly across fields of study and occupations (PWC, 2005).[1] The Review Team was unable to obtain any systematic study of the private internal rates of return to higher education in Portugal. Such a study would help to advance the debate about reform to higher education financing, especially the debate over the extent to which student/graduate beneficiaries should pay.

6.33 The main problem with reliance on commercial loans for the financing of human capital investments is there is uncertainty and risk associated with the economic gains, and lenders have no collateral against which to secure their liability – that is, in the absence of slavery, there is nothing the lender can sell in the event of default by the borrower. Hence, commercial lenders will impose conditions for reducing their risks, leading to the exclusion of those who most need access to loan finance. Students too can be reluctant to borrow, given their uncertainties about their ability to graduate, to obtain a rewarding job, and to sustain employment.

6.34 One option is for the Government to underwrite student debts – to guarantee to repay student loans in the event of default. While this approach overcomes the lack of collateral and addresses the capital market failure by the public sector assuming the risks, it gives rise to several problems. First, for reasons of cost containment government-guaranteed bank loans for tuition fees are rarely universal. Typically, this form of loan involves eligibility criteria such as means testing on the basis of family income, or determination of an age of independence of students from their families, such that some students do not qualify. Second, bank loans are typically provided on the basis of a fixed repayment schedule, and this inflexibility of repayment obligations in relation to capacity to pay is a major cause of default. Third, the very provision of a government guarantee removes the incentive for the banks to contain default rates, such that the costs to taxpayers are higher than they ought to be.

6.35 A second option is for the Government to provide income-contingent loans to students that are repayable when the borrower's income after graduation rises above a set threshold. This option has been adopted with variations in a number of countries (e.g. Australia, New Zealand, South Africa, UK) and is under active consideration in a number of others. A third option is for a commercial lender to secure lending against student debt, with the Government arranging for the collection of repayments, meeting the costs of bad debts and providing an interest rate subsidy. This third option has the attraction to Government of reducing the call on government revenue for the initial financing of the loans scheme. It has the attraction to financial houses of a secure long-term asset with a guaranteed income stream.

6.36 Appendix D provides further details about the operation on income-contingent loans, based primarily on the Australian experience.

Operational Arrangements

6.37 *Distribution of operating funds*: The new performance based funding formula has the merit of potentially stabilising the basis for distributing resources, and provides incentives to get more students to graduate rather than simply generating enrolments and adding PhDs to the payroll. The system for

distributing resources is also fair, and although it does not produce equity between institutions, equitable treatment of different functions should not be an *ipso facto* priority. However, the formula is still somewhat opaque, and will contribute to cost increases that may not be associated with productivity improvements. It also will continue to drive polytechnics toward university models, because doing so will capture them greater resources. As examples, institutions are fiscally rewarded for adding permanent staff, for encouraging faculty to achieve the Ph.D., for growing programmes at the graduate level, and for adding programmes in costly disciplines, whether or not those are priorities for their regions or consistent with institutional strengths. This is an inherent problem with a single funding formula designed to work for diverse types of institutions.

6.38 *Relation to the national budget***:** The Review Team heard many expressions of concern about the lack of stability in government funding which we ascribe to the current difficult national budget situation. We recognise that higher education should not be exempted from national requirements for fiscal restraint. The strategies that the current administration has used to reduce the budget deficit are important and necessary, and higher education needs to be part of them. However, budget practices should as much as possible support stability and predictability at the institutional level, and should not penalise institutions that have been effective in obtaining extramural resources and in managing funds effectively. Sequestering these resources also penalises institutions that have been prudent managers of resources, which is part of the current efforts to limit budget deficit, and creates incentives for them to spend money rather than to commit to multi-year projects.

6.39 *Accounting practices:* Government policies on fiscal audits require all colleges and universities to submit reports on expenditures that are excessively detailed, and do not link to broad measures of performance. This kind of accounting effectively compromises the autonomy legislation, and ties up the institutions in red tape without any real public transparency about performance in relation to goals. They also contribute to accountability structures that the Review Team finds to be overly complicated, sometimes conflicted, and poorly designed to help policy-level decision making. The Review Team recognises that this is attributable to the political legacy of Portuguese tertiary education, and the many changes in administration over the past two decades, which have left a cluttered landscape of obsolete laws and conflicting regulations.

6.40 *Capital finance:* Capital financing decisions seem to be entirely based on regional economic needs – and the political effectiveness of regional elected officials – rather than policies for tertiary education in Portugal. The Review Team was impressed with the quality of the physical facilities in the institutions, which it visited, and the care taken in maintaining buildings and grounds. Clearly the lands and buildings represented in Portuguese tertiary education are a national asset, and have great historic and cultural value benefiting all of Portuguese society. Investment funds have also benefited heavily from European Structural Funds, which will not continue indefinitely as a source of capital for infrastructure in Portugal.

D. CONCLUSION

6.41 Taking account of the above discussion, the Review team offers the following set of recommendations.

6.42 *Investment strategy:* We recommend that, as proposed in Chapter 2, the Council (CCNES) articulate a long-term investment strategy for tertiary education to fully align finance policies with plans for improving performance in the system. The strategy should distinguish between short-term goals for system redesign and efficiency improvements and longer term strategies to increase enrolments and grow revenues. The investment strategy should include a revenue policy, to address criteria for which activities should receive public funds versus those that can be funded with private revenues. It also needs to identify

those programmes and policies that should receive priority for new public funds, and broad criteria for consolidating programmes and focusing existing resources to maintain quality and increase efficiency.

6.43 *Maintain immediate growth in investments in Science and Technology***:** We applaud the funding strategy to increase public investments in science and technology by investing in the Research Centres and Associated Laboratories. Consistent with the recommendations in Chapter 5, these investments should be continued until the goals in the Technological Plan are met.

6.44 *Increase cost effectiveness prior to increasing funding.* We believe that developing the world-class system of higher education that Portugal deserves will eventually require growing funding levels. However, we believe that plans to increase funding in higher education should be preceded by immediate steps to increase the efficiency and effectiveness of the current system. This will require the elimination of duplicative low-enrolment courses; increasing use of shared facilities, and increasing student mobility between institutions. Increasing investments without improvements in system steering and a greater focus on goals and performance would, in our opinion, produce essentially the same results. More of the same – good as that would be—will not be good enough for Portugal, which needs to increase educational capital for the general population without compromising quality. To meet the needs of the future will require greater focus on goals, performance, accountability and productivity, to ensure value for investments. It will also require clearing away much of the tangle of current accounting controls, regulations, and budgetary protocols. We recognise that attending to the issues of regulatory reform and efficiency improvements will require major changes in traditional ways of doing business, and we do not trivialize the challenges that will lie ahead in moving forward on this agenda.

6.45 *Develop cross-sector financing strategies to improve upper secondary performance and increase tertiary enrolments.* Portugal will not be able to achieve its goals for tertiary education without improvements in upper secondary completions and growth in tertiary participation and degree attainment. The review team perceives that the two sectors currently operate almost in complete isolation from one another, with no sustained attention to the partnerships needed to reinforce mutual responsibility for success in increasing overall educational attainment. Finance strategies should be developed to encourage more dialogue between the sectors. We recommend a pilot effort to provide financial incentives to reward institutions that show success in upper secondary attainment and initial enrolment in tertiary education. The performance funding contracts described below could provide the basis for this in tertiary education. The review team was not charged with an analysis of secondary school finance, and thus is not prepared to offer specific recommendations about how that might be accomplished for that sector However, it does note that at the present time, secondary education enjoys a funding advantage relative to tertiary education – an advantage that will grow even more if enrolment patterns are not changed. We thus believe it a propitious time to introduce the concept of creating an incentive funding strategy to increase upper secondary attainment – possibly through some reallocation of resources to accomplish that.

6.46 *Student Tuition and Aid:* We recommend that Portugal retain its current tuition policies which allow tuitions to increase consistent with inflation and minimum wages. This policy can be revisited if Portugal is successful in reaching its national goal of increasing the proportion of the population completing upper secondary education who successfully transition into tertiary education. Tuitions for post-graduate students should be deregulated and allowed to increase to rates closer to the full-costs of the programmes. We recommend the Government should establish a task force to inquire into the establishment of an income-contingent loan scheme for higher education students.

6.47 Future changes in tuition and aid policies should be data-driven to the maximum extent possible. Toward that end, we recommend that the Government should commission studies of the private internal rates of return to higher education and of the relative teaching costs in higher education by field and level

of education. The results of these studies should be made public, and used to inform future policy-making about tuition levels, scholarships and access to loans.

6.48 *Revisit the structure for scholarship and student support:* The Review Team is concerned that the administrative overhead in the student support function is too high, and seems to be eroding resources that could be put to better use in scholarship assistance. The formula that was put in place in 2005 provides incentives for institutions to reduce administrative costs, but it has only been in place for a short time and its effects are not yet clear. If performance-based contracts are implemented as we have suggested, we recommend that they include incentives for institutions to continue to reduce administrative costs.

6.49 *Exemption from annual sequestrations:* We recognise the responsibility for tertiary education to share in the national priority to contain spending and reduce national debt. However, the past practices of periodic sequestrations of 7.5% of non-salary expenditures falls particularly hard on tertiary education, as it has been applied to include private as well as public revenues, including tuition and fees, and private funds. We recommend that private revenues including tuition be exempted from any future such sequestrations.

6.50 *Revise the basis for distributing current year funds:* As discussed in Chapter 2, we recommend a further evolution in the distribution of all institutional operating funds, away from formulae that cannot work equally well for diverse institutions, toward contracts between the institutions and the Government, negotiated by CCNES and allocated by it subject to Government final approval. The contracts should be based on strategic plans and indicators of performance agreed to between the institutions and the Secretariat in MCTES serving the CCES. The principle of "fitness for purpose" that serves as the basis for differentiated institutional goals should apply as well in the negotiations over funding. The criteria for funding can and should vary for different institutions. For instance, regional polytechnics may have greater emphases on partnership with local schools, or regional economic development and workforce preparation, than would be the case for research universities. Some institutions are better positioned to meet the goal of greater internationalisation – of student enrolments, researchers and staff—than are others. The contracts should continue the current emphasis on increasing efficiency and degree attainment, but should be extended to a greater emphasis on upper secondary attainment, initial enrolment, and first year retention in higher education. Institutions could also be given incentives through the funding contracts to increase cooperation to enhance dual enrolment opportunities, and through evidence of greater student mobility between institutions. The criteria should be designed so that they can be measured, and changes noted from year to year. Some process measures may be appropriate as well, such as modifying internal governance structures, or evidence of curriculum change to improve learning outcomes. Table 6.6 below shows the types of indicators we suggest be the initial basis for discussions of performance contracts.

6.51 *Improve information for public accountability about performance:* The Review Team perceives the tertiary sector to be burdened by accounting requirements that focus on individual transactions rather than system-level performance. Information about performance in relation to goals, and to the use of resources in meeting goals, is difficult to come by. We recommend a comprehensive review of existing institutional reporting protocols, to reduce paperwork and personnel costs, and to create information that can be used for strategic decision-making. This overhaul should extend to reporting formats for finances, to better relate resource use to activities, and to distinguish between general purpose and restricted revenues – particularly important in reporting of extramural revenues. The performance indicators currently used to measure progress toward the national technological plan are a good example of ways this might be accomplished; we commend this example as a good place to start on a redesign of internal and external accountability strategies.

6.52 *Revise budgeting for capital outlay:* The Review Team recommends moving away from the project-funding mode for capital outlay, toward a multi-year plan for capital improvements, linked to

national priorities. The plan should include attention to revenue sources for capital outlay, and anticipate the eventual loss of European Structural Funds. The criteria for capital priorities need not be identical to programme priorities, and can include factors such as regional economic growth, jobs, the preservation of buildings and sites of historic and cultural significance, and contributions to the civil society through the arts or service to communities.

6.53 The foregoing recommendations may be summarised as follows:

- Portugal should articulate an investment strategy for tertiary education, beginning with immediate attention to increasing performance and efficiency, and longer-term strategies to increase overall funding. The strategy should better align financing policies with overall strategic plans for the tertiary sector, and should include articulation of revenue strategies (and appropriate roles for public in contrast to private resources).

- We recommend that Portugal pilot some incentive funding strategies to encourage greater cross-sector cooperation between the tertiary and secondary sectors.

- Portugal should retain its current tuition policies which allow tuitions to increase consistent with inflation and minimum wages. Post-graduate tuition levels should be allowed to increase immediately, to levels closer to the full costs of these programs.

- We recommend the establishment of an income-contingent loan programme, and recommend that the Government establish a task force to develop details about how such a programme should be implemented. .

- The practice of capturing fund balances at the end of the calendar year penalises prudent fund management at the institutional level, and provides perverse incentives for institutions to spend down funds rather than to commit to multi-year planning. Private revenues should be exempted from any future such sequestrations.

- There should be a further evolution in the distribution of operating funds, away from formulae that cannot work equally well for diverse institutions, toward contracts between the institution and the CNES, negotiated based on strategic plans and indicators of performance. These should be appropriately differentiated by institution, but include common themes to increase cost effectiveness, increase enrolments, andexpand degree production.

- A comprehensive review of existing institutional reporting protocols should be undertaken, to reduce paperwork and personnel costs, and to create information that can be used for strategic decision-making. This overhaul should extend to reporting formats for finances, to better relate resource use to activities, and to distinguish between general purpose and restricted revenues.

- The Government and Ministry should move away from the project-funding mode for capital outlay, toward a multi-year plan for capital improvements, linked to national priorities.

- Table 6.6 Broad goals and measures for funding contracts.

Table 6.6 Broad Goals and measures for funding contracts

(Note: These measures are offered as examples of the types of measures that should be the basis for resource allocation. Not all criteria would be utilized for each institution.)

Goal	Possible Measures
Maintain stability and predictability of funding in base budget	Maintain state subsidy for 5 years of "learning entitlement" for eligible students
Increase overall educational attainment	Increase in the rates of upper secondary school completion within the institution's service area -Increase in the proportion of upper secondary school graduates who meet admissions standards -Increase in student retention -Increase in first degree graduation rates -Reduction in time to the first degree
Improve cost effectiveness	Reduction in low-enrolment courses Increase in dual enrolment with other public or private institutions Reduction in administrative expenses
Improve financial aid	-Increase scholarship aid to improve funding for the lowest income students -Reduce administrative overhead in student support services -Implement regulations to permit income-contingent loans
Internationalisation	-Increase in international enrolments -Increase in international research and development
Learning quality	-Increase in measures of student learning OR maintaining learning outcomes while increasing numbers of graduates -Institutional engagement in measures of learning outcomes -Refinement of curriculum/course requirements to promote learning and reduce attrition
Workforce development	-Increase in overall job placements -Measures of employer satisfaction -Increase enrolments in first degree or vocational programmes for older (above age 24) adults
Research and Economic Development	-Continue increased investments in science and technology to meet the goals outlined in the National Technological Plan

CHAPTER 7: CONCLUSIONS

A. INTRODUCTION

7.1 The individual chapters have addressed in some detail a number of challenges facing the Portuguese government and the institutions of higher education. Each chapter ends with a detailed list of recommendations. The purpose of this chapter is to bring together the key themes and recommendations.

Impressive achievements

7.2 Since the mid 1980s, Portugal has achieved an impressive expansion of its tertiary education system. The numbers enrolled rose from 30 000 in the 1960s to over 400 000 in the year 2000. The rates of growth in enrolments are unsurpassed among comparable OECD countries. The enrolment percentage of entry-age cohorts is high. Particularly impressive has been the growth in production of Ph.D degrees. The level of resources devoted to tertiary education has been rising, reaching a level of 1.04% of GDP. The percentage growth in expenditure on R & D has been particularly high and immensely impressive. However, the dominant impression of the Review Team is that the Portuguese tertiary education system is not sufficiently resilient in responding to the changing national goals for the sector.

Daunting challenges

7.3 Despite these achievements, the Portuguese tertiary education system today is faced with a major dilemma. On the one hand, declining enrolments in recent years have created real or potential excess capacity in some instances or a mismatch of supply of places with current patterns of demand, by programmes or regions. On the other hand, the overall tertiary attainment levels need to expand if Portugal wishes to catch up with European standards. Catching up is made particularly difficult because of the declining numbers in the age-cohort of potential entrants to HEIs.

7.4 This fundamental dilemma is symptomatic of other underlying problems. The tertiary system as a whole has not been well managed over the years. The expansion of the sector as a whole has been haphazard and not based on well thought out goals for the sector. A major complaint of HEIs is that they operate in an uncertain climate without clear indications of national priorities. The differential expansion of the various components of the system has been, equally, unanticipated and unplanned. As a consequence, the existing composition of the tertiary sector is not satisfactory, for example, in terms of the weight of university and academic degrees compared to polytechnic qualifications.

7.5 There are more serious problems of management and governance at the institutional level, which partly reflect the limitations of the existing regulatory and financing regimes. The current governance system inhibits effective management and innovation. The room to manoeuvre for the polytechnics and private sector institutions is even more circumscribed. These factors amount to a limited capacity of leadership and management in responding flexibly to changing conditions of demand and to manage institutions effectively and efficiently.

7.6 The twin problems – system management and institutional governance – contribute to an unsatisfactory state of outcomes of the system. A major deficiency of Portugal's tertiary system is in the

quality of provision. Quality is weaker in some polytechnics and private sector institutions. At the university level, the failure rate of students is unacceptably high (notwithstanding the fact that they are high in several other European countries as well). The deficiencies in quality at the tertiary level are linked to quality problems encountered at upper secondary level. The drop-out rates from the secondary system is very high, which reduces the size of the cohort that could potentially be available for participating in the tertiary sector. Current evaluation and quality assurance systems have serious deficiencies, which has prompted the Government to institute an international review. Mention should also be made of the very high degree of inbreeding, and mobility both geographical and within institutions is very low.

B. A PACKAGE OF REFORM PROPOSALS

7.7 Addressing the nature and severity of the problems outlined above requires fundamental reforms of the system -- in its structure, orientation, and functioning. They would need to address the two fundamental problems identified above: the problems of system management and of governance of higher education institutions (HEIs). They would also need to address the closely related issues of financing arrangements and resources for tertiary education. Measures will be needed to improve the quality of tertiary provision, the equity of access, and to develop and improve the performance of the research and innovation system. Finally, the weak outward orientation of the system and stakeholder involvement call for remedial action.

7.8 Clearly these are not marginal or piecemeal changes. The many dimensions of the complex problems call for a package of measures, not only one or two selective interventions. Some of the problems require taking a long term perspective, while others require immediate attention. Some action will be needed on the part of the Government, others by the HEIs, both public and private, universities and polytechnics. Some of the tertiary sector problems are linked to performance of the secondary school system. Hence, reforms of the tertiary education sector are also linked to reforms of the secondary system. Taking the long term view, there is also a need for attitudinal change on the part of all stakeholders.

7.9 The Review considered it useful to structure the reform package around these six themes: (1) System steering and management; (2) The governance and legal status of higher education institutions; (3) Financing, system efficiency and student support; (4) Quality and excellence; (5) The Science and technology system; and (6) Outward orientation and external stakeholder involvement.

System steering and management

7.10 Any national system of tertiary education management must tackle questions such as: what should be the overall growth and expansion of the system and how should demand and supply of tertiary provision (the "network" issues) be matched; what should be the appropriate role and the relative contributions of different components of the system, such as the universities, the polytechnics, the public and the private sector? The role of system management is to set national goals, the rules of the game and the regulatory framework within which different stakeholders can perform most effectively. The success of the system is to be judged in terms of how well the national goals are met, and with what effectiveness and efficiency. The management and steering system must also posses the tools with which the management can be carried out. The question in this regard is whether the tools are adequate for the purposes envisaged.

7.11 The Review Team believes that an appropriate vehicle has to be found to clearly articulate system-wide goals in a manner that has authority and credibility. It believes that Portugal is ready for a fundamental shift from state level control and direction to national steering and institutional level autonomy. At both levels, there is a need for a more professional approach to management driven by goals and outcomes, based on data. In important respects the existing regulatory mechanisms constitute a mixture of under-regulation (new programmes, heightened institutional competition for students and

mission drift) and over-regulation (human resource management, curriculum changes and financial controls).

Setting up goals and the strategic framework

7.12 A number of key goals for Portuguese higher education in 2010 are clear and ambitious. How they will be achieved and what they mean for the shape and size of the higher education system is less clear. The Review Team does not believe in detailed blueprint planning of higher education systems and understands the reservations of institutions that see the introduction of a planning framework and process as just one further bureaucratic demand on their time and resources. Nevertheless, we strongly recommend that the various goals and policy objectives that impinge on higher education be integrated into a single policy planning framework that is translated into a broad picture of what this may mean for the system in terms of changes in student enrolments in different sectors, fields and programmes over the next five years, and how this will be resourced. This broad system-level picture of the future "size and shape" of the system, updated on a regular basis, is a pre-requisite for effective institutional level strategy and system steering.

7.13 The integration of these various goals and objectives into a single planning framework is a task of fundamental importance to Portuguese higher education: it entails cross-portfolio co-ordination between different Ministries, and provides an opportunity to involve external stakeholders at the highest level of higher education policy development. The need to integrate policy across different policy areas is clear: a vibrant Portuguese higher education sector needs reform in upper secondary education; it must be well-articulated with the science and technology system; and it needs to be linked to developments in the labour market and to Portugal's ambitious plans flowing from the Lisbon strategy. Higher education is of central importance to Portugal's economic strategy and its development of a knowledge economy; this implies that high-level strategy for the sector must involve high-level input from the Government, the private sector and tertiary institutions. What is needed is a structural way of ensuring that this happens.

7.14 The Review Team proposes the establishment of a new national council charged with the responsibility for overall higher education strategy in Portugal. It has noted the new organic law of the Ministry of Science, Technology and Higher Education (Decree-Law 214/2006 of 27 October 2006) that makes provision for such a council: the *Conselho Coordenador do Ensino Superior (CCES).* The Review Team proposes that CCES should have the highest level of authority, a "statutory committee" charged with developing proposals for the overall strategy for the higher education system. It should not be a Council for pure consultation or debate but should be charged with strategic decision making. The terms of reference of CCES should be clearly focussed on higher education strategy within clearly articulated national goals and priorities for the sector and not on the co-ordination of the system within this strategic framework, which should be the responsibility of the Ministry (MCTES). The review team suggests that the composition of CCES might be based on the following indicative lines: that the Chair be the Prime Minister while the Deputy Chair be the Minister of Science and Technology and Higher Education; the Secretary to CCES should be the Director of the office responsible for HE Policy within MCTES (GPEARI as outlined in the new organic law). The total membership should be small enough to facilitate strategic decisions. However, the membership must include the State Secretary of MCTES, senior representatives of cognate government Ministries/Agencies, members drawn from business, industry and civil society and senior representatives of higher education institutions. International experts should be invited to participate.

7.15 In order not to deflect CCES from its strategic role, it should not be encumbered with its own staff to carry out research but should be supported by a new Office of Higher Education Policy in the Ministry (as indicated in the new organic law) with new staff members with high-level policy and information-gathering and analytical skills. The lack of an appropriate knowledge base to support tertiary

education policy making is one of the more serious deficiencies of system management in Portugal. The new office should have a substantial budget to commission research and policy papers, and to employ international experts. The latter suggestions are intended to give Government the capacity to benefit from independent advice, and the advantages this brings in developing arguments for reform.

7.16 The establishment of CCES will facilitate a system-wide view from a national perspective. There is still a need to establish a mechanism whereby institutions and other substantive public and private bodies can come together at a local or regional level to discuss issues of mutual interest and to propose joint or co-ordinated action for the advancement of the region. We recommend that a 'regional council' be formed in each region comprising all of the higher education and other educational and training providers together with a broad representation of stakeholders e.g. from business, trades unions, voluntary groups etc. The intention would be that these would not be statutory bodies or have decision-making powers but they would be a vehicle for local joint initiatives. Its character and function is, therefore, very significantly different from CCES, even in its regional context. It is suggested that each regional council should report to and recommend proposals for action to the bodies represented on the council and to others; they should also report on their deliberations on a regular basis to CCES, thereby making an input into the policy discussions at national level within that body.

The growth and expansion of the tertiary sector

7.17 The issue related to the size and growth of Portugal's tertiary education sector should be a key question for the CCES. The question needs to be viewed in the long term perspective. In this context, the capacity of the tertiary system would need to expand to meet the demands of the economy. If Portugal has to raise the per capita income of its population, it must raise its labour force productivity and compete in the international arena. The level of educational attainment of the population must be raised, to bring it up to the European levels. The long term growth in capacity must be achieved progressively over time and it must begin with the fuller use of the present capacity. But growth over the long term would require action now to stimulate the demand for tertiary provision. Several steps can be undertaken in this long term perspective. One such step would be to raise the proportion of young cohorts of tertiary entrance age that graduate out of secondary school and qualify for admission to higher education. This would require major reforms in the secondary system, especially in the fields of sciences and maths. These actions would need to be taken now for garnering the benefit in the longer term. A second approach would be to raise the proportion of adults seeking tertiary education. A third approach to stimulate demand for tertiary education would be through the labour market. Accelerated technical change in the production sector can generate a wage premium for skills that are provided by the graduates of the tertiary sector.

7.18 Raising tertiary level capacity, in the longer term, would require greater resources out of GDP than is spent at present. The current excess capacity in the system would need to be fully used first and inefficiencies rooted out but, because the gap with Europe is large, still more capacity would be needed in the future. The capacity cannot be expanded solely through better use of current resources.

7.19 The Review Team recommends that the CCES develop a comprehensive long term strategy to shape future growth of the country's tertiary education system, including plans to raise revenues, both public and private, to meet the investment demand that cannot be met through increased efficiencies. The issue of new sources of financing is taken up below, under in the section on Financing.

System consolidation and rationalisation

7.20 While this long term perspective must be kept in focus, in the immediate term, the issue in Portugal is not about expansion as such but about better use of the existing capacity. The declining enrolment levels in recent years, the appearance, in some cases, of institutional level excess capacity and

system-level mismatches between demand and supply of places, by programmes and regions, and the unhealthy competition among institutions for lucrative programmes prompted a key question for the Examiners: is there a need to downsize, or consolidate the institutional landscape?

7.21 As a fundamental point of departure the Review Team believes that - in a context of planned growth, broadened access and limited resources - existing higher education capacity should not be lost, and that while existing institutions may need to be "down-sized" amalgamated or linked with others they should not be closed, though individual departments or schools may be closed because they are not viable. We wish to make it clear that there is much scope at local and regional levels for institutional reconfiguration. The Review Team cautions against a major national reconfiguration of the institutional landscape via forced mergers, and recommends a case-by-case approach within a strengthened binary framework and through the mechanisms of institutional performance contracts, a policy tool that is discussed below.

7.22 This does not imply that the functioning of the network of institutions cannot be improved in other ways. Subsequent to the review visit in May 2006, a number of voluntary initiatives involving institutional co-operation have been drawn to the Review Team's attention. These initiatives may have something to offer, though they have yet to prove their worth in tangible ways. Similar initiatives could be encouraged in North-Eastern, Central-Eastern and Central Portugal, provided they engage in real, rather than theoretical or cosmetic initiatives. Their progress should feature in the discussions of the institutional performance contracts. The proposal for regional co-ordinating structures, proposed above, would be well-placed to encourage this co-operation. International experience suggests that participating institutions and their students and staff can benefit by co-ordinated programme offerings, joint programmes, structured arrangements for student transfer, the sharing of infrastructure and capacity etc. Nevertheless, the Panel urges that these initiatives be supported only where there is a clear emphasis on strengthening regional capacity while respecting the distinct missions of universities and polytechnics. Our recommendations, below, stress the importance of maintaining the binary system; changing polytechnic schools into university schools via "co-operation" initiatives should not be countenanced or permitted.

The structure of higher education: the binary divide

7.23 The contribution of institutions to the achievement of national strategic goals for the higher education sector will vary according to their particular niches. The challenge in co-ordinating a diverse higher education system is how to steer the system in such a way that this differential contribution is realised.

7.24 The Review Team recommends that the binary framework should be maintained and strengthened. The mechanisms for resource allocation, levels of institutional autonomy, programme accreditation procedures and human resource management policies all need to be reformed to create a policy environment in which professionally orientated polytechnic institutions can create a sustainable future that is distinct from universities. It is recommended that the government should introduce comprehensive university and polytechnic legislation in which the autonomy of institutions is clearly defined and the different roles of universities and polytechnics are specified. Equally important is the corollary of the creation of this new policy environment: universities should be specifically and unambiguously excluded from entering programme areas and levels of award that are outside their core area of business, and which properly reside within the polytechnic sector. Polytechnics should be specifically tasked to develop employable graduates with advanced technical skills and practical know-how, underpinned by analytical, problem-solving and communication abilities of a high order. They should also participate in the New Opportunities Programme. They should be resourced specifically to develop new delivery modes and services to meet the diverse learning needs of an enlarged student body. The major mechanisms for doing this should be the negotiated performance contracts, as outlined below, as

well as the significant changes in institutional autonomy and governance proposed for both universities and polytechnics.

7.25 A variety of new pathways will need to be opened for learners, including post-secondary and further education diploma courses and short-cycle degrees. For each level of award, the qualifications of university graduates and polytechnic graduates should be defined separately and distinctively. The different roles of universities and polytechnics should be clarified in terms of the different capabilities and attributes expected of graduates who successfully complete a programme of studies leading to the award of a Portuguese qualification. The CCES should have a central role in that regard.

7.26 Within the broad binary framework confirmed in Decree-Law 74/2006 the primary institutional location of first- and short-cycle professional programmes should be the polytechnic sector. Yet the aspirations of many in this sector are in the opposite direction: the further development of Master programmes, an increase in the proportions of staff holding PhDs, an attempt to secure the right to offer PhD programmes, the expansion of research programmes and eventually the achievement of university status. To some extent these aspirations reflect traditional academic values (that drive academic drift in many countries), but they are also strategic responses to the inadequacies of the current policy environment within which the polytechnic sector works.

The structure of higher education: the role of the private sector

7.27 The Review Team recognises that the right to the private provision of education is guaranteed by the Portuguese constitution. Consequently, private universities and polytechnics are an integral and long-term part of higher education in Portugal. The future vision outlined in Chapter 2 is of a more diversified and larger higher education system catering for a broader range of students with a mix of programmes more focused on professional programmes and with a close link to the labour market. Private institutions may be well placed to respond to this challenge.

7.28 It is important to ensure that the private sector offers quality education. The new accreditation agency and its programme accreditation procedures should ensure to terminate any programmes that do not meet acceptable quality standards. It must also ensure that private institutions are not subject to more rigorous procedures than public institutions

7.29 The private sector can play a particularly important role where there is insufficient capacity in the system. The Review Team believes that a possible approach in such cases would be for the Ministry to periodically issue tenders for the provision of study programmes for which both private and public institutions could submit proposals. This would avoid adding additional public capacity where it is not needed and would help preserve the valuable private capacity that Portugal has and should continue to profit from. While the Review Team is not proposing that private institutions be included in the planning/contract system such selective funding of programmes might also create the space for negotiations on other issues that might help ameliorate some of the harmful effects of the current intensive competition between institutions.

Tools for steering the system

7.30 One policy approach to address the challenges noted above, proposed by the Review Team, is *performance agreements or contracts* negotiated between the Ministry and individual institutions. Such agreements offer a way of translating the national objectives differentially into institutional plans. The Review Team recognises that constructing such performance agreements is a complex task and proper expertise has to be developed within the Ministry to conduct these negotiations successfully. It also recognises that the experience with these performance contracts in other countries has not in all cases been

fully satisfactory. The difficulty in most cases has arisen from the limited application of this tool rather than the effectiveness of the tool itself. More importantly, other options of funding formulae, general policies and accreditation procedures do not offer the same benefits of tailoring incentives to shape institutional plans in harmony with national goals.

The governance and the legal status of the higher education institutions

7.31 The major focus in Chapter 3 has been on governance systems that link the national level to the institutional level and the governance of the institutions themselves. At the institutional level, the Review Team encountered frequent examples of inertia and inflexibility. There was evidence of lack of leadership, the unwillingness to take direct action -- for example, on attrition rates, on teaching performance, on engagement with the wider community among others -- at both polytechnic and university levels. Apart from a few notable examples, the Team was disappointed in the attitudes displayed by both sets of rectors when we met them in plenary session: their attitudes were to lay all of the blame at the feet of Government, conveying to us little sense of their own personal responsibility to generate institutional momentum and to take the difficult decisions. There is a clear need for attitudinal change. While this change is largely the responsibility of institutional leadership, it can be facilitated by the regulatory regime that defines the roles of government with respect to the institutions and the regulations that define the governance system of the institutions.

7.32 The Review Team acknowledges that Government has a legitimate interest in the operation of the system of institutions and must have a special regard for the proper and effective use of public funding. Nonetheless it is clear to the Examiners that successive governments over the years have taken an excessively interventionist approach to exercise that proper overview. Its effects are both direct and indirect; direct, in that it imposes bureaucratic requirements without any obvious positive outcome and it slows local initiative and responsiveness; indirect, in that it disempowers local leadership and does not encourage strong decision-taking at local level. We believe that Government must disengage from the detailed control of the system and must give the institutions greater freedom to regulate themselves and innovate. The guiding principle should be to provide greater scope for autonomy and room for manoeuvre for innovation at the institutional level while reserving the steering role for the Government. The Review Team believes that Portugal is well positioned to evolve towards greater differentiation of governance, with the national Government more squarely focused on policy, and institutions given wide latitude for accomplishing public priorities consistent with their missions. This significant increase in institutional autonomy should be introduced differentially and progressively depending on the capacities of the institutions (including internal governance and management reform), and the extent of the challenges they face. The shift in steering philosophy would be supported by the system *of institutional performance agreements* or contracts negotiated between the Ministry and individual institutions, as proposed above.

7.33 These considerations and the thrust of many of the remarks and instances articulated to the Review Team indicate an urgent need for new legislation governing the higher education institutions. The new legislation should establish institutions as self governing foundations. While clearly continuing to be supported financially by Government, for instance, they would operate and be seen as belonging more to the private sector. For instance, managerial freedom would be the norm, finances would be separately accounted for outside of the state system and it should include the removal of the civil service designation from all employees of the higher education institutions. The objective is to empower the institutions to manage themselves, to diversify, to take initiative and to innovate. The institutions must satisfy Government that they are prepared to accept the freedom which this change implies but that they are willing to confront the difficult leadership and managerial decisions which are an inherent part of any such new arrangement.

7.34 Chapters 2 and 3 note examples of deficiencies in existing arrangements for institutional management and the exercise of institutional leadership and offer a range of recommendations to address them: the establishment of governing authorities with a chair and the majority of members drawn from external stakeholders; the appointment rather than the election of the rector; the appointment of deans and heads of department by the governing authority on the recommendation of the rector; the establishment of a statutory academic council with overall responsibility for the academic affairs of the institution; the establishment of an executive committee to take decisions on resource related matters; and the introduction of transparent appointments processes in accordance with best international practice.

7.35 The Review Team recommends that similar governance structures and legal requirements, obligations and freedom should apply across the binary divide. It emphasises that whereas the Government has a key role in facilitating the changes proposed, the staff and faculty have a huge responsibility in giving effect to and exploiting those changes in a creative and dynamic response to them.

Financing, system efficiency and student support

7.36 Chapter 6 on finance reviews current patterns of finance for tertiary education, science and technology, and discusses ways for them to be improved, and aligned to support the recommendations for systemic change proposed in the earlier chapters.

The need for resources

7.37 One of the key questions on financing tertiary education is linked to the size of the system and the quality of provision. We have noted above the reasons why Portugal's tertiary education system needs to expand over the long term. The need for additional resources for the sector, in this context, comes from both qualitative and quantitative improvements in the system.

7.38 Enrolment numbers, tapering off as a result of the demographic developments, need to expand because Portugal lags behind other European nations in tertiary attainment levels. This expansion can come from raising the proportion of the young cohorts and adult learners to enrol in the tertiary sector. Education quality needs improvement, both in secondary and tertiary levels. An improvement in quality of instruction at the upper secondary level can underpin an increase in the proportion of the young cohorts who successfully complete upper secondary education by lowering the drop-out rate and enabling a greater proportion of the graduating students to pass the entrance examinations with grades above the qualifying criteria. A third factor requiring additional resources is the research, development and innovation system of the country, which, despite its progress in recent years, is weak in comparison to the countries Portugal wishes to compare itself with. A fourth issue is that greater investment would be needed to provide student support and improve the tertiary sector participation of students from low socio-economic background.

Better use of resources: Inefficiencies in the system

7.39 With enrolments declining, there is little need for extra resources arising from a quantitative expansion of the system in the immediate term. Should there be a marginal upturn in enrolments in the near term, it can possibly be accommodated through more efficient use of the existing capacity. The Team's attention has been drawn to the existence of inefficiencies throughout the higher education system. These include high student attrition rates, very favourable and generous student staff ratios (SSRs) and administrative staffing numbers, according to the data, have not reflected the decline in student numbers; indeed, it seems that the numbers of such staff have expanded rather than contracted in many institutions. There are other inefficiencies in the system, in programme duplication and under-enrolment, and insufficient use of cross-campus collaboration or encouragement of student mobility.

7.40 To address improvements in the research and development system, the Government has managed to allocate substantial additional funding in the current budgetary year to support the further development of science and technology. Some of these resources will undoubtedly find their way to the universities, through grants and competitive bidding. The Review Team believes the National Technological Plan provides an exemplary model of a policy-based vehicle for funding policies and accountability structures. We recommend that a similar approach be developed for the distribution of operating resources for the institutions of higher education, based on the negotiated contracts between the institutions and the Ministry - which we recommend elsewhere in this report - differentiated appropriately for each institution. Examples of the types of priorities that might be embedded in such contracts are provided. We recommend that capital outlay (investment) funding be allocated through a separate process, although also more strongly related to policies and plans than we believe is now the case.

7.41 The Review Team has not paid detailed attention to the question of the envisaged new accreditation structure and process, given that this is the subject of a separate review by ENQA. Nevertheless it is important that the "planning/relevance/fit with the national programme network" dimensions of programme accreditation are not overlooked. Programme accreditation by the new agency should not carry any right to public funding whereas failure to achieve accreditation would mean that funding for such programmes would not be forthcoming. These latter issues will be determined in the process of negotiating institutional contracts where criteria of relevance and quality will be key considerations.

Finding new resources: Private contribution, social support and access

7.42 Should demand for higher education expand substantially, the required new resources cannot come from the public sector in the short term, but if the public deficit situation improves over the years there may be room for increased contribution. Portugal is currently engaged in attempting to develop its economy to meet EU borrowing requirements under the Stability and Growth Pact up to 2009 and beyond and is making substantial steps in that direction. The rationale for continued, or increased, public contribution for tertiary education comes from the economic and social benefits of this level of education confers on the wider society.

7.43 In the political debate, tuition fees are closely linked to equity and affordability of access to tertiary education. In a modern society, access to higher education should be a function of the proven abilities of the student, however that is assessed. The principle that all of its population can aspire to participation in higher education, without barriers to that participation other than ability and dedication, is shared by all societies. This ambition ranks highly in the priorities of the Government in Portugal. Tuition, social support and access mechanisms are central to the achievement of those ambitions.

7.44 The public sector alone cannot, however, meet the resource requirements for increased investment to any great extent, if the capacity of the sector has to be expanded significantly. The private sector would need to contribute an increased share of tertiary level costs. Philanthropic efforts must be stepped up and other sources of funding – in Portugal and abroad- should be pursued actively. But a more significant contribution would need to come from the students themselves. The rationale for this is based on the large private benefits of tertiary education that are captured by the tertiary graduates. There are both equity and efficiency arguments to support larger private contributions, for example, through increased fees. This economic necessity cannot be ignored indefinitely.

7.45 The Review Team recognises that, under current conditions, tuition fees cannot be raised in Portugal, partly because of political opposition, but also because of the constitutional constraint. Being sensitive to these considerations the Review Team recommends that Portugal retain its current tuition policies which allow tuitions to increase consistent with inflation and minimum wages.

7.46 In the long term, this policy should be revisited if Portugal is successful in reaching its national goal of increasing the proportion of the population completing upper secondary education who successfully transit to tertiary education. Portugal would need to prepare grounds for increased fees through addressing the political opposition and through a constitutional amendment or an enabling ruling of the constitutional provision. The political opposition can be reduced through a well-designed fee contribution scheme that is linked to private benefits to the individual, with a Government-supported income contingent student loan scheme and a more generous student support system. We recommend that this option be explored. In addition, tuition charges for post-graduate students should be deregulated and allowed to increase to rates closer to the full-costs of the programmes.

7.47 Appendix D describes many of the fundamental components of income-contingent loan schemes. Income-contingent loans generally have the major benefits of removing the up-front financial barriers to access that can inhibit or preclude the participation of students from financially disadvantaged backgrounds. Hence, such loans help ensure that the tertiary education system does not exclude talented poor students. Repayment obligations are triggered after graduation, and not during the period of study, and only when a graduate's earnings exceed a determined threshold level. Income-contingent loans also offer several insurance benefits over bank loans for the purposes of student financing, primarily because repayments are defined by the borrower's capacity to repay debt. As repayments are not required in periods of low income, borrowers are not put in the financial position of being unable to meet repayment obligations, while, as their incomes rise, so do their repayments. These considerations and the need to better support students and to facilitate access across all social classes are uppermost in our minds as we recommend the establishment of an income-contingent loan programme.

7.48 Appendix D also suggests a set of questions that need to be addressed as the particular form of such a loan scheme is being considered. The chosen scheme will - inevitably and desirably - take account of local conditions and, therefore, we do not recommend a particular form of income contingent loan scheme. In particular, the coverage and efficiency of the income tax system would be a major factor to consider in the case of Portugal. It is our suggestion that Government consider the establishment of an international task force to develop details about how such a programme should be configured and implemented.

7.49 To improve equity of access, the student support system should be reformed also so that a wider group can be reached. Administrative overhead in the student support function is too high. Incentives for institutions to reduce these administrative costs should be included in the proposed approach of performance-based contracts. Current funding practices favour subsidies for students who are relatively advantaged over the improvement of access to previously excluded groups. These practices should be reviewed and corrective measures should be adopted.

Improving quality and building excellence

7.50 In dealing with these issues the Review Team was conscious of the parallel work undertaken by ENQA. Nonetheless, since the issue of quality underpins all of higher education endeavour, the Review Team believed that it was important that it would focus attention on it in acknowledgement of that significance.

7.51 As discussed in Chapter 4, the tertiary education system must aim at higher levels of quality and excellence. It should be recognised that there is more than one way to be excellent and that excellence is not the domain of universities and research centres alone. Portugal needs to build real excellence in the polytechnic sector and the private sector as well, through a stronger focus on goals and outcomes. All HEIs must address the high student attrition rates in their institutions, a major source of inefficiency.

7.52 Full use should be made of the unique opportunity provided by the implementation of the "Bologna process" for the renewal of study programmes in Portugal and for a reconsideration of educational processes with a greater focus on student learning and outcomes, as well as a more explicit concern for the links between study programmes and the labour market.

7.53 The current differential requirements for the approval of new programmes for universities and polytechnics and for public and private institutions should be discontinued, as should detailed control over curriculum changes and steps in this direction have been considered under the new Bologna legislation in the Decree Law 74/2006.

7.54 The accreditation of all new higher education programmes should be based on rigorous evaluation by an independent external authority. The continued provision of higher education programmes should be subject to periodic external review, programme by programme, and at the whole-of-institution level. The frequency and intensity of quality auditing of institutions should reflect their performance records. A consultative process of programme by programme evaluations, involving providers, employers, professional bodies and students, should be undertaken to build a national consensus of expectations about standards of learning outcomes for university and polytechnic awards in particular subject areas. Institutions should track the employment record of their graduates.

7.55 Universities and polytechnics need to take responsibility for the educational success of their students. They should set limits on acceptable rates of student failure, repetition and wastage, monitor the progression of students, and provide additional programmes and specific learning support services as required to increase rates of success. Mechanisms should be introduced for obtaining systematic student feedback on the quality of teaching and a commitment to make the feedback known and to improve performance.

7.56 A national qualifications framework should be developed through wide consultative processes. All higher education providers should be expected to demonstrate acceptable standards, in educational leadership, curriculum and pedagogy, access to learning resources, financial viability, and probity.

7.57 Whereas the terms of reference of this review did not encompass the secondary school system it would be remiss of the review team not to refer to it. It is clear to us through the inspection of data and through statements made to us that the quality of secondary education should be improved with the objective of reducing drop-out rates and making it possible for a larger youth cohort to be sufficiently qualified to be eligible for tertiary level education. It is recommended that that Ministry of Education and Ministry of Science, Technology and Higher Education review the position of science and research in the curricula in secondary education with a view to increasing the interest of youth in careers in science and to emphasise its position in the schools. It is suggested that the CCES might be assigned the additional role of studying these issues with particular reference to the effectiveness of student transfer to higher education; it might also consider that the engagement of the higher education institutions would be helpful to its deliberations.

The science and technology system

7.58 Building the Portuguese science base and capacity with the targets designed in the Technological Plan and by the measures taken by the Government is recommended on condition that the authorities develop appropriate new steering and management processes, the main objective of which should be to form linkages and networking in the system. As discussed in Chapter 5, the tertiary education and S&T policy makers should develop a stable and coherent S&T policy evaluation structure, which should be based on a more complete database, with the information and knowledge of the working of the whole system. The establishment of the Portuguese graduate school system could be considered to assure the

quality of graduate education, to provide systematic education and guidance, to increase efficiency and to network the HEI's.

7.59 A new system of academic careers and clarification of research careers should be designed and implemented in order to eliminate inbreeding and to enhance teacher and researcher mobility. The promotions and recruitment decisions within institutions should be based solely on teaching and research merit. Processes should be competitive, transparent, and open and the evaluations should be performed by external peers supported by international expertise.

7.60 The Ministry and funding agencies should develop a more effective network of research units larger than the present ones. International evaluations should have a stronger influence on a more selective funding policy. The change toward more competitive funding schemes should be continued. The Portuguese Government should review the tax reduction policy for R&D in firms and adopt, in addition, more active instruments in order to encourage firms to have incentives to invest in R&D, to work together with higher education institutions in research and to enhance mobility between firms, universities and polytechnics. As the system of Associated Laboratories is enlarged and higher education institutions are expected to be important actors in science-based innovations, it is recommended that expertise in Intellectual Property Rights be enhanced.

Outward orientation and external stakeholder involvement

7.61 The universities in many nations have moved substantially from an almost complete disregard for the world outside of the campus to one of real engagement with and support. Portuguese institutions have been slow to engage fully with the external world. There are some distinguished exceptions to this reality, notably those of the Associated Labs within universities, but the general reality is one of disengagement with the community and business.

Inbreeding

7.62 The institutions are too academic and inward-looking; there is a high degree of insularity and inbreeding. HEIs need to be more connected to the public, the business and the international community. The higher education system needs to open up by helping to increase the flow of secondary school graduates, opening up adult education, and doing a better job of connecting with national and regional economic, scientific and technological needs.

7.63 The consequences of serious inbreeding can be damaging for the productivity and effectiveness of the system, as it can retard structural changes or new approaches to scientific research and education. The incentive system for career development in Portugal has had the effect of discouraging mobility. The essential elements of that system encourage graduates to pursue higher degrees in their 'home' university. They are then guaranteed progression into tenured academic positions over a number of years after receiving a Ph.D. degree. A comparison with the US demonstrates that Portuguese practices provide strong incentives for inbreeding. The inbreeding rate at the two largest engineering schools in Portugal is as high as 80-90%. According to one international comparison, the level of inbreeding in Portugal is highest among 14 European countries. One of the steps to combat inbreeding is to base promotions and tenure decisions solely on research and teaching achievement. These processes should be competitive, transparent and open; the evaluation of merit should be performed by outside peers in the field, preferably supported by recommendations from international experts.

7.64 Portugal's tertiary education system needs to provide greater diversity and choice of provision and to be more connected with the wider community, the labour market and the business sector. Universities and polytechnics should consult more broadly and systematically on the development of their

educational programmes, including with employers of their graduates. A consultative process of programme by programme evaluations, involving providers, employers, professional bodies and students, should be undertaken to build a national consensus of expectations about standards of learning outcomes for university and polytechnic awards in particular subject areas. Universities and polytechnics need to give greater attention to the destinations of their graduates, to monitor changes in destination patterns, to seek structured feedback from graduates, and to evaluate their programmes in the light of graduate feedback and experience.

External Stakeholder participation

7.65 The lack of engagement of Portugal's HEIs with their external environment is not altogether surprising given the absence of external stakeholders on governing councils and other bodies within institutions. This lack of external engagement impoverishes the system at a number of levels. It limits the research interaction between business and the institutions; feedback on business needs for graduates and its view of the quality of graduates is incomplete; it reduces the opportunities for fundraising for the institutions; and it isolates the institutions from current developments in the business world.

7.66 The Review Team recommends that each higher education institution should have a majority of external stakeholders as members of its governing authority and this should include the Chair. The proposed *Conselho Coordenador do Ensino Superior (CCES*) should have a substantial external stakeholder presence on its board. Ideally the Chairs of the proposed regional councils should also be from the community external to the higher education institutions.

Internationalisation

7.67 The internationalisation of tertiary education yields both costs and benefits at the individual and national levels. Internationalisation can be seen also as an opportunity for smaller and/or less developed educational systems to improve the cost efficiency of their education provision. Much needs to be done in Portugal to strengthen the engagement of the wider higher education system with systems in other countries. Government has established schemes and policies to promote it, especially those relating to the mobility of students, teachers and researchers. The research collaborations that have been promoted and funded recently by the Government are examples of steps in the right direction but much more needs to be done.

7.68 It is recommended that the Ministry of Science, Technology and Higher Education take steps to encourage the higher education institutions to take on a more proactive internationalisation role. It could be achieved in various ways, but experiences from other OECD countries show that an effective procedure would be to include a special internationalisation strategy as a part of the annual negotiations on performance contracts between the Ministry and higher education institutions. The strategy of each institution would include, among other things, the development of study programmes in foreign languages – particularly English - the establishment of joint degrees offered in collaboration with foreign partners, the development of international research cooperation and the planned use of EU programmes.

Concluding remarks

7.69 The package of recommendations proposed here are for action by government and also, it is emphasised, by the institutions themselves and at all levels in the institutions. Success, while depending on decisive and innovative Government action, will not be achieved by that alone unless the higher education institutions, their councils, committees, faculty, staff and students mobilise themselves and engage fully and enthusiastically with the reform process. The latter will require leadership at local level and an

institutional community committed to fundamental reform, efficiency, transparency and openness; these latter attributes are *sine qua non* for change and success.

APPENDIX A: SCHEDULE OF VISIT - 15-26 MAY, 2006

Day	Meetings and interviews arranged
1	Minister, Secretariat Background Report and Director-General Higher Education Institutions: CRUP (Public Universities); CCISP (Public Polytechnics) President Accounts Court Public University (University of Lisbon)
2	Students Associations (Lisbon) Institutions: APESP (Private Universities) Public Universities (Coimbra; Porto)
3	Public Universities (Porto; UTAD); Students (Porto) Public Polytechnics (Porto) Private Institutions (CEPSU) Institutions: CLA (Associate Labs; Researchers)
4	Public Universities (Aveiro) Public Polytechnics (Bragança; Viseu; Guarda; Aveiro)
5	Coordinating Council S&T National Access Committee (CNAES) Chair Review State Labs National Committee for Access Private Institutions (Catholic University) State Secretary for the Budget ENQA Review Committee
6	Public Universities (Évora) Public Polytechnics (Beja)
7	Free day
8	State Secretary for Employment; State Secretary for Education Expert & Former Minister Public Universities (UNL, UTL) S&T Foundation; Innovation Agency
9	Legal Experts Prime Minister Members Parliament National Committee for the Bologna Process National Committee for the Evaluation of Higher Education (CNAVES) Private Institutions (sample of small institutions; Lusíada)
10	National Committee on Social Support System Sub-Director-General Higher Education & Expert on social support Banks; Employers and Entrepreneurs Director National Technological Plan & Prime Minister Cabinet Minister of Science, Technology and Higher Education
11	Directors of secondary schools Public Universities (Lisboa) and Private Institutions (Lusófona) Teachers unions National Committee for Education
12	Minister of Science, Technology and Higher Education

APPENDIX B: LIST OF SUBMISSIONS

AFFIET ISET (Associaçao para a Formaçao e Investigaçao em Educaçao e Trabalho, Instituto Superior de Educaçao e Trabalho) *Major Achievements of the Institution*

Associaçao Portuguesa do Ensino Superior Privado, *APESP perspective of the OECD Review of the Portuguese Higher Education System,* APESP, Lisbon, Portugal.

Associaçao Portuguesa do Ensino Superior Privado (2006) *Major Issues of Private Higher education Institutions,* APESP,Lisbon, Portugal.

CLA (Conselho dos Laboratórios Associados)

CNASES (Conselho Nacional para a Acçao Social no Ensino Superior – National Council for Social Affairs in Higher Education), (2006) *OECD Memorandum,* CNASES

CRUP (Conselho de Reitores das UniversidadesPortuguesas) *Financiamento das Universidades*

CRUP (Conselho de Reitores das Univeridades Portuguesas), *Proposal of Topics to be Analysed in the Assessment of the Portuguese System of Higher Education*

FAIRe – Academic Forum for Information and External Representation Polytechnic Institute of Visieu (2006) *Statement for the Consultative Meeting at the Institute*, OECD Review of Tertiary Education meeting document

Federação Académica do Porto

FENPROF (Federação Nacional de Professores), Higher Education and Research Department, Higher Education in Portugal – comments

Polytechnic Institutes of Braganca and HE Institutions of the Region of Castilla y León

Rendas, A. (2006) *Meeting with the OECD Evaluation Team: Written Submission from the Faculty of Medical Sciences, New University of Lisbon,* meeting document, Lisbon, Portugal.

SNESup (Sindicato Nacional do Ensino Superior) (2006) *A Brief Presentation of…..*PowerPoint presentation document for the OECD / SNESup consukltative meeting in Lisbon, 25/05/2006

Universidade Lusófona de Humanidades e Tecnologias

APPENDIX C: HISTORY OF GOVERNANCE- SOME REFLECTIONS

A. INTRODUCTION

1. The governance of higher education institutions (HEIs) has become the focus for much study and comment both at the level of national and regional governments, within the general media and also within the institutions as never before. The public has become more interested than ever in the responsiveness of HEIs to the needs of the economy a fact that has much to do with the realisation that HEIs have a monumentally important role in the economic development of nations. Of course there has been for many centuries the realisation that the university has been central to the social and the cultural development of nations. But such a role has been evident for many centuries. It has also been the case that public administration and political leadership has been frequently lead by graduates of the university system. But that very long and historical period has also coincided with the aloofness of the university system from the influences of the communities in which they lived or existed. Indeed it could be asserted that the degree of that aloofness- the extent of the ivory tower- was a distinguishing mark of the distinguished university; the more the university did not engage with its community the greater was its implied sophistication and its adherence to the historical claim on the ancient origins of the university as an institution and as a centre of intellectual development and presence. That autonomy, it must be acknowledged, has been, frequently in history, a bulwark against the suppression of individual freedom of thought and of expression, *inter alia*.

2. In more recent times there has been a demand from governments and from the greater public for a more intimate engagement of the university with them. Whereas many universities have responded dynamically to those expectations, it was the case that the greater majority did not. This resistance to engagement with government and its needs provoked governments to establish universities with a legislative base and governance structures that would ensure that they would be responsive. Indeed, governments also established new types of higher education institutions, which, while not being formal universities, occupied or shared much of the space previously occupied by the universities alone; thus was born the new and more inclusive term 'the higher education institution'. Polytechnics, institutes of technology, technological universities, and regional technical colleges became established terms which expressed both a new era of engagement by higher education with the public but also signalled a broader definition of what programmes and activities constituted a proper provision by that sector. It must be said in parenthesis that the emergence of the private sector, particularly in the USA, Japan and to a lesser extent in most other nations added a special dimension to the definition of higher education and not least in relation to the definition of autonomy. The issue of institutional autonomy had suddenly become varied, complex and challenging as never before.

3. Almost at the same time and certainly within the same era, the relationship between higher education institutions and governments became even more complex as the funding assumptions, which had been central to the old system, began to break down. In short government funding began to decline and sources of other funding began to expand. Furthermore, business began to realise and to demand – as governments did also - other contributions from the higher education sector to their wellbeing and to the economic development of nations. Expectations and demands grew for universities to be centres of innovation and entrepreneurship. These expectations were to be satisfied through the provision of graduates with those characteristics, to the provision of programmes with a central focus on the needs of business and industry, and to graduates who would exhibit leadership qualities which modern business and society now demanded. There was also the strong belief that the efficiency and the effectiveness of

university operations would no longer be taken for granted and the same applied to standards and to quality. The phrase 'the entrepreneurial university' was born and became the measure by many members of the public and by politicians of the standing of the university and other higher education institutions. In short, it would no longer be accepted outside of the university that the operations and academic endeavour - whether it be teaching, research or any other - were excellent because we the academic community deemed them to be so.

4. There are many reasons for the increased attention now paid to university governance, some generic to all higher education institutions and systems, others contingent on "local" political circumstances. They include:

- the increasing size of universities and the expanding complexity of their missions;
- the diversification of incomes and new mechanisms for budgeting;
- a greater degree of accountability towards the universities' stakeholders;
- more administrative responsibility for budget, personnel, and property issues, which were formerly entirely within the jurisdiction of ministries of governments.

5. All of this has resulted in a strong movement towards more executive rectors or presidents, for example. A most important reason for putting governance arrangements of universities under scrutiny is that it is in the interests of the long- term future of the university sector that universities are not only operating effectively but are seen to be doing so, if the sector is to retain community and hence government support. Ultimately the key challenge is to devise governance structures which assure a well run and managed university but which respect the need for academic independence and all that this properly entails.

6. A recent report by the Rand Corporation concluded that, 'In our view, the most pressing reform needed today in the higher education sector is redesign of the governance structure of institutions so that decision makers can think and act strategically' (Rosenzweig, 1997).

B. GOVERNANCE DEFINED

7. Governance is concerned with the determination of values inside universities, their systems of decision-making and resource allocation, their mission and purposes, the patterns of authority and hierarchy, and the relationship of universities as institutions to the different academic worlds within and the worlds of government, business and community without.

8. 'Governance' today means not so much what organisations do but how they do it; it is about how an organisation steers itself and the processes and structures used to achieve its goals. Governance is also crucially concerned with how organisations relate to each other and to their key stakeholders and, where relevant, deals with how citizens are given a voice.

9. The OECD (OECD, 2003) has put it quite succinctly when it stated that:

> 'Governance comprises a complex web including the legislative framework, the characteristics of the institutions and how they relate to the whole system, how money is allocated to institutions and how they are accountable for the way it is spent, as well as less formal structures and relationships which steer and influence behaviour."

10. Many of the core issues regarding university governance were addressed in the seminal text (Rhodes, 2001). Extracts on the university board and the president/rector follow in order to set the tone for much of what follows.

On University board

11. 'Effective governance involves deliberate respect on the part of each participant for the role of the others. Such governance, responsibly exercised, is as vital to the well being of the university as is the distinction of the faculty or the effectiveness of the presidents' leadership. The role of the board is governance, and there is a world of difference between governance and management. Governance involves the responsibility for approving the mission and goals of the institution; for approving its policies and procedures; for the appointment, review, and support of its president; and for informed oversight of its programs, activities, and resources. Management, in contrast, involves the responsibility for the effective operation of the institution and the achievement of its goals, within the policies and procedures approved by the board; the effective use of its resources; the creative support of the highest standards foe teaching, research, and service. The responsibility of the board is to govern, not to manage.

12. The most important single responsibility of the board is the selection, appointment, periodic review, and continuing support of the president.

13. The most effective boards are those that have developed a board code of conduct and that practice regular self-assessment of their own performance as a board.' He also states that governing boards in public universities often have no more than eight members.

On the university president and leadership

14. '.. effective governance requires both shared goals and forthright leadership, and that is the responsibility of the president. The essential link between the governing board and the constituencies of the institution it represents is the president….Without strong and effective leadership, no system of governance can be effective. It is the responsibility of the president, not only to explain the role and concerns of the board to the campus community, but also to interpret for the board the distinctive role and concerns of the faculty and other members of the campus community.

15. But the president is far more than an intermediary between the faculty and the board. The president must lead. It is to the president that both the board and the campus look for leadership and direction. It is the president who is the crucial catalyst in effective campus governance.

16. How, then, can a college president become an effective leader? The task of the college president, reduced to its essentials, is to define and articulate the mission of the institution, develop meaningful goals, and then recruit the talent, build the consensus, create the climate, and provide the resources to achieve them. All else is peripheral.'

C. INTERNAL GOVERNANCE

17. In the context of the evolution of the university within a fast-changing environment internationally, much new thinking has taken place on the most appropriate mode of internal governance and management of the institution. The Glion Declaration II (The Glion Colloquium, 1998) has drawn a distinction between university governance and management. It states:

> 'There is a world of difference between governance and management. Governance involves the responsibility of approving the mission and goals of the institution; the oversight of its resources; the approval of the policies and procedures; the appointment, review and support of its president;

and an informed understanding of its programmes and activities. Management, in contrast, involves the responsibility for the effective operation of the institution and the achievement of its goals within the policies and procedures approved by the board; the effective use of its resources, the creative support and performance of teaching, research and service; and maintenance of the highest standards of scholarly integrity and professional performance. The responsibility of the board is to govern, not to manage'. The Glion Declaration II goes on to state, 'We urge the principle of subsidiarity to campus governance, in which decisions are made at the lowest appropriate levels of responsibility.'

18. An example of modernisation which includes many of these principles is Denmark.

19. The new reform there includes managerial changes, of which the largest effect is on the election system. For example, heads of departments will be appointed. Boards have been introduced instead of elected collegial bodies. In the new university act, the university management structure is strengthened. The major provision is the introduction of a Board of Directors at each university. Rather than being elected as in the current situation, the rector will be appointed by the Board; he/she will report directly to the Board of Directors. The rector will appoint Deans who are responsible for the daily management of the faculties, including the faculty's research, study programs, teaching, budget, staff and strategies. The Deans will appoint heads of department, who are responsible for activities within the units where research and study normally take place.

International Practices and Trends

20. Within the higher education community there remain traces of a traditional attachment to an older model of governance – the idea of universities as self-governing communities of scholars with a governing body where representatives of these scholars together with external members preside over the more formal responsibilities of the institution. That model is still to be found but in decreasing numbers. For instance, in Australia governing bodies accept their responsibility to set and oversee achievement of the mission. However, the composition of the governing body and the processes of consultation, particularly with the academic community within the university, are matters of debate and concern both within the sector and externally.

21. There have been three main effects on internal governance. They are:

- A strengthening of the power of executive authorities within the university who are increasingly being appointed for their leadership and managerial qualities in addition to the traditional academic leadership skills; and

- An increase in participation on governing bodies by representatives and individuals from outside the university which has strengthened the leadership of the institution;

- A loss of power and influence by the existing collegial bodies

22. Governments have been known to set conditions regarding accountability that can constrict universities' operational autonomy through treating universities as an arm or agency of government. An effective governance framework for universities must be based on universities being organisations established by the public through the formal processes of government within a legal framework which respects the public good, but otherwise independent of the government of the day. University councils or governing bodies are the active trustees of that autonomy.

23. It may be worth noting the trends revealed in a recent OECD survey in 2003 (OECD, 2003) of changing patterns of governance in tertiary education. It found that:

24. 'Overall, the tertiary education reform agenda has involved governments in greater focus on strategy and priority setting and less involvement in the running of the system on a day-to-day basis. The broad trend has been for a reduction of direct state control of tertiary education in most OECD countries … yet at the same time introducing new forms of control and influence, based largely on holding institutions accountable for performance via powerful enforcement mechanisms including funding and quality recognition.'

25. If we are serious about driving innovation in our universities and therefore in our nations, governments should urgently seek to disengage themselves from involvement with the details of university operations while having in place clear accountability requirements. Pressures to change the traditional models of university governance have become more acute in recent years as public funding has often become more targeted (and in some countries reduced in per student terms), as institutional autonomy has increased and as, in parallel, external performance management and other accountability mechanisms have required universities to publicly demonstrate their efficiency and effectiveness.

26. Most of the issues on governance focus on the governing bodies of tertiary education. Institutions, either their composition (Australia, Austria, Finland) or the way their members are chosen (Denmark, Finland). In France and the UK, the discussions have had a more general character, focusing on the enhancement of institutional autonomy.

27. Governance related issues do not stand out as much as financial issues in the policy debates. The introduction and further establishment of performance contracts is the most prominent issue in this regard. This primarily relates to funding in Austria, Finland and in some German *Länder*. Another theme concerns the autonomy of tertiary education institutions. Danish proposals are far-reaching in the sense that universities will gain a high level of autonomy. In Austria and Denmark there are also debates on a revision of internal governance structures within universities. Danish universities will establish of a board of directors (trustees) and replace the elected rector (and deans) with appointed ones.

28. In terms of organisational governance one can detect a push towards a 'new openness' of universities vis-à-vis their surroundings. In many countries universities are stimulated to open up more to industry, be it global transnational industries or regional industries. In some countries, especially Finland, the role of tertiary education institutions in regional development is a major topic.

29. The rise of performance contracts or agreements is the second issue. In Denmark performance contracts did exist already for a number of years but in 2003 they were revived. In Austria, the new university act introduced performance based contracts through which part of the funding will be allocated. The French policy of contractualisation continued. In Germany, the type of agreements existing on the federal level is rather weak. However, in a few states, performance based contracts have a stronger basis. The discussions on performance agreements in the Netherlands are still in a very early stage. In Finland there is a well-developed process of agreement of institutional contracts between the relevant Ministry and the individual universities.

D. EXTERNAL STAKEHOLDER PARTICIPATION

30. Part of the aim of bringing external representatives into tertiary education governance has been to include more people with industrial or commercial experience and thereby hopefully strengthen links to the economy and improve internal efficiency. Other external members have been from local or regional

government to reflect greater regional interests in funding, and in the contribution of the tertiary education institution to local economic and social development.

31. The practice of including on the governing body members of the academic and student community has been common in Australian, UK, Irish and US public universities. The most recent Australian study of governance issues has reviewed the trends in university governance in the UK, US and Australia. It concludes there is a "…convergent trend in the broad thrust of reform in university governance. …There is a quite discernible shift in the role and composition of governing bodies in these countries. The shift is away from the notion of a 'parliament' of representatives of internal and external constituencies and towards a body whose members possess the expertise to …exercise trusteeship of the institution. Everywhere there is increased emphasis on the importance of external Council members who have specific expertise or competence and the involvement of internal stakeholders, staff and students who act in the institutional interest rather than representing constituencies." (Coaldrake *et al.*, August 2003).

32. The following represent examples of trends in a number of national systems by way of illustration.

Australia

33. The table below examines the background of council members across all Australian universities (Australian Vice-Chancellors' Committee 2002). It shows that 39 per cent of council members on average are drawn from the current university community (comprising executive, academic and general staff and the student body). The external representation on university councils is made up of members of business and the professions (31 per cent), community representatives (10 per cent, alumni (6 per cent), public servants (6 per cent), and politicians (4 per cent).

Table 1. Background of Australian University Council Members 2001

	Lowest	**Highest**	**Sector Average**
Business/Professions	**0**	**55**	**31**
Academic Staff	**10**	**30**	**18**
Community	**0**	**50**	**10**
Students	**5**	**14**	**10**
Alumni	**0**	**23**	**6**
Executive Staff	**3**	**19**	**6**
Public Servants	**0**	**27**	**6**
General Staff	**0**	**10**	**5**
Politicians	**0**	**11**	**4**

Austria

34. The UG 2002 brought about some changes in the governance structure. The universities should have a *Universitätsrat,* a governing body consisting of 5, 7 or 9 members, 2-4 are to be appointed by the Minister, 2-4 by university bodies. The last remaining member is jointly decided upon by those already appointed by Minister and university.

Denmark

35. The major instrument is the introduction of a Board of Directors at each university. A Board consists of students, academic and support staff, and external members, with a majority of the latter.

Sweden

36. Each institution of tertiary education has a Governing Board. The Government appoints the Chair of the board who is not employed at the institution of tertiary education in question "a well qualified and experienced external personality". The board of 15 members is composed of the Chair, the Vice-Chancellor (President) and not more than thirteen other members. It has a majority of external representatives from business, industry and regional authorities (usually 8 external out of a total of 15 members). The students have the right to be represented by three members. Employee representatives have the right to attend and to speak at board meetings.

Finland

37. The Ministry of education proposal for the new university Act includes changes in the composition of the university boards. According to current legislation, a maximum of one third of the university board can consist of persons not belonging to the staff or the students of the university. According to the new proposal, there should be at least one external representative in the university board. The existing cap on external members will remain.

REFERENCES FOR APPENDIX C

Association of Governing Boards of Universities and Colleges.

Glion Declaration II: The Governance of Universities, (Occasional Paper No.46, 2000).

Australian Vice-Chancellors' Committee 2002.

Coaldrake Peter, Stedman Lawrence, Little Peter, 'Issues in Australian University Governance' August 2003.

OECD, "Changing Patterns of Governance in Higher Education," in Education Policy Analysis, 2003, (Paris: OECD, pp59-78), pp.63, 78.

Rhodes Frank H.T. (2001) *The Creation of the Future – The Role of the American University,* Cornell University Press, Ithaca and London. (2001).

Rosokovsky H. (1990), *The University: an owner's manual*, Norton, New York and London. Quoted but not referenced in "The Political University: Policy, Politics and Presidential Leadership in the American Research University," by Robert M. Rosenzweig, Johns Hopkins University Press, 1997.

Simâo J.V., Santos S.M. & Costa A.A. *Ensino Super: Uma Visâo para a Próxima Década. Gradiva. Pp421-422.*

APPENDIX D: INCOME-CONTINGENT LOANS

1. Income-contingent loans generally have the major benefits of removing the up-front financial barriers to access that can inhibit or preclude the participation of students from financially disadvantaged backgrounds. Hence, such loans help ensure that the tertiary education system does not exclude talented poor students. Repayment obligations are triggered after graduation, and not during the period of study, and only when a graduate's earnings exceed a determined threshold level. Income-contingent loans also offer several insurance benefits over bank loans for the purposes of student financing, primarily because repayments are defined by the borrower's capacity to repay debt. Income-contingent loans enable 'consumption smoothing' (Chapman, 2005).[1] As repayments are not required in periods of low income, borrowers are not put in the financial position of being unable to meet repayment obligations, while, as their incomes rises, so do their repayments.

2. By way of illustration Australia has two forms of income-contingent loan assistance for students: the Higher Education Contribution Scheme (HECS-HELP) and the FEE-HELP scheme. HECS-HELP provides both a public tuition subsidy for the cost of a student place and an unlimited income-contingent loan. FEE-HELP provides only an income-contingent loan, capped at AUD 80,000 (except for Medicine where the upper borrowing limit is AUD 100,000). HECS-HELP is available primarily for government supported undergraduate places in public universities for Australian residents. FEE-HELP is available for full-fee places in public and private universities and other tertiary education institutions, both undergraduate and postgraduate, for Australian residents. HECS-HELP places are regulated by government in terms of volume and price; that is, there is a limited number of HECS-liable places available to students on the basis of academic merit, and the Government sets an upper price limit for tuition fees for those places (varying by field of study). FEE-HELP places are unregulated as regards volume and price (except for courses of study with HECS-HELP students in public universities). Students incur their debts while studying and become liable to begin repaying when their income rises above AUD 35,000 per annum. Repayment rates are stepped up in nine income bands, such that a graduate pays 4% of income at AUD 35,000, 4.5% at AUD 39-43,000, up to 8% at AUD 65,000 and above.

3. In relation to HECS, the Australian Government established a HECS Special Account that receives HECS repayments and voluntary up-front payments. The Government contributes the difference between those repayments each year and the amount required for the educational operations of universities. After some fifteen years, the annual government contribution has fallen from 100% to 50% of total expenditure, noting that the size of the system has more than doubled in Australian student numbers over that period (from some 350,000 to 700,000). This expansion has increased opportunities for students from low socio-economic backgrounds.

4. Evaluations of the effect of HECS on student access and participation have reported very low levels of deterrence of students from low socio-economic backgrounds (Chapman & Ryan, 2002).[1] The share of students from the lowest income quartile did not decline even after charges were raised and repayment conditions were tightened (Andrews, 1999).[1] Socio-economic status became less important in determining tertiary education participation in the late 1990s, after a decade of experience with HECS, than for earlier cohorts (Marks *et al*, 2000; Chapman & Ryan, 2002). A comparison of 18-year-old student enrolments for each of the years 1988, 1993 and 1999 indicated improvement in the participation

opportunities for students from disadvantaged backgrounds. A review of the available literature concluded:

5. The conclusions from both the previous and new research are as follows:

1. The relatively disadvantaged in Australia were less likely to attend university even when there were no student fees. This provides further support for the view that a no-charge public university system (that is, financed by all taxpayers) is regressive;

2. The introduction of HECS was associated with aggregate increases in tertiary education participation;

3. HECS did not result in decreases in the participation of prospective students from relatively poor families, although the absolute increases were higher for relatively advantaged students;

4. The significant changes to HECS introduced in 1997 were associated with increase in the participation of individuals irrespective of their family wealth.

6. Since the conduct of that review, and in the context of labour market tightening there has been some reduction in student demand for tertiary education, especially among adults. It has been suggested that rising tuition prices may be a factor explaining the decline, but there is no hard evidence available to support that view. There are also suggestions that rising student debts are having adverse impacts on the ability of some graduates to secure home mortgage financing, thus affecting family formation, and that new commencing students are preferring fields of study leading to the more highly remunerated occupations. Cause and effect relations, however, are not clear.

7. The main preconditions for the operation of an income-contingent loans scheme are:

- A mechanism for establishing and verifying the identity of individual students (such as a unique student identifier)

- A system for accurately recording the accruing liabilities of students as they progress through their studies (including determining dates at which students become liable to pay for their participation in units of a course of study, even if they do not complete a particular unit)

- A robust method for collecting repayments from graduates (such as through the taxation system or social security system)

- A system for monitoring the income levels of students and their repayment liabilities at different times (such as a method of linking the student identifier with a personal taxation file or social security number)

- An appeals mechanism to deal with circumstances where students may have a reasonable case for a review of decisions relating to their debt level and repayment obligations (such as when a student withdraws from a unit of study after the prescribed date for reasons beyond their control).

8. A government provided income-contingent loan scheme requires the Government to finance loan advances for several years before graduate repayments start to flow. Under accrual accounting conventions for budget reporting purposes, income contingent loan advances would be treated as an asset, and therefore should not contribute to a budget deficit. Nevertheless, the capital would need to be raised, and directed to tertiary education expansion ahead of other priorities.

9. A range of questions arises in considering the design of an income-contingent loans scheme for Portugal. The following questions assume a government risk-sharing and financing model to illustrate the kind of discussion that it will be necessary to conduct:

i. What should be allowable expenses for the provision of loans?
   - tuition costs of accredited courses of study leading to a tertiary education qualification? (should non-award courses be included?)
   - other fees & charges or ancillary costs associated with a course of study (e.g. books & materials, excursions, membership of clubs & associations)?
   - living costs (if so, defined to include accommodation, transport, food, clothing, entertainment, or defined by way of exclusions)?
   - only (a), or only (a) + (c), or all above?
   - should there be 2 types of loans: (i) tuition-related; (ii) living-related (perhaps with different eligibility conditions such as means-testing, see below)?

ii. Should there be loan limits and how should they be determined?
   - length of study limits (e.g. minimum time plus one-year full-time equivalent for a given course of study within Bologna cycle)?
   - borrowing amount limit (per annum or in total, if so what level e.g. €10,000)?
   - common or variable limits (e.g. reflecting relative costs of different fields of study)?
   - should there be different loan limits for students in courses subsidised by the Government and for students in other courses (e.g. private institutions, Masters degree courses)?

iii. Which courses of study should be eligible for loans support?
   - all accredited tertiary education courses with approved providers?
   - all undergraduate degrees (sub-Bachelor and Bachelor but not Masters & Doctoral degrees)?
   - undergraduate degree leading to initial labour market entry (excluding second degrees)?

iv. Should the costs to students for some courses be partially subsidised by the Government, such that the loan amount is the residual cost to the student?
   - If so, for which courses?
   - How would the student contribution and the government contribution be set?
   - How much variance in subsidy rates would be allowable across different institutions (in the context of pricing flexibility)?

v. Should eligibility for loans be means-tested?
   - general eligibility for loans or loan limits?
   - should loan amounts for income-support be means-tested
   - if so, against parental income, personal income, or some combination of incomes?
   - what tapers should apply?

vi. At what income threshold should graduates become liable for repayment of debts?
   - at the same initial band of income triggering liability for payment of personal income tax?
   - at the equivalent of average or median adult earnings?
   - at an income 1.5 times that of non-graduates on average?

vii. How will the debt be indexed to retain its value in constant prices?
   - by the consumer price index?
   - by the GDP deflator?

viii. Should there be a real interest rate on the debt?
   - *If so, at what level (e.g. the long-term bond rate for government securities on issue, or the prevailing market lending rate for personal loans)?
   - *Should the real interest rate apply during periods when the debtor is out of the workforce?

ix. What rates of repayment should be required at different levels of income?
   - (e.g. 3% or 4% or at the threshold income triggering repayment liability, 4.5% or 5.0% in the next income range; up to, say, 8% in the top income range)?
   - how will the repayment thresholds be indexed annually (e.g. by same method as debt is indexed)?

x. Should there be discounts for up-front payments and bulk repayments as a means of encouraging cash flow to government revenue?
   - if so, 15%, 20? Or 25% and on what basis determined (e.g. the notional borrowing cost to government)?

xi. Under what conditions may debts be forgiven?
   - e.g. withdrawal from a course after the census date because of personal accident, illness or family bereavement?
   - e.g. write-offs for specific professions deemed to be of critical national importance?

xii. How will debts be collected?
   - e.g. through the taxation system or social security system or another mechanism?

xiii. What limits if any will be placed on usage of revenue from repayments?
   - e.g. hypothecation of funds for growth and quality enhancement in tertiary education?

APPENDIX E. TERMS OF REFERENCE FOR THE OECD TEAM

- **"The role of Higher Education** in: developing, to the full extent possible, students' capacity and potential to pursue knowledge for its own; meeting an increasing diversity of needs and demands associated with the knowledge society, lifelong learning, globalisation, national and regional economic performance; contributing to social cohesion and equity; and maintaining the cultural identity of the country.

- **Strategic Management and Structure:** Structures and arrangements for overall strategic planning and management of the higher education sector having regard to the need

  - for an integrated and cohesive approach to the development of the roles of different higher education institutions and between those institutions and further education providers;

  - for providing systematic and sustained input to the formulation and review of the main areas of higher education and research policy and planning by the key agencies and interests in interconnected areas of economic, social and cultural developments;

  - for effective approaches to delivering on key strategies, including promotion of equity of access, enhancing the quality of teaching and learning, meeting future skills and research needs for economic and social development, and the development of greater procedural, systemic and institutional transparency in higher education.

- **Teaching and Learning:** How institutions in the higher education sector might best respond to the needs of their students through the use of appropriate systems of quality assurance to support the highest quality of teaching and learning, facilitating greater levels of participation and completion and developing new and innovative approaches for a more learner-centred approach to the design and delivery of academic and other services.

- **Research and Development:** Given the increasing importance of research, development and innovation for the knowledge society, to examine how research and development in the higher education sector can best be supported and further developed to highest international standards and how the outcomes of this knowledge can be best applied in support of social, cultural and economic progress having regard to the integral connection between research and teaching and their balanced development in institutions.

- **Investment and Financing:** Potential approaches to the future resource allocation of the higher education sector and institutions that can best enable achievement of the strategic objectives established for the sector, having regard to the governance, accountability, efficiency and effectiveness requirements associated with the high level of public investment in the sector, broad public policy interests and principles of academic freedom and institutional autonomy.

- **International Competitiveness:** In the context of growing internationalisation and mobility of students and the need to provide a diversified and world-class higher education system at both

undergraduate and postgraduate levels, how a critical mass of consistently high quality and standards can be developed having regard to the promotion of greater inter-institutional collaboration within a competitive national and international environment".

- n and completion and developing new and innovative approaches for a more learner-centred approach to the design and delivery of academic and other services.

- **Research and Development:** Given the increasing importance of research, development and innovation for the knowledge society, to examine how research and development in the higher education sector can best be supported and further developed to highest international standards and how the outcomes of this knowledge can be best applied in support of social, cultural and economic progress having regard to the integral connection between research and teaching and their balanced development in institutions.

- **Investment and Financing:** Potential approaches to the future resource allocation of the higher education sector and institutions that can best enable achievement of the strategic objectives established for the sector, having regard to the governance, accountability, efficiency and effectiveness requirements associated with the high level of public investment in the sector, broad public policy interests and principles of academic freedom and institutional autonomy.

- **International Competitiveness:** In the context of growing internationalisation and mobility of students and the need to provide a diversified and world-class higher education system at both undergraduate and postgraduate levels, how a critical mass of consistently high quality and standards can be developed having regard to the promotion of greater inter-institutional collaboration within a competitive national and international environment".