The attached paper has been prepared by the Portuguese Ministry of Science, Technology and Higher Education to report on developments in the Portuguese tertiary education system since December 2006, when the then Education Committee reviewed the system. It is provided for discussion under Item 10: Progress in Implementing Reforms in Tertiary Education in Portugal and it complements the issues for discussion proposed in EDU/EDPC(2008)37. A number of annexes to this document are provided, in English only, in a separate document [EDU/EDPC(2008)38/ANN]. The legislation associated with the recent reforms, listed in Annex 7, can be consulted at the following Web site: www.mctes.pt/legislation.

The Education Policy Committee is invited to:
- NOTE the report of the Portuguese authorities on the progress made with reforms in tertiary education in Portugal since the OECD Review of 2006;
- DISCUSS progress in the implementation of tertiary education policy in Portugal; and
- RELATE the insights from the Portuguese experience to the development of tertiary education policy in their countries.

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EXECUTIVE SUMMARY

1. About two years since the OECD’s Education Policy Committee met in Lisbon to review Portugal’s tertiary education policy in December 2006, a number of steps have been taken to follow up on the Committee’s recommendations and a thorough legal reform of the Portuguese tertiary education system was completed.

2. The implementation of the full regulation that aims to bring tertiary education in Portugal in line with the Bologna process was carried out very successfully, including the opening of tertiary education to new publics and the development of post-secondary education through the polytechnic sub-system (i.e., Technological Specialization Courses – CETs):

   • In the 2008-09 academic year, about 98% of initial training courses that opened places were already organized in accordance with the Bologna process principles, including public and private tertiary education (compared to 90% in 2007-08).

   • The opening of tertiary education to new publics through the new access regime for students aged over 23 years, resulted in the number of adults entering tertiary education by this means rising to roughly 11 775 in the 2007-2008 academic year (compared to 10 850 in 2006-07), up from around just 900 adults that started tertiary education in 2005.

   • In 2008, more than 170 post-secondary education programmes (i.e., Technological Specialization Courses, CETs) were offered in Institutions of tertiary education, focused on Polytechnic Institutes, involving more than 4 800 admitted students (compared to a total of around 1 000 students enrolled in these courses in 2005).

3. Following the OECD report of December 2006, the reform of the legal-juridical system and of the evaluation regime of tertiary education institutions (TEI’s) was approved by Parliament and published in the autumn 2007. It considers significant changes in the internal system of governance of TEI’s (including the management structure), as well as in their external societal relations (including, internationalization, research partnerships and business links, as well as external evaluation and accountability). The following aspects should be emphasized:

   • The new Legal Regime of Tertiary Education Institutions (“RJIES”), approved by Law n. 62/2007, dated 10 September, establishes the organizational principles of the tertiary education system, the autonomy and accountability of institutions, setting up governing Boards with external participation, diversity of organization and legal status of public institutions (namely as public foundations governed by private law), establishment of consortia, recognition of research centres as part of the University management framework. It is noted that the Universities of Porto and Aveiro and ISCTE have entered into a process of negotiating with the Government their transference to the regime of public foundation governed by private law, strengthening university autonomy under independent legal status.

   • The new legal framework for the evaluation of tertiary education and the creation of the Tertiary Education Evaluation and Accreditation Agency in August 2007, both aiming at ensuring the
quality of tertiary education through the evaluation and accreditation of tertiary education institutions and their study programmes, along the best international practices in which independent external evaluation is mandatory.

- The creation of conditions to foster the national and international mobility of students and graduates, namely: i) the new “Regulations on Arrangements for Changes of Study Programmes, Transfers and Return to Tertiary Education”, which seek to facilitate the entry of tertiary education students into Portugal to continue their studies, with rapid and objective recognition of their previous school education and occupational training, and to create simplified arrangements to return to tertiary education; and ii) the new legal framework for the recognition of foreign degrees, which simplifies the system for recognizing foreign degrees in Portugal.

- The introduction in the Autumn 2007 of an innovative system of student loans with mutual guarantee underwritten by the State, which complements the system of public grants, thereby improving access to tertiary education for all students. About 3 650 loans have already been contracted through the banking system and this represents an important new achievement for Portugal and the Portuguese families, which follows current practices in modern societies at the OECD level.

4. This profound legal reform of tertiary education, which also reflects the current European movement to modernise tertiary education, has been driven by policies aimed to:

- Extend the recruitment base and the number of students in tertiary education;

- Reinforce the top of the system, by fostering the internationalization of research universities and their specialization;

- Promote the binary system, with polytechnic education concentrating upon professionally-oriented and vocational training. University education should be further concentrated on postgraduate education.

5. By the time the necessary legal changes were made, the Portuguese government has promoted an overall action fostering public and private investment in science and technology (“Commitment to Science”), including a large programme of international partnerships with leading institutions worldwide. Scientific output in Portugal increased by 45% over the last three years when measured in terms of the number of scientific publications internationally referenced. The following aspects should be emphasized:

- For the first time in Portugal, the total public budget for R&D exceeded 1% of GDP in 2008 (compared to 0.85% in 2006) and analysis of other national experiences worldwide clearly shows that this is critical to foster private investment and to guarantee the modernization of the Portuguese science community;

- Scientific employment has been promoted through a new programme launched in 2007 to support contractual arrangements for at least new 1 000 PhD researchers by 2009. It is expected that this will foster major changes in the academic community and facilitate the renewing of teaching and research staff;

- A strategic programme of international partnerships in science, technology and tertiary education was initiated in 2006 and by September 2007 the first doctoral and advanced studies programmes were officially launched, bringing together several Portuguese universities and leading universities worldwide, including MIT, Carnegie Mellon University and the University of Texas.
at Austin. Unprecedented in Portugal, these programmes facilitated the creation in 2007 of effective thematic networks of science and technology involving a large set of Portuguese institutions in collaboration with companies and internationally renowned institutions.

6. Under the procedures for OECD’s reviews of national education policies, Portugal is required to report back to the Education Policy Committee approximately two years after the Lisbon review meeting of the Committee, with a progress report on the implementation of the Committee’s recommendations. Recognizing the progress achieved in reforming Portuguese tertiary education over the last two years, the Portuguese Government has asked the OECD to place the Portugal review on the Committee’s agenda for its autumn 2008 meeting.

7. The essence of the reform considers greater openness to society and to new social groups of students, as well as greater quality and international recognition and a more advanced, diversified and responsible system of autonomy and quality assurance. Today, this reform is internationally recognised as a model of progress, and it is an undeniable factor of the country’s affirmation abroad.

PROGRESS REPORT

1. Introduction

8. Over the past three years the Portuguese Government has prepared and implemented a demanding and profound reform that has modernised the Portuguese Tertiary Education System. The essence of the reform considers greater quality, greater relevance, greater international recognition, a more advanced, diversified and responsible system of autonomy, and greater openness to society and to new social groups of students. It is in line with the current European movement to modernise universities and polytechnics to support the development of knowledge societies and economies.

9. This overall reform process was launched in the autumn 2005 through an international evaluation of tertiary education and tertiary education institutions, involving organisations of recognised experience and standing such as the Organisation for Economic Co-operation and Development (OECD), the European Network for Quality Assurance (ENQA) and the European University Association (EUA). By the end of 2006 the OECD presented a global evaluation of the tertiary education system, while ENQA presented an evaluation of the system of quality assurance of tertiary education and accreditation practices. A voluntary programme of institutional evaluation conducted by EUA, involving ten different institutions each year, is underway.

10. Recognizing the progress achieved in reforming Portuguese Tertiary Education one year after the OECD review, the Portuguese Government invited the OECD panel of reviewers to visit the country in March 2008 and, as a consequence of their positive assessment (see annex), have asked OECD to place the follow-up of the Portugal review on the Committee’s agenda for its autumn 2008 meeting.

11. It is in this context that, under the procedures for OECD’s reviews of national education policies, the Portuguese Government is now reporting back to the Education Policy Committee approximately two years after the Lisbon review meeting of the Committee, with a progress report on the implementation of the Committee’s recommendations.
12. This follow-up report describes the progress and developments in Portugal with regard to the recommendations set out in the OECD’s review of the Portuguese tertiary education system. The report is structured in line with and in the order of the OECD recommendations, including four chapters after this introductory note, which refer respectively to: Governance (system co-ordination, steering and diversity; institutional autonomy and governance); Education, teaching and learning (includes access, quality assurance and academic career); Research, innovation and internationalization (capacity, funding and evaluation); Financing tertiary education, including funding and equity (student support; efficiency, institutional funding). Brief concluding remarks are included at the end of the report.

13. Annex 1 presents a detailed analysis of the main legal reforms introduced in Portugal in 2007 and 2008 in comparison with the OECD recommendations of December 2006. Annex 2 describes the new student loan system introduced in Portugal in the autumn 2007. Annex 3 includes the analysis of the national initiative launched to strength research and development and Annex 4 presents a brief summary of the main governmental actions associated with the internationalization of universities. Annex 5 presents a list of selected indicators, with emphasis on the period 2005-2008 and Annex 6 lists the brief report made public by the OECD panel of reviewers after their visit to Portugal in March 2008. These annexes are provided in a separate document [EDU/EDPC(2008)38/ANN]. The legislation associated with the recent reforms, listed in Annex 7, can be consulted at the following Web site: www.mctes.pt/legislation.

2. Governance: System diversity and co-ordination and institutional development

14. Governance of the tertiary education system was considered in the OECD Review with recommendations under several items, respectively: i) System co-ordination and management; ii) Governance and the legal status of higher education institutions; and iii) links to society. The detailed recommendations are listed in Annex 1, together with the actions taken and, above all, the main legal reforms introduced in Portugal in 2007 and 2008. The following paragraphs discuss the most relevant issues and policy developments in Portugal in this area, as well as the aspects of the recommendations that received more attention in their implementation.

15. Following the OECD report of December 2006, the reform of the legal-juridical system of tertiary education institutions (TEI’s) was prepared by the Government, through the Ministry of Science, Technology and Higher Education, and submitted to Parliament by the end of May 2007. After a thorough debate and discussion, the new legal regime based on a single Act for the whole system of tertiary education (public and private, university and polytechnic) was approved by Parliament and published in the autumn 2007. It considers significant changes in the internal system of governance of TEI’s (including the management structure), as well as in their external societal relations (including, internationalization, research partnerships and business links, as well as external evaluation and accountability).

16. The new Legal Regime of Tertiary Education Institutions (“RJIES”, the acronym in Portuguese), approved by Law n. 62/2007, dated 10 September, establishes the organizational principles of the tertiary education system, the autonomy and accountability of institutions, setting up governing Boards with external participation, diversity of organization and legal status of public institutions, establishment of consortia, recognition of research centres as part of University management framework. It also considers the creation of the Co-ordinating Council of Higher Education (Conselho Coordenador do Ensino Superior – CCES) at the highest level with representatives from the government, companies and civil society to define a national strategy for the higher education system.

17. The new legal regime (RJIES) considers an effective institutional autonomy framework, including the terms for defining institutions’ mission and organisation, beyond the framework of academic autonomy. More specifically, it considers the possibility to acquire independent legal status (namely, in the form of public foundations governed by private law), to permit an effective administrative and financial
autonomy, leading to the institutionalisation of their own academic and non academic bodies, as well as autonomous systems for human resources management.

18. By October 2008, in accordance with the New Legal Regime of Tertiary Education Institutions, all institutions have submitted their new statutes to the Ministry of Science, Technology and Tertiary Education, with most of them being approved with minor judicial modifications. Consequently, the reform process is now entering a new phase of implementation within the various institutions, with most of them soon electing the members of their main governing board (i.e., the “General Council”, as referred to in RJIES) and making the subsequent nominations. Also, after the approval of the new statutes for all the Universities and Polytechnics, the Government, through the Ministry of Science, Technology and Higher Education, will create the Co-ordinating Council of Higher Education (CCES). This should occur by the end of 2008.

19. It is noted that three institutions, the Universities of Porto and Aveiro and ISCTE in Lisbon, have entered a process of negotiating with the Government their transference to the regime of public foundation governed by private law, strengthening university autonomy under independent legal status. It is expected that these three processes will be concluded by the end of 2008. Other institutions have expressed the intention to submit a similar application after the implementation of the new statutes, in a way that allows the “first” General Council to take the institutional lead.

20. Following the concepts adopted in RJIES, the advantages university foundations can bring may be assessed from different perspectives: the institution and its constituency, the government, and the wider public, including the business sector. A university foundation has, potentially, the advantage of offering maximum autonomy to TEI’s, namely to: borrow and raise funds; own building, equipment and other financial assets; full control of budgets to achieve objectives; set internal administrative and management procedures; set academic courses and evaluation procedures; employ and dismiss academic and other staff; set salaries and other remuneration and reward systems; and set criteria and size of student enrolment. But the biggest advantage offered by the foundations is the release of leadership potential to plan strategically with all the dynamism and innovation and entrepreneurial skills institutional leadership can muster.

21. The transition to a foundation status requires many support structures and arrangements, which are under discussion with the three institutions referred to above. Main issues include:

(i) tax treatment such as capital gains tax, and from income tax and corporation tax on income (other than from for-profit activities);

(ii) philanthropy laws that make donations to the universities attractive to donors, for example, exemption from inheritance tax;

(iii) regulations regarding the creation of monitoring bodies and ensuring that they do not infringe the autonomy;

(iv) performance contracts (as for example those used in Japan, Germany and Austria, which do not infringe the autonomy that comes with the independent legal status);

(v) advisory service to assist foundations in developing strategic plans;

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(vi) expertise in asset management;

(vii) leadership training (as for example the protocol developed for this purpose in Australia); and

(viii) ensuring support structures for transition, as for example in dealing with staff adversely affected by a transition to the foundation status. It is essential to handle the fears, well founded or otherwise, attached to the transition, among staff as well as management.

22. The new legal regime (RJIES) strengthens the binary system. It leads to solutions that allow individuals with different needs and skills to have access to higher education, developing a higher education system that is, in itself, diversified, including several institutions with different trends. The new Law recognises that higher education diversity is beneficial, structuring higher education systems in different ways to promote that diversity. Above all, higher education institutions must excel through the differences between each other, even between universities, polytechnics and others, because each institution will offer a different set of programmes, qualifications and degrees, in different areas. Higher education entities must decide whether to develop, and with what objectives, research and development activities, so that the allocation of resources (human and financial) reflects those different options and so that institutions are evaluated against the objectives they have chosen to attain. It is clear that the search for quality is of exclusive responsibility of each institution, although it is evaluated by the State, as a guarantor of independence and the pursuit of public good.

23. Amongst other things, the Law facilitates networks amongst Portuguese and foreign institutions that lead to critical masses capable of promoting the international establishment of Portuguese institutions. Naturally, this strategy will also favour a better differentiation in terms of university and polytechnic education, therefore strengthening the specialisation of the higher education binary system, as well as better integrating university education in the activities of R&D centres and units. In particular, the new legal framework stimulates two distinct types of networks, which will be promoted in 2009, as considered in the State Budget of 2009 submitted by Government to Parliament on October 14, 2008:

- University post-graduate schools, in the form of multi-institutional consortia, aimed at strengthening the offer of Ph.D. programmes at international level and joining academic skills with those in Associated Laboratories and research centres, as well as in State Laboratories, businesses and other public and private institutions.

- Regional consortia of polytechnic degree schools, preferentially in close collaboration with the economic and social fabric, to guide and strengthen the vocational and professional offer of 1st cycle programmes at international level, as well as post-secondary education within polytechnics.

24. It is expected that the regional consortia at the polytechnic level will strengthen the representation of key stakeholders from each region following a bottom-up approach, in a way that will promote the binary system of tertiary education and foster a modern polytechnic education with emphasis on professionally- and vocationally-oriented 1st-cycle degrees (i.e., “licenciatura”) and short-cycle courses (i.e., post-secondary education, CETs). The consortia should also foster a range of technology transfer and development activities and related opportunities for local engagement of different stakeholders.

25. It is also interesting to highlight that the new legal system facilitates institutional reform, namely at organisational level, in a way that strengthens the participation of key players in decision making and strategic definition in main institutional bodies. Several solutions have been implemented, mainly in English speaking countries (namely in the shape of “Boards of Trustees”), where the institutions take responsibility for the level of integration of those players and for the effective implementation of organisational schemes that guarantee links to society. The procedures adopted in the new Portuguese Law
were designed to foster an adequate transition to a new regime of increased societal participation, by providing for the President and 30% of the members of the General Council to be external to the Institution.

26. The profound reform of the tertiary education system steering and coordination has also considered the following main issues beyond the new legal regime:

- The creation of the necessary conditions for the national and international mobility of students and graduates, including the new rules on readmission, change of course and transfer, which facilitate: (i) increased mobility between tertiary education institutions in Portugal; (ii) the readmission of students who had abandoned tertiary education studies; (iii) the admission to tertiary education in Portugal by tertiary education students from abroad; and (iv) the award of credits for academic education acquired.

- The new rules on the recognition of foreign degrees, enabling graduates who obtained their degrees abroad to exercise their profession in Portugal, and introducing a new mechanism for the recognition of degree classifications.

27. This profound legal reform of tertiary education, which also reflects the current European movement to modernise tertiary education, has been driven by policies aimed to:

- Extend the recruitment base and the number of students in tertiary education;

- Reinforce the top of the system, by fostering the internationalization of research universities and their specialization;

- Promote the binary system, with polytechnic education concentrating upon professionally-oriented and vocational training. University education should be further concentrated on postgraduate education.

28. The progress achieved by Portugal in the implementation of this reform was highlighted by OECD in its 2008 report “Tertiary Education for the Knowledge Society” – thematic and comparative review of tertiary education policies in 24 countries. This report recognizes the important progress in (i) the reinforcement of the autonomy of TEI’s, in particular regarding the option for the creation of public foundations governed by private law; (ii) the extension of the recruitment base of tertiary education, including the new system of loans to tertiary education students; (iii) the reinforcement of the internationalization of tertiary education institutions and its scientific community; (iv) the increased openness of tertiary education institutions to society and the labour market; (v) the reform of the evaluation and accreditation system; and (vi) the reinforcement of its scientific capacity.

3. Education, teaching and learning: access, quality and relevance

29. Education, teaching and learning and the related issues of access, quality and relevance, including those of academic careers, are considered in the OECD Review under several items and the detailed recommendations are listed in Annex 1, together with the actions taken and, above all, the main legal reforms introduced in Portugal in 2007 and 2008. The following paragraphs discuss the most relevant issues and policy developments in Portugal in this area, namely in terms of the on-going Bologna reform and process. The figures given are based on statistical information made available through the Planning Office (GPEARI- statistics on science, technology and higher education) and sample detailed figures are provided in Annex 5 to this document.
The Bologna process and reform: Main legislative reforms and actions undertaken

30. In the last three years particular attention has been given to the implementation of the Bologna Process, through the establishment of the principal actions to ensure the qualification of Portuguese citizens in the European space, to promote equality of opportunity in access to tertiary education, to improve participation and completion levels in tertiary education programmes, and to attract new publics in a context of lifelong learning and improving educational welfare benefits. This process included a comprehensive set of main legislative and policy actions, as described in the paragraphs below.

31. The reform started with the approval by the Parliament of the Act amending the “Basic Law of the Education System” in order to provide the legal basis for implementing the Bologna Process of tertiary education reform. It was followed by the approval by the Council of Ministers of the regulatory Decree-Laws implementing the legislation, in particular the statute on Tertiary Education Degrees and Diplomas (i.e., DL 74/2006), establishing the general principles for the organisation of degree programmes and their accreditation, and establishing transitional rules for the reorganisation of existing degree programmes and the creation of new degree programmes. This has created a large mobilizing effect throughout the whole system of tertiary education and approximately 98% of degree programmes taught in Portugal in the 2008/09 academic year are already adapted to the Bologna model (compared to 90% in 2007/08). The full institutional adaption to Bologna is under completion in the months to come. The following developments took place:

- Approval of new rules governing the creation of post-secondary education programmes (i.e., technology specialisation courses, CETs, as by DL 88/2006), with a view to increasing the “ISCED level IV” vocational education offer and widening access to such courses to new publics. This process has brought a new dynamism to post-secondary education in Portugal, in particular at polytechnic institutes. About 5,000 students were enrolled in this type of programmes in 2007/08, representing a significant opening out of tertiary education in Portugal (see Annex 5, §4, for details).

- Approval of new rules providing greater flexibility in admissions and access to tertiary education, in particular for students aged over 23 years and those meeting certain specific educational qualification criteria, thereby widening the recruitment pool and making it possible to reverse the declining trend in numbers of students in tertiary education seen in recent years. About 12,000 new students were engaged in higher education through this type of mechanism in 2007/08, representing another significant opening out of tertiary education in Portugal.

- Review of the funding formula for public tertiary education institutions in 2006, designed to contribute to widening access to tertiary education, combating drop-out and failure rates and reinforcing the qualifications of teaching staff and research activities throughout tertiary education.

- Rationalisation of access to tertiary education, with enrolment being denied to students scoring less than 9.5/20 in the specific matriculation examinations for the degree concerned.

- Rationalisation of the supply of tertiary education, with funding being suspended for initial degree programmes with fewer than 20 students, unless justified or provided for in legislation.

- The implementation of a monitoring mechanism to fulfil the Bologna Process, namely to ensure follow-up methods regarding the transition from an education system based on transmission of knowledge to a system based on development of students’ skills, in which the experimental work
components or from a project, among others, and the acquisition of transversal skills should play a decisive role.

- The simplification of procedures and flexibility to access tertiary education, including: the possibility for anyone interested to attend isolated disciplines/courses, with guarantee of certification in case of approval, as well as its accreditation, if and when he/she enters a programme which comprises those courses; the possibility for students of a given tertiary education programme to attend courses provided in any tertiary education establishment not included in the plan of studies of the chosen programme, with guarantee, in case of approval, of certification and inclusion in the annex of the diploma; and the possibility of attending a tertiary education programme in partial time regime.

**The Bologna process and reform: Some significant results**

32. The implementation of the entire regulation that aims to bring tertiary education in Portugal in line with the Bologna process was carried out very successfully, including the opening of tertiary education to new publics and the development of post-secondary education through the Polytechnic sub-system (i.e., Technological Specialization Courses – CETs). The main figures are given in the following paragraphs, with the detailed data in Annex 5.

33. Overall, the success of the reform is accounted for by a significant increase in the number of students enrolled in tertiary education. In fact, the declining trend in new students in tertiary education observed in the OECD Review Report of December 2006 was reversed in the academic year 2006-2007 (95,431 in 2006-2007, compared to 84,363 in 2004-2005 and 82,720 in 2005-2006). This trend accelerated in 2007-2008 with an increase in the access to public tertiary education, with particular impact on polytechnic education (see Annex 5).

34. Total enrolments in tertiary education of people aged 20 have increased 10% over the last 3 years (2005-2008), reaching about 33% of the corresponding age population (compared to 30% in 2005). In other words, one in each three 20-year olds in Portugal is enrolled in tertiary education. This is similar to the average European figure, although still lower than that for most industrialized countries and regions (Annex 5, §5).

35. Total enrolments in tertiary education of adults aged 30-34 years has increased about 20% over the last 3 years (2005-2008), reaching about 4.1% of the corresponding age population (compared to 3.5% in 2005).

36. The total number of graduates per year increased about 19% over the period 2005-2007, with graduates in science and technology rising in recent years to a figure of 18.1 per thousand of population aged 20-29 years (clearly above EU average). At the same time, the number of new PhDs in science and engineering per thousand of population aged 25-34 increased to 0.42 in 2007, compared to only about 0.3 in 2001 (Annex 5, §6).

37. In the 2007-2008 academic year, about 90% of initial training programmes were already organized in accordance with the Bologna process principles (including public and private tertiary education). This figure reached about 98% in the current academic year of 2008/09, and the process of adapting tertiary education to the Bologna reform will be completed before the end of 2009.

38. The opening of tertiary education to new publics through the new access regime for students aged over 23 years, resulted in the number of adults entering tertiary education by this means rising to roughly
11 775 in the 2007-2008 academic year, compared to 10 850 in the 2006-07 academic year, up from around just 900 adults that started tertiary education in the 2005-06 academic year (Annex 5, §2.3).

39. In 2008, over 170 Technological Specialization Courses (i.e., post-secondary education) were provided in institutions of tertiary education, mostly in Polytechnic Institutes, involving more than 4 800 students (compared to around 1 000 students in 2005) (Annex 5, §4).

Quality assurance

40. The reform of the quality assurance system followed the OECD recommendations, in that it was comprehensive and deep, and also well founded. It considered several Government initiatives focused on the evaluation of the whole higher education system, taking into account its complexity, in spite of the opportunity to reform the system. Consequently, two main actions should be mentioned beyond the OECD’s assessment, namely:

- A specific assessment exercise carried out by ENQA - European Network for Quality Assessment - on the quality assurance system, which defined specific guidelines for reforming the entire Portuguese quality assurance system of higher education².

- Consecutive annual series of institutional evaluations developed by EUA - European University Association – since 2006, which have contributed to strengthen the reform capacity of many institutions. Some 20 institutions³ (universities and polytechnics) were assessed during the last two years and the exercise will continue through 2009.

41. Above all, these are examples of the effort towards a structured and organised change of the Portuguese quality assurance system based on relevant international experiences.

42. Two distinct legal documents frame the new legal regime for quality assurance in Portugal, as prepared by the Government in 2007 following the OECD and ENQA reviews, namely:

- The new Legal Regime of the Evaluation of Higher Education (“RJAES”, the acronym in Portuguese), approved by Law n. 38/2007, dated 16 August; and


43. The quality assurance system covers: (i) accreditation rules for courses; (ii) legal arrangements for quality assurance of tertiary education, creating an evaluation system compatible with the best international practices in which independent external evaluation is mandatory and serves as the basis for the accreditation of institutions and their courses; (iii) the creation of the National Agency for Accreditation and Evaluation of Higher Education, which will assume responsibility for the process of quality assurance of tertiary education institutions and their courses – namely evaluation and accreditation procedures – and for Portugal's inclusion in the European tertiary education quality assurance system.

44. The adoption of an accreditation system and of new evaluation practices in higher education in Portugal, according to guidelines approved within the scope of the Bologna European Process, includes a

³ See detailed information and reports in http://www.dges.mctes.pt/DGES/pt/Instituiçoes/Avaliação+das+Instituições/
challenge that Portuguese society as a whole has to face: guaranteeing that Portuguese qualifications are recognised within the European space, and their mobility, as well as promoting equal opportunities for access to higher education, improving attendance levels and degree completion, attracting new publics and diversifying the degrees offered. Together with the introduction of system regulation practices, we refer to the adoption of a demanding reference framework for the development and quality of the Portuguese higher education system, focused on the objective of giving its students international level qualifications.

45. Under the principles above, the Curators of the new National Agency for Accreditation and Evaluation of Higher Education were nominated by the Government on the 23rd of May 2008. The Agency will be formally established and launched in the coming months.

**Academic Careers**

46. The Portuguese Government concluded in July 2008 the total revision of the legislation associated with public contracts, which has involved a thorough negotiation with different unions and stakeholders. The specific process for the reform of academic careers will then start before the end of 2008.

47. In the meantime, the new legal regime for tertiary education (RJIES) encourages the differentiation of the polytechnic institutions’ educational mission within the context of the binary system by creating the title of “specialist”. A new area of activity within the social and economic fabric is therefore opened up in polytechnic education in association with relevant entities from the professional world.

48. In addition, the process leading to the award of the highest Portuguese academic title of professor with aggregation was reviewed to allow for a modern and clear definition of what the title attests and the selection tests leading to its award, as well as establishing criteria for the composition and functioning of juries that guarantee transparency and impartiality.

**4. Research, Innovation and Internationalization**

49. Research, innovation and internationalization are considered in the OECD Review under several items (namely capacity, funding, evaluation and quality assurance) and sample detailed recommendations are listed in Annex 1, together with the main actions taken in Portugal in the period 2006-2008. Again, the following paragraphs discuss the most relevant issues and policy developments in Portugal in this area, as well as the aspects of the recommendations that received more attention in their implementation. In particular, the Government’s “Commitment to Science for the Future of Portugal” is described in Annex 3 to this document, while Annex 4 describes the Government’s initiative “Partnerships for the Future of Portugal”.

50. The figures given are based on statistical information made available through the Planning Office (GPEARI- statistics on science, technology and higher education), as well as on communications from the Portuguese Science and Technology Foundation (FCT). Detailed figures and sample statistical information are provided in Annex 5 to this document.

51. The process of tertiary education reform has also been accompanied by an unprecedented movement to reinforce the scientific and technological development of the country. Following the political priority given to Science and Technology, the Portuguese Government launched in 2006 the “Commitment to Science” initiative, defining the goals and a set of policy instruments to achieve them (see Annex 3).

52. In 2008, for the first time in Portugal's history, the Science and Technology Budget exceeded 1% of GDP, confirming the Government's commitment to confer priority to national scientific and technological development (compared to 0.83% in 2005). At the same time, the proportion of the State's
Budget earmarked for Science and Technology reached the unprecedented level of 3.6% (compared to 2.6% in 2005).

53. Scientific output in Portugal increased by 45% over the last three years when measured in terms of the number of scientific publications internationally referenced, achieving a figure of 6 655 publications (around 630 per million population).

54. This growth is currently based on over 11 600 Ph.D. researchers working in academic R&D centres (measured in FTE terms), corresponding to an increase of 25% in the last two years and a doubling of the number of Ph.D. researchers since 2000. This strong growth has had clear results in terms of the impact and visibility of the Portuguese scientific community internationally.

55. It should also be noted that around 20% of all new Ph.D.s awarded since 1990 have been awarded or recognised in Portugal in the last two years. Portugal is expected to surpass the target of 1 500 new Ph.D.s a year by 2008 (the target was set for 2009), since the figure in 2007 reaches about 1 460 (details in Annex 5). The percentage of new Ph.D.s awarded to women recently passed the 50% mark, the highest percentage ever. The number of new PhDs in S&E fields per thousand population aged 25-34 increased to 0.42 in 2007, compared to 0.3 in 2001. The number of new Ph.D.s in S&E fields currently represents around half (47%) of the total number of new Ph.D.s, while at the beginning of the 1990s they accounted for only one third of all Ph.D.s awarded (31% in 1991).

56. To foster scientific employment, the “Commitment to Science” initiative comprises a main programme for the recruitment of 1 000 new Ph.D.s until 2009, with public support. So far, the Portuguese Science and Technology Foundation (FCT) signed and supported around 720 new contracts. This programme is also being recognised by tertiary education institutions as support to renew their faculty and a key element in the modernization of academic research.

57. As part of the “Commitment to Science” initiative, FCT also launched, in April 2008, a new programme for co-supporting the creation of Invited Research Chairs with private funding, aimed at the recruitment of leading international researchers to support tertiary education institutions in their internationalization and partnership efforts. By October 2008, six Chairs had been created in Portuguese Universities, with the companies Martifer (energy), Nokia-Siemens (information systems), Delta (biodiversity), Alcatel-Lucent (telecommunications), Microsoft (software engineering), and Toshiba Portugal (digital media). Other companies will join the programme in the coming months.

58. To promote tertiary education students’ integration in R&D activities from the early stages of their academic life, FCT also launched a new programme for the integration of tertiary education students in research, with the aim of awarding up to 5 000 grants in 2008. This type of grant is designed to foster scientific activity and the development of critical thinking skills, creativity and autonomy in students by integrating them into R&D project teams.

59. Turning to institutional development in science and technology, it should be noted that over the last decade, science policies in Portugal have been based particularly on two main pillars, namely: i) strengthening and restructuring the network of research centres throughout the country (namely in universities and related private, not-for-profit institutions) through their systematic international evaluation every three years, with direct impact on their funding levels, which has consistently been implemented in Portugal since 1996; and ii) promoting critical mass across all scientific disciplines by establishing a network of selected “Associated Laboratories” in the form of relatively large research consortia oriented towards thematic networks in a number of selected institutions following their international assessment. By 2008, the network of scientific institutions includes 510 research centres (against 257 after the evaluation of 1996) and 25 Associated Laboratories (with the first three Laboratories launched in 2001), with an
overall level of institutional funding of about 75 million euros in 2008 (compared to 25 million euros in 1999).

60. It is in this context that a revisited approach to institutional development has been launched together with the “Commitment to Science” initiative, with particular emphasis on R&D consortia and, above all, on institutional cooperation at national and international levels, as a way of encouraging scientific activity in networks that promote institutional inter-relations. While helping to overcome the effects of the limited size of some research units, developing such science-based networks is intended to encourage the creation and dissemination of new knowledge and stimulate scientific development in a climate of constant change and growing internationalization of the scientific base.

61. The approach has included the reform of the network of State Laboratories, concerning their mission, structure and activities, as well as the creation of Research Consortia involving scientific and tertiary education institutions. Six main Consortia are under development, namely in areas of physics and computing, marine sciences, natural risks, biotechnology, space and security.

62. In this respect, one critically important and emerging institutional issue that has driven all the new policies refers to the need to continuously foster the training of students and young scientists in order to provide them with core competencies that help them to become successful researchers and prepare them with the adequate “transferable skills” for the job market outside research and academia.

63. In addition, recognizing scientific knowledge as a “public good” introduces the need to consider new policy dimensions in science and technology policy that are designed and implemented in a way that fosters independent scientific institutions, among which the way in which transnational institutions are organized may provide a useful framework. It is also in this context that major efforts have been undertaken to promote the internationalisation of the Portuguese scientific community.

64. Under the broad scope described above, the following actions deserve special mention regarding the OECD recommendations about strengthening scientific institutions and their internationalization (see Annex 4 for details):

• The **Iberian International Nanotechnology Laboratory**, INL, created by international treaty between Portugal and Spain signed at the end of 2006, is currently under construction in Braga (northern Portugal). This is the first International Research Laboratory set up in the Iberian Peninsula, which will be a major driving force to strengthen academic and applied research in Portugal. It is expected to achieve a reputation as an international institution of excellence with around 200 researchers from all over the world and an annual operating budget of around 30 million euros matched by a similar investment budget funded in equal shares by the two countries. In the meantime, a joint recruitment plan with leading institutions worldwide is under preparation, to help attracting senior and junior researchers to INL, which will involve main academic research groups in Portugal working in nanosciences and related technical applications.

• The **GRID National Initiative for advanced network computing (INGRID)** was launched in 2007 and the IBEROGRID Iberian platform was created to share resources between Spain and Portugal. Again, this has been an important driving force to strengthen academic research in Portugal.

• A strategic programme of international partnerships in science, technology and tertiary education was initiated in 2006 and by September 2007 the first doctoral and advanced study programmes were officially launched, bringing together several Portuguese universities and leading universities worldwide, including, the Massachusetts Institute of technology (MIT), Carnegie
Mellon University (CMU) and the University of Texas at Austin (UT Austin). Unprecedented in Portugal, these programmes facilitated the creation in 2007 of effective research-based networks involving a large set of Portuguese university and science groups with the objective of stimulating their internationalisation through advanced studies projects and sustainable schemes to stimulate new knowledge and exploit new ideas in collaboration with companies and internationally renowned institutions, as follows:

- The MIT-Portugal Programme (http://www.mitportugal.org/) was launched in October 2006 in the field of “engineering systems”, attributing special emphasis to the complex processes associated with industrial production systems, sustainable energy systems, bio-engineering systems and transport systems, in which Portuguese and MIT faculty and researchers identified over 30 priority areas for research and development in close cooperation with an industrial affiliation programme.

- The CMU-Portugal Programme (http://www.cmuportugal.org/) was launched in October 2006 with emphasis on information and communication technologies and involving dual professional masters and PhD programmes by Portuguese institutions and Carnegie Mellon University (namely in software engineering, information networking, information security, human computer interaction, entrepreneurship and technological change, mathematics and language technology.

- The University of Texas in Austin - Portugal Programme (http://www.utaustinportugal.org/) was launched in March 2007 covering the following areas: i) digital content and multimedia production and distribution; ii) advanced computing; and iii) science and technology commercialization, including establishing a “university technology enterprise network”.

- A study has also been launched on the potential for collaboration between Portuguese Universities and research laboratories and Harvard University, which is expected to enable a new collaborative framework to be launched before the end of 2008 including a new infrastructure for delivering medical information to the general public.

- Co-operation with the Fraunhofer Gesellschaft for the establishment in Portugal of the first Fraunhofer Institute in Europe outside Germany. This is an ambitious project focusing on emerging information and communication technologies, such as “Ambient Assisted Living”, to be complemented by the establishment of R&D consortia and co-operative projects involving several Portuguese institutions and Fraunhofer institutes in Germany in other four areas: i) logistics; ii) biotechnology; iii) advanced production systems applied to the automotive industry; and iv) nanotechnologies.

65. The strategic actions of the Government, in terms of strengthening the internationalisation conditions of higher education and science and technology systems, are particularly recognised, with particular emphasis on the need to enlarge and deepen the investment effort in the partnerships with MIT, Carnegie Mellon University or University of Texas at Austin, namely as a way to stimulate the integration of national institutions in emergent scientific networks at the international level. In general, internationalisation should be a full component of all higher education institutions, stimulating the mobility of higher education students and academic staff and strengthening scientific and academic activities in networks.

66. Projects of interest to Portuguese industry have been launched, and this synergy has been extended by industrial affiliation programmes, especially in the automotive, energy (via the MIT-Portugal Programme), telecommunications and information systems sectors (via the CMU-Portugal and Fraunhofer-
Portugal Programmes) and in digital content (via the UT Austin-Portugal Programme). A laboratory to support the development and internationalisation of technology-based entrepreneurial projects was also developed.

67. Through the joint programme with MIT, co-operation with the Sloan School of Management has been further strengthened. Preparatory work for the launch of an international MBA programme has been successfully completed, and the new programme will start on January 2009 under the designation of “The Lisbon MBA”. It involves the co-funding of seven major Portuguese companies and banks in a way that will stimulate new research and the quality of education in management sciences in Portugal.

68. The programme of international partnerships briefly described above has been continuously monitored and assessed by specialised committees for each partnership (namely in the form of “External Review Committees”), which have contributed for the continuous improvement of the impact of the programme. The analysis points to the need to continue giving priority to people, knowledge and ideas in a way that promotes networks of institutions with the necessary critical masses capable of promoting the international standing of Portuguese scientific and tertiary education institutions. In particular, the continuous reviews over the last year have emphasized the success of the various programmes, mainly due to the following:

- First, innovation must be considered together with competence building and the advanced training of individual skills through the complex interaction between formal and informal qualifications. Building on current polices, attention should be given to widen the social basis for knowledge activities, including higher education enrolment, and to strengthen the top of the research system leading to knowledge production at the highest level. Numbers of graduates, on the one hand, and of PhD holders, on the other hand, remain much below European ambitions.

- Second, Portugal needs to strengthen experimentation in social networks, which necessarily involves fluxes of people. It is the organized cooperation among networks of knowledge workers together with different arrays of users that will help diffusing innovation. But establishing these innovation communities requires the systematic development of routines of collaboration on the basis of sophisticated research projects, as well as the design of those products and services. This requires public policies to foster “brain circulation” among leading institutions worldwide.

5. Financing tertiary education: funding and equity

69. Funding is considered in the OECD Review under several items (namely, access and equity of the system, including tuition fees, and student support; and funding and efficiency of the system, including institutional funding) and the detailed recommendations are listed in Annex 1, together with the actions taken and, above all, the main legal reforms introduced in Portugal in 2007 and 2008. The following paragraphs discuss the most relevant issues and policy developments in Portugal in this area, as well as the aspects of the recommendations that received more attention in their implementation. The figures given are based on statistical information made available through the Planning Office (GPEARI- statistics on science, technology and higher education), as well as on communications to the Parliament. Detailed figures and statistical information are provided in Annex 5 to this document.

70. To ascertain the financing of tertiary education, the analysis should consider all the revenue of tertiary education institutions and, with respect to the direct financing of the students, the expenditure incurred. Until recently, Portugal only reported to the OECD the part related to the public sector. Thanks to

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4 In particular, the communication of the Minister of Science, Technology and Tertiary Education, José Mariano Gago, to the Parliament on June 11th, 2008.
the co-operation of the National Statistics Institute with the ministry’s Planning Office, GPEARI, the OECD’s latest education statistics at last included the private sector as well, for 2005, allowing proper international comparison. That year the financing of Portuguese tertiary education, both public and private, totalled 1.4% of the GDP, equal to the OECD average and greater than the EU average (Annex 5, §11.2).

71. The total financed as revenue, excluding investment through the PIDDAC (Central Government Investment and Expenditure Programme for Development) amounted to €1 712 million, €1 790 million and €1 806 million respectively in 2005, 2006 and 2007. As a percentage of the GDP these figures remained fairly constant over the three years, at 1.2% (Annex 5, §11.1).

72. The amount executed under the PIDDAC with respect to tertiary education infrastructures during the three years varied between €61 million and €90 million.

73. Thus, of the revenue charged as a whole, including student social support and the national investment programme (i.e., PIDDAC), the financing of tertiary education remained fairly stable at around 1.2% of the GDP in each of the years under consideration. It should be noted that these figures do not include the direct financing of the high-speed internet network (i.e., “RCTS”) and of the on-line scientific library (i.e., “B-On”), both of which were partially supported by the institutions before 2007 and, as of 2007, are fully paid directly by the Ministry of Science, Technology and Higher Education.

74. Overall fees collected by public tertiary education institutions increased from €184 million in 2005 to €239 million in 2007 (Annex 5, §11.1). However, part of the fees are paid directly by Government institutions to the tertiary education institutions, especially those borne by the Science and Technology Foundation, which rose from €3 million in 2005 to €13 million in 2007. Thus, the top-up fees paid directly by the students accounted for just 10.6% and 12.5% of the total financing (excluding the PIDDAC).

75. To summarize, the analysis shows that, as a percentage of GDP, the financing of tertiary education in Portugal is identical to the average of the OECD countries. The revenues of the tertiary education public sector have grown over the past three years in absolute terms, and have remained stable as a percentage of the GDP. The reform of the tertiary education system in Portugal, directed at increasingly responding to the challenges of scientific, professional and cultural development of the country, will lead, once the public accounts have been consolidated, to a strategic reinforcement of the financing of tertiary education. This political will, already assumed publicly by the Prime Minister, is the expression of the essential priority given by the government to education and to scientific and cultural development, while it also meets the guidelines of the Lisbon Strategy adopted by the European Union.

76. It must be noted that, in spite of a period of demanding budget consolidation, the tertiary education system accomplished significant achievements: to take on new students and to grow, to generate more and better R&D results, to diversify and specialise, to internationalise many of its institutions and programmes, and to become associated far more closely with the processes of corporate and organisational innovation – generating new funding and reforming its cost structure, collecting more revenue and managing to maintain its overall weight as a proportion of the GDP. In this context, the priority given by the government to Science and Technology has made a significant contribution, the results of which are now clear in many fields.

77. The commitment to raise the public investment in tertiary education infrastructures has been confirmed through the call for tenders issued for the attribution in 2008, within the National Strategic Reference Framework (2007-2013), of around €130 million of public funds, both national and from the EU, for priority works and equipment, to which national funds will be added that are not co-financed. These are investments of great importance to the development of tertiary education to be undertaken in various parts of the country.
78. The OECD particularly recommends that the present system of fees is maintained, namely for the initial training period, and that it may be reviewed when Portugal is capable of reaching higher levels of participation in higher education. Public funding of higher education institutions should evolve towards a system of institutional contracts based on strategic plans and performance indicators, linked to national objectives. The OECD particularly suggests a greater diversification amongst higher education institutions, to be reflected in the type of individualised funding, which should gradually substitute the present mechanism of public funding distribution with a formula.

79. But it is also clear that the need to modernise funding mechanisms and ensure a better balance between institutional and competitive funding for tertiary education dominates the debate in governments worldwide. It appears that more important than discussing the details of funding formulas for institutional funding mechanisms, is to review the overall share of institutional and competitive funding sources, as well as to promote student support mechanisms. This certainly includes the need to preserve the institutional integrity of the institutions, as well as to create flexible financial mechanisms to attract and secure new talents in Portuguese institutions and to meet the global challenges of research and international competition.

80. Concerning student support mechanisms, two main lines of action have guided policy initiatives to improve access, foster equity and help accelerating the reform of tertiary education, namely:

- The guarantee of an annual increase of the overall public budget devoted to student grants and social support to students; and
- The introduction of a new innovative student loan system, which was implemented through a mutual guarantee underwritten by the State.

81. The Public Budget for social support to students through grants increased about 3% per year since 2006, covering about 21% of the total number of students in 2008 (Annex 5, §7).

82. Although income-contingent loan systems are becoming a typical reference worldwide, as clearly acknowledged by the OECD, it should be noted that their applicability is particularly dependent on the characteristics of the tax system. This is why the Portuguese Government has decided to design and introduce an innovative system of student loans with mutual guarantee underwritten by the State, which complements the system of public grants, thereby improving access to higher education for all students, with a minimal governmental intervention (see Annex 2 for details).

83. About 3 100 loans have been contracted in the initial months through the new loan system, namely between November 2007 and July 2008, and this represents an important new achievement for Portugal and the Portuguese families, which follows current practices in modern societies at the OECD level. In the course of the current academic year of 2008/09, some additional 500 loans were established through the new system (by the 15th of October 2008) (Annex 5, §7.3).

84. According to Michael Gallagher, the Portuguese initiative satisfies the key policy criteria: it is a horizontally equitable scheme; it represents good value for students; it is financially sustainable at higher volumes of student take-up; it is low risk for government and financial institutions; it avoids the need for additional administrative infrastructure. The loan facility reduces disincentives to study by covering reasonable living costs while deferring repayment obligations till after graduation. The 10% guarantee offsets lack of collateral in financing human capital investments. The allowable repayment period (twice

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the period of study) is normally sufficient to permit students to make loan repayments without committing a disproportionate share of their income after graduation”.

85. Still regarding the new Portuguese Loan System, Nick Barr has recently “applaud the facts that: 1) the scheme is universal; 2) supplements existing grants rather than replacing them, hence extends students' options; 3) has no blanket interest subsidy; 4) has a very innovative mutuality element, which is the key that makes it possible for the scheme; 5) makes use of private finance”. The loans scheme has also incidental benefits, by virtue of the progression requirements and the incentives for improving grade point averages. In particular, it should encourage students to progress with their studies and complete their degrees, and it may encourage students to undertake courses that are more likely to lead to positive employment outcomes.

6. Concluding Remarks

86. A thorough legal reform of the Portuguese tertiary education system was completed about two years since the OECD’s Education Policy Committee met in Lisbon to review Portugal’s tertiary education policy in December 2006. It has made a number of steps to follow up on the Committee’s recommendations that have modernised the Portuguese tertiary education system.

87. The essence of the reform has been in line with the current European movement to modernise universities and polytechnics to support the development of knowledge societies and economies. It has been driven by policies aimed to: i) extend the recruitment base and the number of students in tertiary education; ii) reinforce the top of the system, by fostering the internationalization of research universities and their specialization; and iii) promote the binary system, with polytechnic education concentrating upon professionally-oriented and vocational training and with university education to be further concentrated on postgraduate education.

88. It considers greater quality, greater relevance, greater international recognition, a more advanced, diversified and responsible system of autonomy, and greater openness to society and to new social groups of students. Today, this reform is internationally recognised as a model of progress, and it is an undeniable factor of the country’s affirmation abroad.

89. If a single conclusion can be taken at this moment, it is that there is a consensus about the need, and the opportunity, to accelerate reform of tertiary education institutions in order not only to stimulate progress across the whole tertiary education system, but also to foster the emergence and strengthening of our institutions which can demonstrate their excellence at international level. This requires building-up a new set of relationships between tertiary education institutions and society at large, in a way that is facilitated by the new legal framework introduced in Portugal in 2007.

90. To cope with such a variety of demands and with a continuously changing environment, it is imperative that tertiary education systems are diversified. But the challenge of establishing modern tertiary education systems requires effective networks and a platform of research institutions, notably for stimulating the political debate among the various stakeholders and for assisting in the networking of national constituencies promoting the positioning of our institutions in the emerging paths of brain circulation worldwide.

91. The achievement of the ambitious goals of the Portuguese reform agenda requires a broad and active networking of dispersed actors, and the joint efforts of students, teachers, Polytechnics, Universities, research groups, scientific institutions, industry and civil society. Within this perspective, our analysis calls

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Nick Barr, June 2008, personal note.
for policies that consider long term approaches of dynamic environments, which require to be continuously monitored and evaluated. Emphasis has been given to the need to foster advanced human resources and knowledge integrated communities as drivers of a modern society, as well as to broaden the social basis of tertiary education. This requires a continuous public effort, but also a better understanding of the effectiveness of the mix of public support mechanisms and private incentives for the development of knowledge networks and a knowledge-driven society.