CONTRIBUTIONS FOR THE

REFORM OF HIGHER EDUCATION

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Brazilian Academy of Sciences

Working Group

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PRESENTATION

Requested by the Ministry of Education and Culture to contribute to the debate on the reform of Higher Education, the Brazilian Academy of Sciences formed a work group with the objective of preparing documents about the themes proposed by MEC. These documents are gathered here, together with the Manifesto of Angra dos Reis about University Reform, after having been exposed to the academic community and discussed in Symposium, at the headquarters of the Academy, on the 31st of May of this year.

MEC proposed a list of seven themes to be discussed, in two conferences held in Brasília, which counted with the participation of ABC and of several entities which represent sectors related to higher education: 1. Role of the University; 2. Autonomy; 3. Access and Permanence; 4. Financing; 5. Evaluation; 6. Content and programs; 7. Structure and management.

For our work, we decided to group these seven themes into three, each one of them under the responsibility of a sub-commission of the work group of ABC: 1. Joining, permanence and curricular paradigms; 2. Evaluation and financing; 3. Autonomy, structure and management.

The documents presented here adopt the principles of the Manifesto of Angra in Defense of the Public University, released in 1998, and specifies several proposals which have as their objective, the goal to promote a higher education committed to the quality of teaching and to the intellectual production. These proposals concern the structure and the evaluation of the higher education institutions, as well as the new curricular paradigms, destined to benefit a basic, solid and ample training, deemed so necessary in these times of rapid development of knowledge. The document regarding the new curricular paradigms was based on contributions prepared before the creation of the work group, by Professor Alaor Silvério Chaves.

The two contributions, about joining, permanence and curricular paradigms, and about evaluation and financing, propose general guidelines, while the document on autonomy, structure and management are written in a format of Proposals for the Law on University Autonomy. The proposal we included concern only the ones related to the aspects we consider the most important and relevant for the Reform.

These documents express the conviction that the constant evaluation of the higher education institutions, performed by external peer review commissions, is an essential mechanism for the improvement of these institutions and for supporting its involvement with the frontiers of knowledge as well as with its national and regional development.

It is also important to emphasize that the fulfillment of the objectives of a system of higher education in our Country requires a profound reform of the elementary and secondary years, essential to enable the social inclusion of an immensity of excluded contingents. Social inclusion measures restricted to the higher education will most

certainly be very little efficient, and can even jeopardize the creation of the human resources necessary for the development of our Country. On the other hand, new curricular paradigms, which lead to an ample and solid graduation in the first cycle of the higher education, selecting the students who come from a high school, based on their capacity of thinking, and avoiding premature specializations, can have positive consequences in the increase of enrollment and in the reduction of evasion.

We hope that the document elaborated by the Brazilian Academy of Sciences can contribute towards the implementation of a higher education system committed to the quality of teaching and of research, adapted to the rapid development of knowledge in the current world, and that it can accomplish the role of being the essential mainstay for the development of our Country.

Rio de Janeiro, November 12, 2004

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CONTRIBUTIONS FOR THE REFORM OF HIGHER EDUACTION

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CONTRIBUTIONS FOR THE REFORM OF HIGHER EDUCATION

1. MANIFESTO OF ANGRA

MEETING OF ANGRA DOS REIS – ORGANIZED BY THE COORDINATION OF ADVANCED STUDIES PROGRAM OF THE FEDERAL UNIVERSITY OF RIO DE JANEIRO (COPEA)

The Group which Defends the Public University, constituted by the signatories, goes public to urge the government, the society and the academic community to unite efforts towards a new pact to defend the Brazilian Public University and the researches which are there performed, by means of an urgent reform, strongly based on academic values, on quality and excellence.

In order to build a country that has, in the 21 century, autonomy of decision over its destinies, it is essential to invest in its human resources, in education, science and technology. Our capacity of graduating the best at a graduate and post-graduate level, as well as in scientific and technological researches, lies almost exclusively in the hands of the public universities. Thanks to them, Brazil has shown that it is capable of developing technology in strategic sectors, which cannot be acquires abroad.

We need to take advantage of this priceless heritage to take a new leap into quality, but this requires profound reforms in the area of teaching, in organization and in the management of financing of public universities. Innovative methods are required in the selection of candidates for entrance and in graduation, stimulating the individual initiative and the "teaching how to learn". It is necessary to create conditions that allow the public universities to meet the growing needs for a quality higher education.

Both, in the university career as well as in the choice of leaders, the hierarchy of merit and of academic excellence should prevail over corporatism. A rigid departmental structure is anachronistic in view of the interdisciplinary which characterizes the frontiers of research. Peer evaluations, with the predominance of external elements, should be the basis of the judgment over the merits of teaching, research and extension, in order to progress in the career and to enter and remain in the regime of exclusive dedication.

Autonomy is also a privilege to be conquered based on a case-to-case analysis, however, with a constant need for external evaluation and permanent monitoring. A complete autonomy requires a long-term strategic plan.

In the whole world, the government primarily finances quality universities and the researches that are performed in them, yet respecting academic liberty. It's acknowledged today that this is one of the most profitable investments a country can possibly make towards its future. There is no developed country with an underdeveloped university.

For an urgent reform
to salvage the Brazilian
public university

Our assumption for a reform of the public

university is that it aims to meet the desires of the society in wanting to build a country which is developed, democratic, with autonomy of decisions over its destinies, whose citizens can fully fulfill their potentials as human beings.

In the threshold of the 21st century and in the current international context, the most precious asset with which a country can count on is its human capital. Investments in education, science and technology, in harmony with a national project, represent the best strategy to attain this ideal.

The public university represents only a part of a more ample and complex problem of higher education in the country, which will require a profound study. Nevertheless, it is important to focus our attention on it due to its distinctive characteristics: its role in the preservation of national identity and dignity, as well as for valuing culture; through concluding that we not only owe to the public university, the best possible degree available at a graduation level, it is also almost exclusively responsible for all of the post-graduate degrees and for research projects, constituting the most important heritage we have to catalyze strategic projects for regional and national development.

Among them, we can pin point the support towards the recuperation of the public education of lower and high school, a crucial factor not only for development itself, but also to reduce the inequalities with regards to the access of less fortunate classes of the population, to public universities, which enhances the unequal distribution of income.

Therefore, the enormous national effort towards, building good public universities create postgraduate courses and develop researches has positively paid off. This can be verified through the results of the Exame Nacional de Cursos (National Exams of Courses), through the CAPES (Coordination for the Improvement of Higher Education) evaluations, and through the analysis of the Brazilian scientific production, among a variety of other indicators. There is a great opportunity, which cannot be wasted, of a quality leap towards a new level.

The success of the post graduation programs and the research on graduating personnel cannot serve as an excuse to deny them support, specifically when it becomes the most necessary. The investment of decades could be destroyed in a very short period of time, condemning the country to an irreparable backdrop. It is also essential for the development of the country, to create conditions so that the public universities can meet, with the necessary quality, the growing demands of the population to having access to higher education.

The contribution of the public universities towards the development of cutting edge technology can be verified through its role in the creation of our aeronautic industry, in our international leadership in the oil exploration in deep waters and in the premature development of the technology for the manufacturing of optic fibers, among innumerous other examples. Our best public universities educated the people responsible for these achievements and contributed directly towards the generation of decisive knowledge needed for the success of these and of many other notable national ventures.

In spite of these results, there are still people who state that we do not have the capability of competing or even reproducing high technology, and

that it is cheaper to purchase it from abroad. Such ideas reveal a profound lack of knowledge about the mechanisms of technological capability, about the reality of the country and its' competitive restrictions in the international trade relationships.

Unfortunately, over several successive governments, the disbelief in science and in the public Brazilian university persists in the governments' upper scales, especially in crucial areas of Finance and Planning, which are responsible for budget execution and the definition of main guidelines of the national development. An eloquent example of the strategic importance of developing high-level science, made possible by investments in the infra structure of the Center of Weather Forecast and Climate Studies of the National Institute for Space Research, was his correct prediction, announced well in advance, of the effects of El Niño about the drought in the Northeast.

A country cannot control nor influence matters that it is not competent to produce. The solution to many problems that are specifically ours, for example, in the health department, now a day requires advanced technology, and its application to our reality does not matter to other countries.

Reform higher education – Teach how to learn

The main function of a university continues to be personnel formation. To accomplish this with satisfaction, facing the explosive growth of the technological innovations and ever growing interdisciplinary nature of the advances in knowledge, requires a profound revision of traditional teaching methods.

After graduation, it is crucial to develop individual initiative, the capability of critical thinking, to "learn how to learn", in order to remain updated and continually create knowledge. Solid basic studies should be emphasized, based on long-term valid principles on which innovations are based upon. At the same time, capability to work cooperatively should be encouraged.

As Einstein observed, the value of a university education lies not on learning many facts, but on the training of the mind to conceive new things: "education is what is left when one forgets all else." For this, instead of burdening the students with classroom time, they should be given plenty of time for personal work, well directed and valued, creating favorable environments in labs and libraries and stimulating instruments such as scientific initiation.

The current admission process in our universities does not suit well its' purpose. By imposing a precocious choice and strict career choice, specializing to such an extent that it borders on absurd, tend to cause further frustrations and does not even select the best qualified candidates.

There is room and numerous good arguments for several forms of groundbreaking experiments. An attractive example would be to create a period of professional initiation, in which basic subjects as science, biology and humanities, with flexibility (well supervised) in the choice of curriculum. There would be opportunities to connect with different careers, enabling a more mature and

informed choice later on.

Such a model (which should not be confused with the so called "basic cycle", never effectively implemented) would allow a selection based on general aptitudes desired upon entering. It would also value the teaching of basic subjects, inspiring teachers to conquer students to their subjects. It is important that the most experienced teachers who are capable of inspiring and motivating the students teach the most basic subjects.

Reform organization –
Academic merits and values

Universities that aim to achieve the highest standard of teaching, research and extension, should govern themselves with the objective of achieving merit and academic quality, undergoing permanent external evaluations by peers and maintaining transparency when accounting to society, in the top collegiate organizations, where it should be represented.

The hierarchy in merit, leadership and academic excellence should also prevail in the selection of leaders, in all levels, including departmental, in view of the important functions and responsibilities of the public university. The tendency of department to close into themselves, assuming total control of their subjects is contrary to the ever more interdisciplinary trends in the frontier of science and technology and should be replaced by a more active and flexible structure.

Two work schedules should be maintained: the exclusive dedication, essential for research (compatible with properly regulated external consulting), and a schedule of partial dedication, important in professional areas where regular external activities contribute to the experience that will be taught. The distinct nature of these two schedules requires among them, two very different academic careers.

Career advancement should be based on the evaluation of merit – including teaching activities, research and extensions associated with each schedule - by peer committees, with predominance of non-institutional members. The regime of exclusive dedication is a privilege to those who warrant it, in terms of intellectual production, and permanence should be conditioned to strict individual supervision.

Wage differentiation should be maintained in the career levels to encourage progression. It is not recommended to grant stability in the first levels, since this tends to induce accommodation and blocks access to better-qualified youngsters. On the other hand, exclusive dedication is important from the beginning to those who intend to dedicate themselves

to research.

It is essential to have a competent technical-administrative authority, whose career rewards and adequately pays for professional improvement and efficiency in managing resources, penalizing bureaucracy and unaccounted for expenditure. The catchword should be the primacy of quality over quantity.

Autonomy
and public financing

High standard universities, along with education and research, are expensive and are mainly funded by the public authorities in all countries, including, contrary to what is broadcasted, the United States, where 80% of students enrolled in higher education programs study in public institutions; in the best private universities, basic research is supported by the government. It is an investment with extremely high return for the country.

The recent crisis in our federal universities brought into focus the issue of autonomy, without a doubt, essential for its future. The most controversial problem is the financial autonomy. As a prelude, the huge welfare liability should be eliminated and the university hospitals, that provide relevant services to the population, should have guaranteed financing. These problems are similar, though with lower costs, to the restructuring of the banking sector. In view of the scarcity of the treasury resources, we could attempt to obtain international sources, within a broader context of reform of the public university here proposed.

Given the great regional diversity in our country and the huge variety of roles that higher education plays, there is room for a variety of diverse models, including within the public university. The reduction of regional inequality critically depends on federal support being complemented through the participation of state foundations that support research, which with the exception of FAPESP, are only releasing a small portion of the funds specified in the state Constitutions.

Autonomy, and exclusive dedication, is a privilege to be conquered case by case, based on the assessment of merit. It entails responsibilities and should be divided into several levels. The budget should be linked to performance, evaluated by commissions of external peers, with an international presence. Full autonomy requires a strategic long term plan, with continuous supervision.

We consider it essential to establish a special decision-making office for the examination and monitoring of autonomy. We are preparing a proposal for the reorganization of this office, which should be composed, in its majority, by teachers with the highest academic qualifications.

The role of the public university in the generation and diffusion of knowledge

The characterization of the university as the locus of knowledge, of academic freedom and intelligence, being free from interventions, regardless of how well intentioned it is, is a basic assumption of autonomy. The university should be able to look beyond the restricted limits of utilitarianism and temporary conjunctures.

It is important that we stimulate the diversity of knowledge that inhabit and cohabit in universities, respecting the specifics of each knowledge area.

To educate highly qualified human resources, it is

essential that they have the opportunity to interact and associate with research in the knowledge frontier. Research activity brings irreplaceable contributions to this purpose because it develops independent reasoning, creativity and the method needed for approaching new problems. Young professionals who graduate under these guidelines, with the utmost academic and ethical standards, are one of the main contributions of our public university, towards preserving a free Brazil and making it a more educated and just country.

The diffusion of knowledge generated and stored in universities is due mainly by professionals who have graduated there, but also through extension activities, like consultancy, research and service contracts, university hospitals, and other activities. The existence and the development of these extension activities, aimed at dispersing knowledge, are essential to the development of the Brazilian university.

However, it is a dangerous illusion, to believe that the resources gained through extension activities can substitute public investments in the university. No university system in the world operates on this method. Even in the United States, always cited as a model, less than 7% of the research project budget in all universities come from businesses – 67% come from the federal government, and another big portion from the state and local governments.

A recent report from the Council of Economic Advisors of the White House accredits more than 50% of the countries' economic growth, in the last 40 years, to investments in research and development. This document reports that basic research, performed primarily at universities and funded mainly by the government, not only contributes to education - specifically to the formation of scientist and engineers – but also has a key role in industrial innovation.

President Bill Clinton declares: "A cut in funds for research on the doorstep of a new century, when research will become even more important than it has been in the past fifty years, would be equal to cutting our defense budget at the height of the Cold War." Therefore, it would be, in his opinion, a crime of lese-homeland. Consistent with this statement, the budgets of 1998 and 1999 substantially increase the already great U.S. government investments in research and in universities. Similar strategies are being adopted in countries from the European Community and East Asia.

For a company, according to a research of the Massachusetts Institute of Technology, the major service supplied by a university is the preparation of highly qualified professionals. In addition, they also provide high quality consultancy, and assistance in

innovative research on technological development. The transition from this faze to the faze of production is the one that involves the largest investments, as well as a sequence of steps that are beyond the scope of the university. Public funding is still crucial in a pre competitive stage and the government's policies on development are a decisive factor.

Much has been said about company competitiveness in Brazil at the end of this century. It is not possible to acquire competitiveness without controlling the generation of knowledge, in a world where the most valued commodity is knowledge itself. In Brazil, the number of scientists and engineers working on research and company development is not only extremely inferior to that of the United States, but it is also extremely lower than South Korea. For Brazil to be able to compete in a world with these characteristics, it is essential to accelerate its capacity to create qualified professionals, creating at the same time conditions that drive our businesses to better utilize them.

Reform now

Quality public universities serve the nation's highest and most permanent interests. They cannot be linked to temporary interests of each government, nor to political parties, nor to specific companies, or to professional corporations of any kind. As mathematician Laurent Schwartz pointed out, there is no example of a developed country with an underdeveloped university.

It is urgent, in order to save our universities, that we join efforts in the battle against the persisting lack of interest of the economic area, perceived throughout several consecutive governments, against society and company alienation and against the preponderance of corporate benefits, oblivious to academic values and merit.

We therefore propose: Reform now: based on academic values, on merit, on academic liberty, in education capable of forming intellectual leaderships, in excellent research, in the university's interaction with society. A reform that measures to the greatest achievements along with the highest responsibilities of the Brazilian public higher education.

Signatories:

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The current manifesto results from the meeting held by COPEA (Coordination of Advanced Studies Program of UFRJ), on May 29 and 30 of 1998. The signatories who individually endorse this document, without representing any corporation, decided to unite, creating a Public University Defense Group

2. ENTRANCE, PERMANENCE AND CURRICULAR PARADIGMS

Universities are being revised all over the world

The undergoing discussion about the university reform in Brazil coincides with a review of University almost all over the world. In Europe, we observe the Bologna Process, a profound and comprehensive reform of the university system of the European Union. On one hand such a reform aims to give EU a greater identity and allow for the exchange of both students and professionals on the continent. On the other hand, it includes an analysis of the University's mission in the contemporary world and the kind of education it should offer. In the U.S., many universities, especially those of higher standards and prestige, are involved with the reforms of the content of their courses. An examination of the entire reformist movement is inappropriate in this text, yet it is possible to present an idea of their common denominator.

Two facts stand out in the scenery of today's university. Firstly, we live in an era where knowledge is accumulated with great speed and in which technologies evolve and are replaced with an almost disturbing dynamic. Secondly, higher education is becoming more accessible to most of the diverse social levels. Almost all youngsters aspire to attain a higher education, and societies should prepare to respond to this demand. These higher education candidates have aspirations as well as very diverse and heterogeneous skills and the system should be ready for such diversity. No less diverse, is the request that society makes on professional qualification of those who graduate from the higher education system. It is a demand from the societies of most nations that the system graduates professionals committed to finding solutions to their most pressing problems as well as promoting innovation and advancement of knowledge. In both of these situations, the level of knowledge required from the professional varies a lot. This variability has been attained with relative triumph combining undergraduate studies with postgraduate studies for a segment of the students, but an evaluation of the duration and content of these phases of training is urgent.

Both in Europe and in the U.S, there already seems to be a consensus on two aspects:

a) Higher Education courses must have a sequential structure composed of relatively short cycles.

b) Specialization, when not preceded by a solid and ample scientific formation, is only acceptable for professionals with strictly operational functions.

In the U.S. the higher educational system is diverse and ample. We can find community colleges, which offer two year courses of a predominantly professionalization nature, to research universities, which offer from four-year bachelor degrees, to Ph.D. or MD. In all the research universities, the BA has a Basic Cycle (BC) of at least one year during which the student does not have to specify his career choice. The BC is dedicated to the fundamentals of science and arts. In the best universities of that country, currently there is a tendency of lengthening the BC to one year and a half to two years depending on the university.

In the EU, according to the Bologna Process, university studies will be composed of sequential courses in the so-called 3-2-3 cycle: a three year bachelor's degree, followed by a two year masters degree, followed by a three year doctorate degree. There is still no conclusive definition of the content and philosophy of the bachelor's degree. However, the tendency is to adopt a structure containing a basic cycle followed by a professionalizing cycle where an attractive number of electives allow for diverse guidelines in students' formation.

The worlds' tendency is towards sequential courses with short cycles, with flexible curriculums, structured on ample scientific background.

What is common among the reformist movement of Americans and Europeans is the belief that in this era, where knowledge advances so quickly and the division of professions is highly unstable, only a solid scientifically based education can allow the professional to efficiently adapt to what is expected of him. Furthermore, the courses have to be flexible enough so that students can, on one hand, reorient their education along the way and on the other hand, cross traditional limitations in subjects and therefore be able to more proficiently act upon ever more thematic and less disciplinary problems.

Brazil begins its' discussion on university reform based upon a perverse reality where three main problems are highlighted:

a) Our higher education system is incapable of offering quality education to the rapidly increasing number of youngster who demands it.

b) Our bachelor degree programs are usually long, lasting from 4 to 6 years, and highly up righted, requiring that the student has a career choice upon enrolling.

c) The professions which require higher education in the country are overly regulated, which immobilizes its fragmentation and inhibits the formation of new professionals needed in the contemporary world.

Clearly, the third of these problems goes beyond the reach of university reform, at least with regards to

Brazil needs to modernize and expand its' higher education. Professions must be less regulated in order to allow for the creation and use of new types of professionals.

the manner it was presented for discussion. Undoubtedly it needs to be included in a wider reform program that seeks to insert the country in the era of innovation. It will become clear in this text, that the first and second problems above mentioned are interconnected, and that in order to attend to a greater number of youngsters it is also necessary to create shorter courses for bachelor's degrees.

It is possible to improve education and still expand the number of vacancies in HE with an increase of expenses lower than the increase in the number of vacancies.

There is rewarding consensus on the urgent need to increase the number of vacancies in Higher Education Institutions. We thus present a triple challenge: (i) increase investment in the public sector, which accounts for almost the total intellectual output in our Country, and has established a standard of quality for higher education (ii) establish structures to enable incessant evaluation of the HEI, in order to ensure that an increase in the number of students does not compromise the quality of teaching and research, and (iii) increase the efficiency of the HEI, which brings up the question of preliminary identification of which aspects of the system is inefficient.

Perhaps the biggest cause for the countries' university system inefficiency, at least regarding the public universities, is the students selection process itself. For historical reasons, largely related to corporate interests of professional associations, applicants who strive to enroll in Brazilian universities compete for jobs in predefined careers. This creates inefficiency for various reasons. First, because in some careers competition is less fierce, this allows for the enrollment of students with far lower education than that of the great majority who were excluded from highly disputed careers. Such abnormality is justified in the whimsical presupposition that the student possesses, upon completing high school, the indispensable information to make a life choice for a particular career. The options for most candidates is based not only on job opportunity criteria, on a variety of historic prestige professions have, but also on family influence and the fact that university have entrances with narrow doors and wide doors. It is important to point out the various sides to this precocious choice, including those that reduce the efficiency of the university system (with regards to raising the cost of education to the student) and those that reduce the quality of education obtained by the student.

Worldwide, universities compete to attract the best students. If the university postpones the students

The selection of pre defined careers by university students have historic origins that are not justified nowadays.

career choice, until he has sufficient information not only about the variety of careers, but also about the quality of the education provided for each career in his university, several courses would have to compete internally to attract the most successful students after their Basic Cycle, which have different duration and nature in each university. This way, the existence of a basic cycle before a career choice results in two competitions: among students who aim to leave open the widest possible variety of options, and competition between departments and colleges to show students that this is where they can get the best education. The result of this competition is extremely positive. Departments would strive to improve course quality and students would strive to the get the most out of them.

The elimination of double competition between departments and students is extremely harmful. On the one hand, the student, even one who has confirmed his aptitude to be a winner in the competition for a career in the highly selective process of entry, can settle after the marathon of a "vestibular" and start counting the years until graduation. All over the country, in careers where acceptance is harder, student failure rate after enrollment has been essentially null, which strongly suggests that the demands made on them is far lower than their potential.

There are courses in which, on the one hand, pre selection candidate competition is not so fierce, on the other hand after acceptance the level of demand is very high. This is what happens with physics and math, for example. Only students with appropriate skills and considerable dedication have the conditions to obtain satisfactory performance in math, chemistry and physics. These areas are inherently hard for most people, and besides that, they have achieved a unique level of sophistication in recent years.This combination of facts accounts for 20% of freshman not finishing their courses and the level of withdrawal is high. But dropout rate is high in almost all areas because many students discover that their precocious career choice was a mistake. The general index of dropout in Brazilian universities is abnormally high.

The rapid advance of knowledge and the increasing dynamics in breaking down professions demand professionals who are able to adapt to entirely new activities.

The speed in the advance of knowledge is a striking feature in our era. Associated to these dynamic, technologies come and become obsolete with ever-shorter time periods. The specialized abilities that professionals acquire in their learning process often become quickly outdated and useless. In this scenario, many concepts and practices have been subject to diverse politics and considerations,

highlighting continuous education. Although it is highly expensive, it may be that continuous education becomes an inevitable practice in the contemporary world. However, there is also a growing consciousness, at least in the most dynamic areas, like for example in the generation of new technologies, that only professionals who possess a solid interdisciplinary education are able to efficiently adapt to the demands of the job market. It seems we are entering a new age where specialists are becoming professionals with strictly operational horizons, therefore only able to perform more or less routine tasks and often supervised by people with a broader vision. At least in situations where specialization is not based on a scientific and mechanical broader education, this is an unalterable reality.

The universities should compete to attract the best students to their Basic Cycles and their departments should compete to attract those who demonstrate higher abilities in referred cycles.

The students should have good performance in the Basic Cycle to guarantee their subsequent career choice.

The most specialized training can quickly become obsolete. The professional with a higher scientific and interdisciplinary education will easily adapt to highly unstable job markets.

The question that immediately arises is: what kind of education should universities provide in such a dynamic scenario? For many, the universities can no longer aim to train a ready and complete professional for a specific function. The curriculum reforms observed in forefront American universities and the ample reform process that European universities are undergoing clearly reflect this vision. In the U.S traditionally, the graduate courses are four years long, and a career choice is never made before completing the first year. The current tendency is to adopt a Basic Cycle of a year and a half to two years, of an interdisciplinary nature, and with emphasis on the fundamental and tutorial methods of science and arts. The Basic Cycle is followed by a very flexible Professional Cycle, where different emphasis can be chosen by the student who now has a proper academic guidance to define his choices. Furthermore, the student is encouraged to graduate in more than one career to get broader mobility in his professional life. For example, today at MIT

(Massachusetts Institute of Technology) at least one third of students graduate with more than one major, and this fraction is growing. In addition, also at MIT, the student is encouraged from the start, to get involved in research, stimulating his initiative and creativity, making him more capable of facing new situations.

In European universities reformulated by the Process of Bologna, all countries should adopt the 3-2-3 cycles: three years of BA, two years for masters and three years for doctorate. In fact, it is currently proposed that the first cycle have at least three years, in order to eventually accommodate specific needs in some knowledge areas. The European bachelor graduate, after three years, would not necessarily have a complete and specialized training. However, what companies seek today are professionals who possess general concepts and methods and the ability to think. With these requirements, the company itself can quickly train professional for specific roles where they are needed. He can also be swiftly readapted for another function when the need arises.

The European master's and doctorate degrees will also be fast, which can only have good results if their emphasis becomes more scientific and less technological. In truth, the European university system will become similar to England's long established system. Allying existing course structure with emphasis on scientific training and ability to think, England has been very successful. In particular, its' science is recognized worldwide for its quality and originality.

The universities can no longer aim to train a professional ready to go for a specific function.

A proposal for Brazil: the entry by three large areas, and courses made up of short cycles.

We propose that the university courses be composed of shorter cycles. The duration of each cycle should take into deliberation and respect the specificities of each area of knowledge. It is imperative to have a diversity of models and flexibility while implementing this policy. Students will be chosen for entry into one of the three major areas, Basic Science and Engineering (BSE), Sciences of Life (CL), and Humanities, Arts and Social Sciences (HASS) without having to decide their career choice. There will be a common Basic Cycle for each major area, which will aim towards dominating the general and seminal fundamentals of the great areas and will be interdisciplinary. For example, the BSE Basic Cycle could have a mandatory study load of 8 calculus credits, 8 physics credits, 4 chemistry credits, and 4 biology credits. After completing this cycle, the student receives a diploma (it could have the title of, for example, Higher Studies Diploma) and he could either end his studies at this point or enroll in the following cycle. The vacancies for following your career options would be distributed based on the students' outcome during his Basic Cycle.

The Basic Cycle should be divided into three major areas: Basic Science and Engineering, Life Sciences, and Humanities, Arts and Social Sciences.

As the Basic Cycle will be like a second filter, and only the best students will have access to all the careers, the student will be stimulated to dedicating himself to study and therefore the courses would be taught at their highest levels in a less tutorial manner. The number of subjects would also be greatly reduced (at the moment, a student typically has seven subjects each semester, a pedagogical absurdity that is only tolerated because there is almost no expectations with regards to his performance) which will decrease the teaching hours in the classroom. In contrast, individual and group work will be stimulated and will be checked outside of the classrooms. Currently the excessive amount of subjects taken by each student is one of the biggest failures in our university system resulting in a teaching overload and a low student performance. Let's replace the students' necessary work, which in many cases passively follow the given courses, for that of the teachers. The system will also be flexible in order to offer special treatment to exceptional students, accelerating the graduation process.

In order for the stream of students, especially in the Basic Cycle, to be optimized, it is indispensable that the public university focus its efforts on the students who demonstrate good results . The present situation, where students are holding up the university's' efficiency due to failures and students who are rarely excluded from the system, is an absurd injustice, considering the costs and the fact that the university is incapable of offering vacancies to many other youngsters who fight to be able to be accepted. The students in this situation, who continually have low results, should be expelled.

Interdisciplinarity, the ability to express, and the critical spirit should be stimulated through elective courses and workshops.

The substantial decrease of mandatory classroom hours would not only encourage students to actively participate in the learning process, but it would also allow students to have a broader education, through elective courses and workshops.

In this sense, it is important that higher education institutions regularly offer fundamental subjects for the graduation of all students. The teaching of Portuguese, in particular, should be pointed out, taking into account the increasing deficiency in students being able to express themselves among the students who enroll in higher education courses. Other subjects appropriate to students' education would be Brazilian history and computer science.

Students with persistent unsatisfactory performance should be expelled.

The country needs comprehensive universities, technical universities and institutions similar to the American community colleges.

The workshops would meet in groups of up to 20 students for one or two hours weekly to discuss current controversial themes or more specific borderline knowledge topics.

Student contribution in workshops has been encouraged in universities in other countries. For example, several North American universities offer students in their first semester a wide range of workshop themes, with the explicit goal of broadening the students' education, develop his capability of expression, creativity and critical thinking.

The country needs more than one kind of Public Higher Education institution.

The set of IFES is very heterogeneous and, in principle, this is actually a positive fact. However, both MECs' policy, as well as all the diverse IFES projects, tend to aim at a homogeneous process, which on one hand is utopian while on the other hand it's undesirable. The country needs a diverse spectrum of IFES with distinct and clearly formulated missions. It seems that in this respect we are walking in the opposite direction in regards to what is desired. While technical universities are been created worldwide with explicit delimited spheres of activity, in Brazil, each newly created university attempts to dominate the scope of other much larger and long established institutions. For example, some federal agricultural schools postulated and gained university status, and immediately began to develop projects and propose courses in the widest range of education.

On one hand, it is important to recognize that the country needs to have, in its geographically diverse areas, major universities with a real university sphere (in a sense of universal, comprehensive) of action. However, it is desirable, that such a set of comprehensive universities be complemented by technical universities with variable degrees of expertise. In these universities, perhaps the student selection of careers and the verticalization of the courses are more adequate than the cycles of short duration. A type of institution to be considered is one similar to the North American "community college', with two year programs. In truth, such a program already exists in the country, under the title of Technologist. We propose its enhancement and the broadening of the number of institutions that offer such a degree. It is essential that they remain directed towards the formation of excellent technicians given the students' expectations, and not diverge from their main goals.

The need for such diversity arises because

society demands professionals with diverse levels of knowledge. In Brazil, we must also consider other variables. For example, societies' unfulfilled demand for careers like nursing and science graduates is so huge that we cannot simply think of the highest professional level, with ideal qualifications for the career but we should adopt pragmatic attitude in order to fulfill this gap in a much shorter time.

Inclusion with quality and diversity

It is well known that the huge bottleneck that limits access to higher education is the extreme deficiency in our elementary and secondary public education. To fix it, the State of Brazilian will have to make a huge effort to train, evaluate and recycle teachers for these grades. Furthermore, it is fundamental to provide conditions to enable students to remain in school all day, involved in educational activities, like sports, art, literature and science workshops and computer labs.

In addition, higher education public institutions represent a cultural heritage of great importance to our country. They serve as quality reference for the higher education and it is where most of Brazil´s research is conducted.They contributed not only with the education of highly qualified professionals but to solving Brazilian technical problems as well. Inclusion projects, which demand a lower quality level in these institutions, would be extremely harmful to the country.

The huge bottleneck that limits Access to higher education is the extreme deficiency in our elementary and secondary public education.

Furthermore, we should not face racial discrimination manifestations found in the Brazilian society with the same criteria as racial aspirations, with prejudice and without scientific foundation.

Positive action for inclusion are obviously necessary, not only in the university, but throughout the Brazilian educational system. However, the main question to be faced in a project for inclusion is the social differences and the unevenness in opportunities, in general, which affects individuals coming from many different ethnical and cultural groups.

It is important to discuss what can be done by the higher educational intuitions to try to remedy the social exclusion even though the main problems lie in other educational levels. It is necessary to enlarge the number of students belonging to less favorable social classes, which should be done without harming the quality of the education provided. This should be a basic preoccupation: maximize diversity without sacrificing quality in order to conserve and enhance the cultural heritage, which was built over decades.

Among possible solutions, we highlight:

(i) the assistance higher education institutions can give to pre university programs in deprived communities with provision of didactic material and the participation of the best students as teachers with HE teacher supervision;

(ii) the use of admissions criteria that take into account the learning potential and the school performance expected of students, which demands a reformulation of the selection process in order to emphasize these aspects more than emphasizing the previously acquired knowledge, and also a bonus system, which benefits students from public schools, without impairing the quality of education– the system adopted by UNICAMP is an example of how social inclusion can be stimulated while improving the quality of the student body;

(iii) the elimination of the waste of vacancies and talents, brought on by selection exams specific to careers and by premature specialization at the start of university programs;

(iv) the diversification of higher education institutions, broadening the spectrum of accepted students and including professionalizing schools and general training institutions, along the lines of "community colleges" that exist in the United States of America;

(v) expanding the role higher education institutions play in the formation of well qualified teacher for the primary and secondary levels along with a policy of enhancing these professionals.

The main question to be faced in a social inclusion Project is social inequity, which in general affects individuals coming from diverse ethnic and social groups.

To maximize diversity without sacrificing quality should be a basic concern.

3. EVALUATION AND FINANCING

To educate is a public service that requires certification, supervision, evaluation and state monitoring. The funding of public higher education institutions should be composed of two parts: one that ensures the expenses and necessary funds for the proper functioning of these institutions, and another based on evaluations.

Two types of evaluation should coexist: the individual evaluation and the institutional assessment.

The assessment should be the foundation for the institutions' development, for the increase in staff and teaching quality and intellectual production as well as its' national and regional incorporation.

1. The INDIVIDUAL ASSESSMENT

1.1 The exclusive dedication should be conditioned to a rigorous individual monitoring.

University career is composed of two work structures: the exclusive dedication, essential for research, and the partial dedication, important in professional areas where regular external activities contribute to the experience that will be transmitted in teaching. The distinct nature in both structures requires distinctly differentiated academic careers.

The exclusive dedication system, which is compatible with duly regulated external consulting, should be conceived according to intellectual production analysis and should be subject to periodic evaluations, permanence should be conditioned to rigorous individual monitoring.

Assessment by the State is essential for the development of higher education.

1.2 The current probation system should have its duration extended and its evaluation should be rigorous.

Currently, there is a two years probation system in Federal Universities, for contest-approved teachers. After this period, the teachers are assessed regarding their research activities, their teaching, extension and administration. Based on this assessment, their permanence or not in the institution is decided.

This assessment, which has been simply pro forma, should be taken seriously, with a major external peer participation, while extending, at the same time, the probation period to five years so that a deeper vision of the teachers´ performance in the University can be established.

Exclusive dedication should be subject to periodic assessment by peers.

A rigorous external evaluation should be implemented during the probation period.

2. THE INSTITUTIONAL ASSESSMENT

2.1. The systematic universal evaluation of courses and the dissemination of results through the "PROVÃO" (current name: ENADE) should be restored, without harming its improvement and the adoption of additional evaluation methods.

The Higher Education National Assessment law (SINAES), proposed through the Provisional Measure no. 147, 2003 and approved in March 2004, foresees a National Performance Review (ENADE), which differs from the previous "PROVÃO" system because it accepts the use of sample evaluations as well as allowing a three-year periodicity. The "PROVÃO" implementation encouraged several higher level private institutions to recruit better qualified teacher. Its weakening, however, coincided with the recent dismissal of these teachers.

It is important to reestablish the universality and annual periodicity of this exam, without interference with its improvement and with the adoption of additional evaluation methods, like external peer commissions, similar to the one currently being done by CAPES.

It is important to reestablish the universality of the annual "PROVÃO".

2.2. The recently created National Commission Of Higher Education Evaluation (CONAES) should organize the performance of the Graduation Program Evaluation Committee

Article 4 in the SINAES Law predicts the graduate course assessments through diverse procedures and instruments, among them, the compulsory visit by each areas specialized committee. It also included the attribution of concepts. It is important that highly qualified professionals compose these specialized committees, who will be appointed by CONAES and they may not belong to the institution being evaluated, similar to what is done by CAPES for post graduation programs.

In the higher-level institution evaluation, long-term projects, contributions to intellectual production, regional and national integration, teacher body and program quality, extension activities teacher career structure and management efficiency should be taken into account.

3. FINANCING OF HIGHER EDUCATION INSTITUTIONS

3.1. The basic funding for public universities must be guaranteed and additional forms of financing must be created.

The regulation of the evaluation of higher level institutions, as well as the relationship between these evaluations and their funding should be the same, taking into account that basic and necessary expenses

should be covered in spite of their evaluation. This observation is especially important at present, when federal universities are suffering a period of destitution. It is the federal governments' obligation to guarantee, regarding federal universities, items such as adequate space for teachers and students, electricity, telephone and computer communication, security, cleaning and transportation.

Besides, it is desirable that the development of undergraduate education have additional funding income, especially those that allow closer approach to post graduate education and research.

Additional public funding incomes that are intended to promote this proximity should be made available to public institutions and to nonprofit community institutions.

Access to these additional sources should be dependent on merit evaluation of presented projects. The funding stability would depend on regular monitoring by external experts.

3.2. A National Higher Education Development Fund should be created, which would provide funds for undergraduate education in accordance with CONAES assessments.

A department that would act upon undergraduate education should be created to exercise the same role as CAPES in the post graduate level. This department that would manage the Fund, should cover the country's whole higher education system and should have autonomy, agility and flexibility to function with efficiency.

CONAES should organize an evaluation system that utilizes high level specialists committees not linked to the assessed institution.

In the first operating year, its main goal should be Federal Higher Educational System, then expanding its action to other public institutions and also to private institutions.

The department to be created would have the task of assigning project funding, granting scholarships and financial aid and other mechanisms necessary for the qualitative development of the graduation programs. Among its various activities would be that of financing infrastructure projects such as quality libraries, computing and telecommunications resources applied to teaching, pioneering pedagogical projects, detailed programs to stimulate laboratories re-equipment, curriculum and courses restructuring, international inter-exchange programs for students and teachers, scholarships for teachers involved in teaching improvement projects, academic institutional scholarships for students, didactic material support program and the development of open educational software.

A Fund for the development of graduate education is necessary and it should be managed by an organization similar to CAPES

A national associated lab system would bring in additional resources based on assessment.

3.3. The research funding mechanism through projects submitted to the agencies (CNPq, CAPES, Finep, and FAP'S) should be preserved.

The agencies funding research have played an important role in developing higher education institutions, promoting institution modernization through support of individual researchers or research groups. This position must be conserved and even reinforced through the institutional support similar to FNDCT (National Fund for Scientific and Technological Development), avoiding, however direct transfer to universities for internal distribution.

The multiplicity of funding sources guarantees the existence of a diversified choice of quality projects, subjecting them to external evaluation, and preventing them from being misjudged or budgetary limitations. Furthermore, judgment on a national level, provided by federal agencies, is extremely useful for the establishment of national standards of quality.

Assistance for research should incorporate overheads to the institutions

On the other hand, to directly transfer to universities, would subject the funding of research groups to a single decision making process, subjecting them without appeal to misjudgments, as well as eradicating the comparison with other national scale projects.

3.4. A National Associated Laboratory program should be created.

We recommend the creation of a National Associated Laboratory program for a four year funding, renewable, educational institution and research project that has undergone careful merit assessment.

This Program should associate characteristics from the Associated Research Entities Program, approved by the DC of the CNPq in 1987 with the evaluation methodology developed by the "Support for Centers of Excellence" program (Pronex) created in 1996.

3.5. Aid for research should be accompanied by a percentage destined to the infrastructure offered by the institution.

It is crucial to strengthen the institutional assistance to higher education institutions. Without it, the performances of funded research groups is hindered because of the absence of a proper

infrastructure. In addition, teachers who are not part of a funded research group are sometimes incapable of progressing in their research and eventually get a loan, because of the lack of minor issues for the realization of research, like having computer equipment and bibliographical materials.

Institutional support would be enhanced by a percentage ("overhead") added to research assistance and utilized towards the infrastructure provided by the institution.

3.6. Public funding for private institution researchers should go through the same evaluation and monitoring criteria used for public institution researchers, taking into account the institutions' stability and the structure of the teaching staff.

Education is a public service that requires supervision, evaluation and monitoring by the State. This is an essential requirement for the protection of citizenship and to safe guard national interests.

Private higher education institutions should therefore be mandatorily submitted to supervision, evaluation, and federal government monitoring, to ensure that they are operating according to national quality standards.

The public funding of private institution researchers must go through the same appraisal criteria and follow-up used for the public institutions researchers. Yet, with the purpose of defending government investment and ensuring that the funded projects do not suffer discontinuity, the institutions stability must also be taken into account, as the return it offers and teacher staff career structure.

Public funding to private institutions demand evaluation

4. AUTONOMY, STRUCTURE AND MANAGEMENT: PROPOSALS FOR THE UNIVERSITY AUTONOMY LAW

An explanation on the evaluation and organization in higher education institutions and about federal university autonomy.

CHAPTER l
Autonomy

Article 1 This Law establishes criteria and procedures for assigning resources to federal university which included in the independent financial management system, except for its direct administration and foundational nature.

Sole Paragraph- The inclusion of federal universities in the system established by this Law, shall be made through application establishing that the universities' activities be subject to ongoing follow up and qualitative and quantitative assessment. This application can be made at any moment by notifying the Ministry of Education.

Article 2 The monitoring will include merit evaluation, teaching quality, research and extension, organization, financial and human resource management, and governance criteria.

Article 3 For the purposes of this Article, consider:
Financial management autonomy policies- full asset, financial and human resource management autonomy, protected in a proposed budget, approved at the University Development Council, with the constraints of external evaluation, constant monitoring and o incorporation of this budget by MEC in the Budget Law Guidelines of the following year.

Article 4 Only universities that meet the criteria proposed by the Commission as defined in Chapter II are eligible for financial management autonomy policies.

CHAPTER II
INSTITUTIONAL DEVELOPMENT
MONITORING COMMISSION

Article 5 A special decision making department will be created, the Institutional Development Monitoring Commission, (CADI) for the examination, concession and continuous monitoring of financial management autonomy and for defining the allocation criteria of resources to federal universities.

Article 6 CADI members will be appointed by the President of the Republic.

The CADI will be composed by

1. The Executive Secretary of the MEC, who will preside;
2. 2. The Presidents of CAPES, CNPq and FINEP;
3. Four representatives of the scientific and

technological communities covering the areas of Exact Sciences and Earth , Life Sciences, Humanities and Social Technology.

4. Two people of notorious knowledge chosen by the President of the Republic.

For the choice of the community representatives, each of the three Agency Councils referred to in item 2 will submit to the President of the Republic a list composed of a name for each of the four areas covered. From the three lists, The President of the Republic will appoint a member and substitute to integrate each area.

The members mandate referred to in item 3 will last 3(three) years and a single renewal is allowed.

Article 7 The CADI shall organize the assessment system for the Institutional Development Plans in the universities and attribute concepts, through external evaluations and visits by the Evaluation Committee.

CADI shall appoint The Evaluation Committee for every university visit, integrated by national or international teachers and researchers of the highest level, without a formal connection to the institution that shall be visited.

Will be systematically maintained:

1. INEP courses universal assessment (ENADE), with public disclosure of results, without bigotry to its improvement and additional evaluation methods;
2. evaluation of undergraduate courses by CONAES
3. assessment of post-graduate courses by CAPES
4. evaluation of extension and support activities and by SESU.

CADI, based on its assessment and the assessments referred to in § 2, will propose federal budget division between the public universities, taking into account the results pertaining to education, research and extension and the efficiency of financial management. Additionally, using these same evaluation criteria, could propose to the federal government any increase in resources destined for this purpose.

The distribution of resources defined by CADI each year should be implemented gradually, in a 2 year interval.

CADI will name assistants for specific commissions.

CHAPTER III
FROM FUNDING TO RESEARCH

Article 8 The concession of support by the funding agencies for research will be accompanied by a percentage for the institutions' infrastructure.

Sole Paragraph - This percentage is an additional contribution to the budgets provided by the Infrastructure Sector Fund (CT-INFRA).

CHAPTER IV
MANAGEMENT AND STRUCTURE

Article 9 The financial management shall obey the Institutional Development Plan, based on budget, funding plans and asset management approved by the Development Council of the University.

Article 10 The management of undergraduate teaching shall obey undergraduate education plans, as defined by the respective Boards in agreement with the Institutional Development Plan.

Article 11 The articulation of scientific, technological and innovative research will be defined by the Research Council, in accordance with the Institutional Development Plan.

Article 12 The coordination and articulation of academic activities shall obey the academic development plan, as defined by the University Council, according to the Institutional Development Plan.

Article 13 The Development Board, chaired by the Rector shall be composed of representatives of highly qualified professors, by emeritus professors, former students, by academic and scientific societies, by research promotion agencies and foundations, by civil society and the municipal and state governments.

Article 14 The University Development Council shall:

- create and maintain a University Development Fund through fund raising mechanisms;
- approve the annual budget in order to guarantee the high standard of teaching, research and extension;
- supervise financial management;
- supervise the student aid programs;
- supervise the transfer of projects percentage and service charges by College Endowments to the university;
- approve funding plans and financial asset management each year;
- approve a multi-year University Institutional Development Plan, to be reviewed annually based on the results attained;
- annually present to society, the Universitys' results and achievements in its various activity segments.

Article 15 The deans will be chosen from a triple list, to be defined in accordance with article 56 of 9394 Law of Directives and Bases of Education.

Article 16 It is the rectors' job to monitor compliance to the deliberative decisions made by the Development Council.

Article 17 the organizational structure of the University should be simplified by abolishing intermediate instances that have no activity.