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***Funding Systems
and Their Effects on
Higher Education Systems***

COUNTRY STUDY – SLOVAKIA

November 2006

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Ministry of Education

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1 Introduction

This material contains the country study on the funding system and its effects on higher education system in Slovakia. It was worked out within the OECD-IMHE project *Funding Systems and Their Effects on Higher Education Systems*.

The material consists of four parts. The first part gives a basic description of the current system of higher education funding. The second part shows priorities of the higher education government policy between 1998 – 2006 and the measures undertaken in the funding system for the support of their realisation. The third part is devoted to the main development trends in the Slovak higher education and to their link to the funding system. The fourth part of the study treats the strengths and weaknesses of the current funding system.

2 Results

2.1 Characteristics of the Funding System of Higher Education

In the modern history, two crucial years are of importance for the Slovak higher education system: the year 1990, in which the new Higher Education Act (Act No. 172/1990 of Law Code on Higher Education) was adopted still within the framework of former Czechoslovakia, which brought along academic freedoms to higher education institutions after the period of their central management by government, and the year 2002, when the enactment of the Act No. 131/2002 of Law Code on Higher Education and on the Change and Supplement to Some Acts (hereinafter referred to as “Act” or “Higher Education Act”) has launched implementation of the reform of the Slovak higher education system.

The present study is focused on the period following after adoption of the new Higher Education Act of 2002. This Act ensuing from the Strategy of the Further Development of Higher Education in Slovakia for the 21st Century adopted by the SR Government in August 2000, has meant the beginning of profound changes resulting, in addition to full implementation of principles laid down in the Bologna Declaration, in the changes of the economic and legal form of higher education institutions as organizations and in the changes to the system of allocation of funds from the State budget.

2.1.1 Characteristics of the Funding System Prior to 2002

Prior to 2002, the higher education institutions (except for two non-State higher education institutions) had economic legal form of the State budgetary organizations. This legal framework meant a number of principal limitations for them.

Higher education institutions being budgetary organizations should have their activities covered by the funds from the State budget. However, owing to long-lasting deficit in the amount of funds from the State budget, higher education institutions were not capable to secure from the funds allotted the maintenance and restoration of their property, or even the very operation, which manifested itself in wear and tear of the property and in running into debts, which the State had subsequently solved by partial funding in addition. This situation had been cyclically repeated. Without recording write-offs the cash accounting did not provide data on actual amount of internal debt.

The way of allocation of funds from the State budget to higher education institutions was primarily based on historical principle with separate allocation of funds for wages and for operation. This system did not lead the higher education institutions to economic use of funds.

The system did not motivate higher education institutions to increase the number of students in full-time form of study. However, the number of students in part-time form has gradually grown up, as the higher education institutions offered this form of study more and more also for reimbursement due to ambiguous legislation.

2.1.2 Changes Following after 2002

The basic change in the field of economic management of higher education institutions after 2002 consisted in their transformation from the State budgetary organizations to organizations of the type of “public higher education institution” introduced by the new Higher Education Act. The public higher education institution has been introduced as a statutory institution with a non-profit characteristics of economy directly regulated by the Higher Education Act.

The transformation of higher education institutions in the field of economic management is characterised by three groups of changes:

- transition to multisource funding including the new way of economic management of State budget resources,
- changes in relationship of higher education institutions to property,
- transition to budgeting of accrued revenues and costs, and to accrual accounting.

The transition to multisource funding and a new way of economic management of State budget resources meant that

- higher education institution has to earn a part of resources for its operation through its own activities,
- higher education institution does not transfer its income to the State budget, but it uses it for coverage of its costs,
- higher education institution can transfer its unused subsidy received from the State budget to the next calendar year,
- subsidies from the State budget are granted to the higher education institution in the form of block grant, that means, they are not internally structured into wages and operation.

Changes in relationship of higher education institutions to property resulted in the fact that

- the State property, which the higher education institutions used for their activities, has been transferred to their ownership,
- higher education institutions are liable to depreciate property,
- a change occurred in the way of allocation of funds for capital expenditures.

In the field of budgeting and accounting, the Act has brought along for public higher education institutions

- transition from budgeting of incomes and expenditures to budgeting of accrued revenues and costs,
- transition from cash accounting to accrual accounting.

The above principal changes have practically removed all financial technical restrictions in economic area existing in the previous period and created for public higher education institutions the necessary space for their creative activities. In addition, it was necessary to solve the problem of increasing total amount of subsidies from the State budget to higher education sector and the way of their allocation to individual higher education institutions.

As regards the increase of total amount of funds to higher education sector, at the adoption of the Strategy of Further Development of Higher Education the government bound itself in August 2000 to annually raise this amount. The bond has been kept including in 2006. For more details see Table 11.

2.1.3 Principles of the New Way of Allocation of Subsidies from the State Budget to Public Higher Education Institutions after 2002

Starting with 2002, according to the Act, the financial support from the State budget has been granted to the public higher education institution in the form of the following four subsidies granted on the basis of contract:

- subsidy for running of accredited study programmes,
- subsidy for research, development or artistic activities,
- subsidy for development of higher education institution,
- subsidy for students' social support.

The Act sets out the basic criteria for the allocation of individual subsidies to public higher education institutions as follows:

- while defining the amount of subsidy for running of accredited study programmes, the number of students, number of graduates, economic demand of the study programmes, higher education institution classification among university-type higher education institutions or non-university type higher education institutions, quality and other criteria related to provision of teaching, are decisive,
- while defining the amount of subsidy for research, development or artistic activities, the research, development or artistic capacity of the public higher education institution, the achieved results in the field of science, technology or art, evaluation of research, devel-

opment, artistic and other creative activity of the public higher education institution by Accreditation Commission within the framework of complex accreditation and classification of the public higher education institution among research universities, university-type higher education institutions or non-university type higher education institutions, are decisive,

- the amount of subsidy for development of higher education institution is based on the selection procedure within the framework of which the individual higher education institutions submit to the Ministry projects on implementation of their development programmes. At the selection procedure the quality of submitted projects, long-term strategy of the Ministry and long-term strategy of the public higher education institution are taken into account,
- the amount of subsidy for students' social support is based on the students' eligibility for scholarship and, at non-vested items of social support, the availability of the funds in State budget needs to be considered. The part of the subsidy ensuing from students' scholarship eligibility is considered to be a legal right of the higher education institution.

The allocation of concrete amount of subsidies to be granted to individual public higher education institutions is carried out according to the guide, which is being prepared and annually updated by the Ministry. The Ministry is obliged to submit this guide for opinion to the representative bodies of higher education institutions.

2.1.4 Current State of the Method for Allocation of Subsidies

The basic rules for allocation of subsidy for running of accredited study programmes and the subsidy for research, development or artistic activities for the calendar year 2006 are characterised in the sections below.

2.1.5 Basic Rules for Allocation of Subsidies for Running of Accredited Study Programmes

The subsidy for running of accredited study programmes serves for coverage of costs related to running of accredited study programmes and to provision of the entire operation of higher education institutions. For purposes of allotment of the subsidy, the following structure is anticipated:

- for personal costs to employees of the higher education institution, except for research and artistic workers,
- for operational costs including the costs for depreciation of property (write-offs),
- for personal costs to full-time PhD students,
- for costs for specificities; the latter include activities of public higher education institution carried out within the framework of its main activity and covered from subsidy for running of accredited study programmes, the funding of which is not considered by other rules. They are, for example, expenditures for special workplaces, expenditures for practical teaching in the selected study fields or increased costs for running of the study programmes, which are designed for small student numbers due to their character.

Within the framework of the subsidy for running of accredited study programmes there are also capital subsidies granted for realisation of constructions, inevitable reconstructions and removal of accidents covered from capital costs. The procurement of machines and equipment replacing worn out equipment necessary for provision of teaching is carried out by higher education institutions using current subsidies within the scope of reproduction fund.

The allocation of the subsidy for running of accredited study programmes consists of the following steps:

- distribution of total amount of funds allocated for subsidy for running of accredited study programmes into portions for individual items mentioned above,
- allocation of 80 % from the portion of subsidy for personal costs of employees to individual public higher education institution based on number of students and graduates in individual study fields, levels and forms of study, personnel necessary for running of these study fields and qualification structure of the university teachers; allocation of 20 % from the portion of subsidy for personal costs of employees to individual public higher education institution on the basis of performance of the higher education institution in research activities; a part of personal costs for the so-called operational employees (in 2006 about 3 % of total subsidy for personal costs) is set apart in advance and redistributed by indexing (historical principle),
- allocation of subsidy for operational costs to individual higher education institutions based on student numbers in different study fields, levels and forms of study and economic demands of these study fields,
- allocation of subsidy for personal costs of full-time PhD students according to number of full-time PhD students considering the increased personal costs of full-time PhD students after dissertation exam; a part of allocation also include the funds for new PhD students which are allotted to individual higher education institutions on the basis of their performance in research activities,
- allocation of subsidy by specificities based on specially reasoned requests of public higher education institutions or on the basis of defined rules (for example, in case of practical training).

The personnel necessary for running a study programme in a study field considered at allocation of subsidies for personal costs is expressed by the so-called coefficient of personnel demands (CPD). All study fields are divided into groups. The study fields in one group have the same CPD the size of which is derived from the standard number of students per university teacher and the standard number of nonteaching staff per university teacher at running the study programmes in the indicated study fields. Concrete values of CPD established in 2001 came from real average values of these parameters in Slovak higher education institutions with partial considering of disposable data from some other countries. The smallest value CPD = 1 is for the study field of Law; the highest value CPD = 6,99 is assigned to Veterinary study fields.

Qualification structure of university teachers considered at allocation of subsidies for personal costs is expressed by means of coefficient of qualification structure (CQS), which expresses average qualification level of university teachers of the given higher education institution, while the university teacher with scientific-pedagogical degree of professor is counted with weight 2,0, university teacher with scientific-pedagogical degree of docent with weight 1,66, university teacher, who is not ranked among the two former groups, but has the academic degree of PhD. with weight 1,33 and the other academic staff with weight 1,0. The weight values for individual categories were set in the rate of average salary of university teachers in these categories.

The performance in research activities considered at allocation of subsidies for personal costs is determined on the basis of the following parameters:

- amount of funds acquired for the last two calendar years for research grants from abroad,
- amount of funds acquired for the last two calendar years for research grants from the State budget and from other home resources,
- number of graduates of PhD study (in both full-time and part-time form) for the last two calendar years,
- number of full-time PhD students after dissertation examination,
- performance in publishing for the last two years.

Economic demand of study field considered at allocation of subsidies for a part of operational costs is expressed by the so-called coefficient of economic demands (CED). Value of CED for the study field is derived from CPD value for this study field.

The level of higher education study is considered by coefficient 1 for study programmes of the first level (bachelor study), coefficient 1,5 for study programmes of the second level (magister, engineer and doctor's study) and by coefficients 2,0 or 3,5 for full-time form of study of the third level (PhD study) prior to or after the dissertation exam.

The form of higher education study is considered by coefficient 1 for full-time study and coefficient 0,3 for part-time study in both the first and second levels.

Since 2006, from the part of subsidies for running accredited study programmes allocated according to the student numbers and according to the research activities, 3,5 % shall be set apart in advance to artistic higher education institutions. This volume shall be broken down in a way adjusted to conditions of artistic higher education institutions.

2.1.6 Basic Rules on Allocation of Subsidies for Research, Development or Artistic Activities

Subsidy for research, development or artistic activities is for

- coverage of costs for operation and development of infrastructure of higher education institution for research and development,

- financing of the research projects of higher education institutions in the field of basic research (the joint grant agency of the Ministry of Education and the Slovak Academy of Sciences VEGA), applied research, international scientific-technical cooperation and research for the needs of education sector (the grant agency of the Ministry of Education KEGA).

Allocation of subsidy for research, development or artistic activity consists of the following steps:

- distribution of the total volume of funds for subsidy for research, development or artistic activity into a part to cover costs for operation and development of infrastructure of higher education institution for research and development, and into four further parts for the financing of research projects of higher education institutions according to individual areas shown under b) of the above section,
- allocation of a part of subsidy for coverage of costs for operation and development of infrastructure of the higher education institution, for research and development allotted to individual higher education institutions on the basis of their research capacities given by number of teachers and research workers and the criteria shown in section 23,
- allocation of parts of subsidies for financing of research projects is carried out within the framework of internal grant system of the Ministry of Education by competition. Each from the four areas of projects has its own specific procedure for selection of projects for financing.

Since 2006, for subsidy to cover costs for operation and development of infrastructure of higher education institution for research and development of artistic higher education institutions, 3.5 % shall be assigned from the amount of funds meant for operation and development of infrastructure. This volume shall be broken down in a way adjusted to conditions of artistic higher education institutions.

2.2 Interrelationship between the Funding System and the State Higher Education Policy

The current reform of higher education system in Slovakia, the essential part of which is the reform of its financing, took place during the office of two governments; the first period lasted from October 1998 to October 2002 and the second was linked to it to be finished after premature Parliamentary elections in June 2006.

For the needs of review of interrelationship between the current funding system and the State HE policy, the structure of priorities of higher education policy may be formulated on the basis of the programme declarations of the last two governments as follows:

- broadening of access to higher education through
 - enlargement of capacities of higher education institutions (enabling to increase student numbers),
 - programme and institutional diversification of higher education system,

- improvement of system of students' social support,
- support of quality of higher education institutions in the field of education,
- support of the scope and quality of higher education research and development.
- support of PhD study
 - from the point of view of the scope,
 - from the point of view of efficiency,
- solution of long-term problem of funding through
 - support of multisource funding,
 - increase of subsidies from the State budget.

The system of funding contains for each of the above priorities the measures, which should serve for its support. Their list is shown in Table 1. Some measures are shown several times as they support several priorities.

Table 1: Priorities of the government HE policy and the measures for their support within the funding system

Priorities of the government HE policy	Measures in the funding system for the priority support
Enlargement of capacity of higher education institutions	<ul style="list-style-type: none"> ▪ Dependence of the amount of subsidy on number of students and graduates ▪ Allocation of capital subsidies for new constructions for higher education institutions
Improvement of the system of students' social support	<ul style="list-style-type: none"> ▪ Substantial expansion of the system of social scholarships ▪ Introduction of motivation scholarships ▪ Provision of contribution for student catering and housing
Support of quality in the field of education	<ul style="list-style-type: none"> ▪ Dependence of the amount of subsidy on qualification structure of university teachers ▪ Introduction of motivation scholarships ▪ Support of higher education research and development ▪ Support of qualification growth of young university teachers ▪ Support of research projects aimed at education system (KEGA) ▪ Support related to using IT in higher education institutions ▪ Support for development of advanced laboratories and other advanced workplaces
Support of the scope and quality of higher education research and development	<ul style="list-style-type: none"> ▪ Allocation of funds for projects in competitive way ▪ Dependence of amount of subsidy on research performance ▪ Increase of total amount of funds for support of research and development ▪ Support of PhD study ▪ Support for development of advanced laboratories and other advanced workplaces
Support of increasing the scope of PhD study	<ul style="list-style-type: none"> ▪ Substantial increase of number of allocated posts (=funds) for new PhD students during 2002 - 2006 ▪ Inclusion of results of PhD study into criteria for allocation of subsidies (research performance) ▪ Support for development of advanced laboratories and other advanced workplaces

Priorities of the government HE policy	Measures in the funding system for the priority support
Support of increasing efficiency of PhD study	<ul style="list-style-type: none"> ▪ Inclusion of results of PhD study into criteria for allocation of subsidy (research performance) ▪ Support for development of advanced laboratories and other advanced workplaces
Support of multisource financing	<ul style="list-style-type: none"> ▪ Transformation of higher education institutions from State budgetary organizations to public higher education institution ▪ Introduction of tuition fees in case of study exceeding the standard length ▪ Inclusion of results in obtaining grants from other sources into criteria for allocation of subsidy
Increase of subsidies from the State budget	<ul style="list-style-type: none"> ▪ Provision of permanent inter-year increase of subsidy from State budget to higher education system

2.3 Main Development Trends in the Slovak Higher Education and Their Link to the Funding System

This part presents a review of selected data on higher education for recent years with the aim to characterize development trends and their link to the funding system. We consider it as the first analysis that needs to be followed by a more profound one. At the same time, the period of five years during which a new guide on funding is used is with several indicators rather short for formulation of definite conclusions.

2.3.1 Numbers of new students entering higher education institution: full-time form of study

The data on number of new students and on their percentage in population aged 18 years (since 2003 aged 19) are shown in Table 2. By the academic year 2001/2002 including, we consider the State higher education institutions (without military higher education institutions and police academy) and since the academic year 2002/2003 the public higher education institutions (since we assess the link to the funding system in the period 2002 – 2005, which was applied to public higher education institutions only). Owing to special situation in the academic year 2003/2004, in which the number of applicants for entering higher education was negatively affected by the transition to 9-year primary school introduced in the school year 1989/1999, for purposes of trend identification in this part we replace the number of new students in 2003 by average of years 2002 and 2004. ¹⁾

¹⁾ Table shows the real number of new students.

Table 2: Data on number of new students in the academic years 1990/91 to 2005/2006

Form of study / Year	1990	1995	2000	2001	2002	2003	2004	2005
Number of new students in the full-time form of study	13 404	20 809	24 279	24 270	26 974	24 150	32 488	35 542
% of population aged 18 (19)	15.9%	21.8%	27.2%	27.2%	30.4%	27.2%	36.7%	41.3%
Number of new students in part-time form of study	1 868	3 881	9 665	12 763	8 057	15 057	15 718	17 254
% of population aged 18 (19)	2.2%	4.1%	10.8%	14.3%	9.1%	17.0%	17.7%	20.1%
Total	15 272	24 690	33 944	37 033	35 031	39 207	48 206	52 796
% of population aged 18 (19) ²⁾	18.1%	25.9%	38.0%	41.5%	39.5%	44.2%	54.4%	61.4%

The period considered is characterized by stable growth in number of new students the rate of which slacked mildly over the years 1996 – 2000. After 2001 (except for 2003 – reasons are shown above) an ascending trend in number of new entrants is evident. Linear trend³⁾ of inter-year growth in the period 2001 – 2005 is 1,8-times higher than linear trend of growth in 1990 – 1995.

As obvious from the above data, in the period 2002 to 2005, that is, during validity of the new guide on funding, a remarkable growth of admitted students took place compared to the previous period, leading to fulfilling one of the government priorities in the field of higher education.

2.3.2 Numbers of new students entering higher education institution – part-time form of study

In case of part-time form of study, a constant growth in number of new entrants could be observed with several milestones. The first milestone is the year 1995, another is the year 2001. Since then the growth has been marked. The only exception is the year 2002, when a decline occurred in number of new entrants. The decline was caused by the fact that the new Higher Education Act explicitly set out free access to part-time study to which some higher education institutions responded in such a way that they did not admit any new students to part-time study courses for academic year 2002/2003.

²⁾ In 2005, this portion represents up to 66.9% along with new students of private higher education institutions.

³⁾ By the trend of inter-year growth in student numbers we understand the coefficient of linear function used at linear approximation of the values of student numbers.

2.3.3 System of students' social support

The field of students' social support includes social scholarships, student loans and support of student housing and catering. Data on development in this area are shown in Table 3.

Table 3: Basic data on development in the field of students' social support in 2000 - 2005

Data / Year	2000	2001	2002	2003	2004	2005
Amount of funds paid for social scholarships (thousand SKK)	11 615	37 056	108 805	201 018	208 756	210 890
Number of social scholarship holders ⁴⁾		2 743	7 667	10 072	14 246	12 515
Bed capacity in student dormitories	42 270	43 076	43 749	44 992	45 955	47 408
Number of unhandled applications for housing	9 557	11 410	14 506	12 423	9 606	14 459
Number of meals served in student canteens with a contribution from State budget (thousand)	2 983	2 699	2 237	2 018	2 178	2 149
Amount of funds ⁵⁾ paid for loans from the Student Loan Fund (thousand SKK)	98 390	96 550	93 988	100 064	110 920	96 776
Number of students who were granted loans	4 988	4 926	4 898	5 064	5 560	3984
Number of unhandled applications for loan	2 464	664	128	585	156	254

A more remarkable progress in the field of students' social support has been achieved in social scholarships only. It should be noted that the further substantial extension of social scholarships has been brought about by the new Decree valid since 1 April 2006, on the basis of which the maximum limit of social scholarship has been doubled and the circle of scholarship holders has been extended too.

The housing capacities in student dormitories have been gradually extended, the rate of growth has been under 50% level compared to the growth of full-time students. Higher education institutions complete their housing capacities in student dormitories by beds in contract establishments. Number of students accommodated in contract establishments ranged around 3000 in recent years.

The level of interest in catering in student canteens is low and throughout the period, while calculated per student numbers, it has been declining.

⁴⁾ There is no data available on the number of scholarship holders for 2000. In recent years, number of scholarship holders as at 15.10., eventually, as at 31.10. is indicated.

⁵⁾ The data are for academic years. In the column marked as year R there is data for academic year R-1/R.

Possibilities of the Student Loan Fund remained approximately at the same level from the point of view of available amount of funds over the whole period. Starting with the year 2004, the maximum loan limit increased from SKK 20 000 to SKK 40 000 and the circle of eligible students grew up. The level of interest in student loans has been declining.

The area of students' social support also includes introduction of motivation scholarships since academic year 2005/06. These scholarships are primarily considered as an instrument for support of improving higher education quality. Annual costs for motivation scholarships range around SKK 200 000 thousand SKK at the moment. Ten percent of students with the best study results and the students who achieved excellent results in scientific, artistic or sports activities are eligible for motivation scholarships.

2.3.4 Qualification structure of university teachers

Qualification structure of teachers is expressed by coefficient of qualification structure CQS (see above). Data on qualification structure of academic staff in the form used in the funding system are available since 2003 and are given (except data on UJS Komárno, which did not exist throughout the whole period considered) in Table 4.

Table 4: Development of qualification structure of teachers in 2003 - 2006

Year	2003		2004		2005		2006		Difference between 2006 and 2003	
CQS	1,353		1,358		1,360		1,381			
Number of teachers in individual categories and their share in total number of teachers ⁶⁾										%
with degree of professor	1 095	11.5%	1 285	13.1%	1 275	12.8%	1 312	13.3%	217	19.8%
with degree of docent	2 310	24.4%	2 147	21.9%	2 241	22.5%	2 314	23.5%	4	0.2%
with degree of PhD. only	2 203	23.2%	2 420	24.7%	2 506	25.2%	2 744	27.9%	541	24.5%
without degree of PhD.	3 873	40.9%	3 934	40.2%	3 920	39.4%	3 457	35.2%	- 416	-10.7%
Total	9 481	100.0%	9 787	100.0%	9 941	100.0%	9 827	100.0%	346	3.6%

The above data demonstrate tendency of increasing qualification level of academic staff expressed through the received scientific-pedagogical degrees and academic degree of PhD., which was the aim of inclusion of CQS in criteria for allocation of subsidy.

⁶⁾ The calculated state of evidence as at 1 January of given year is considered.

2.3.5 Ratio of unsuccessful students⁷⁾

One of the basic indicators typical for the higher education system is successfulness, or unsuccessfulness in the study. Due to lack of appropriate statistics, the unsuccessfulness of study in the given academic year (Table 5) was expressed as percentage rate of students who were not successful in completing their higher education study in the given academic year, in total number of students. The number of unsuccessful students in academic year R/R+1 was defined for the purposes of this part as the difference between the number of students in academic year R+1/R+2 and sum of the number of students in academic year R/R+1 and number of new entrants for academic year R+1/R+2 reduced by number of graduates in academic year R/R+1, that is, according to formula ⁸⁾

$$\text{unsuccessful}_{R/R+1} = \text{all}_{R+1/R+2} - (\text{all}_{R/R+1} + \text{new}_{R+1/R+2} - \text{graduates}_{R/R+1})$$

Table 5: Percentage of unsuccessful students in academic years 1995/96 – 2004/05

Academic year	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
% of unsuccessful students in full-time form	9.3%	7.7%	8.8%	7.8%	8.4%	10.6%	8.7%	11.2%	8.5%	11.9%
% of unsuccessful students in part-time form	9.1%	4.5%	5.6%	4.9%	3.3%	3.0%	6.5%	9.5%	6.8%	10.0%
% of unsuccessful students in total	9.3%	7.2%	8.2%	5.4%	7.1%	8.6%	8.1%	10.7%	8.0%	11.3%

While comparing the rate of unsuccessful students in individual higher education institutions, much higher values are evident in case of technology-oriented higher education institutions. Concrete data are contained in Table 6.

At more detailed review according to individual years of study, it appears that the greatest unsuccessfulness of students occurs in the first year of their study where it reaches the value up to around 30 %.

⁷⁾ The indicator used in this part does not coincide with the classic “drop-out” rate which characterizes which percentage of those who enter higher education courses will prematurely finish it. But these indicators are internally related. A simplified example: For three year study, 10% of unsuccessfulness corresponds to 27% of classical drop-out.

⁸⁾ The indicated calculation is a simplification as it does not take into account, e.g., interruptions of the study. Nevertheless we consider the presented results as useful for basic orientation.

Table 6: Percentage of unsuccessful students in academic years 1995/96 – 2004/05 in technology-oriented higher education institutions

Academic year	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
% of unsuccessful students in full-time form	18.9%	15.6%	15.8%	14.4%	17.6%	20.1%	15.4%	17.5%	11.7%	19.5%
% of unsuccessful students in part-time form	31.0%	28.0%	28.8%	18.9%	20.6%	14.3%	8.0%	22.5%	22.9%	21.7%
% of unsuccessful students in total	19.7%	16.5%	16.9%	14.8%	17.9%	19.5%	14.4%	18.3%	14.0%	20.0%

Tables 5 and 6 do not indicate any significant relation between the new system of funding and the percentage of unsuccessful students.

2.3.6 PhD Study

One of the government priorities was also the development of PhD study. The basic data on PhD study for 2002 – 2005 are shown in Table 7.

A special support of the PhD study according to the guide in previous years manifested itself in both the increase in number of new vacancies of full-time PhD students and the increase in successfulness of the PhD study.

Table 7: Number of students and graduates of full-time PhD study in 2000 - 2005

Item / Year	2002	2003	2004	2005
Number of PhD vacancies available for new full-time students for which Ministry allotted funds for personal costs	600	942	1 218	1 200
Number of students of full-time PhD study	2 067	2 295	2 656	3 230
Number of graduates of full-time PhD study	180	189	234	343
Funds from the State budget for personal costs of PhD students (thousand SKK) ⁹	232 268	268 120	358 455	525 164

2.3.7 Funding of public higher education institutions from the State budget

One of the two most important problems of the Slovak higher education identified in the strategy of 2000 was its long-year insufficient funding. The government has therefore com-

⁹) The figures presented here represent final volumes, the figures in Table 11 are volumes in the initial budget.

mitted itself from 2001 to annually increase the funds for higher education.¹⁰⁾ Development of higher education funding in current prices and in the-year-2000-prices is shown in Table 11. The data document the way in which the government fulfilled its commitment.

Table 11 also contains data on total number of students from 2000 to 2006. As it follows from the bottom line in the table, the contribution from the State budget per student from 2002 to 2006 in the prices of 2000 has been maintained at the same level. In other words, the growth in student numbers and inflation were sufficiently compensated by increase of funds for public higher education institutions from the State budget.

2.3.8 Salary-related development in higher education in relation to average salary in the national economy

A weakness of the Slovak higher education consisted and still partially consists in salary assessment of employees of higher education institutions and, particularly, the academic staff. Development in this area, also in relation to average salary in the national economy, is given in Table 8.

As obvious from Table 8, average annual growth in salaries in higher education sector was roughly by 50 % higher than average growth of salaries in national economy. It is first of all a consequence of regular inter-year increase of budget of higher education institutions from the State budget.

2.3.9 Development of the structure of allocation of subsidies to public higher education institutions from the State budget in relation to quantitative and qualitative parameters

The ways (criteria) used in allocation of subsidy from the State budget to public higher education institution may be divided as follows:

- allocation according to historical principle,
- allocation according to performance in educational in which student numbers play a decisive role,
- allocation according to performance in research (including the rate of successfulness of PhD study),
- allocation according to specificities,
- allocation according to project quality,
- allocation according to other criteria.

¹⁰⁾ The original commitment of the government was related to 2001 – 2003, but inter-year increase has continued up to now.

Table 8: Development of average salary in higher education sector and its comparison with development of average salary in national economy

Year	2001	2002	2003	2004	2005	Average annual growth
Average salary in national economy (SKK)	12 365	13 511	14 365	15 825	17 290	1 231
Percentage of growth in average salary in national economy compared to 2001	0.0%	9.3%	16.2%	28.0%	39.8%	10.0%
Average salary of employees in higher education institutions (SKK)	11 617	13 411	16 658	17 574	19 027	1 853
Percentage of growth in average salary of employees of higher education institutions as compared to 2001	0.0%	15.4%	43.4%	51.3%	63.8%	15.9%
Ratio of average salary of employees of higher education institutions to average salary in national economy	0,94	0,99	1,16	1,11	1,10	
Average salary of academic staff (SKK)	15 441	17 613	23 056	23 468	24 962	2 380
Percentage of growth of average salary of academic staff as compared to 2001	0.0%	14.1%	49.3%	52.0%	61.7%	15.4%
Ratio of average salary of academic staff to average salary in national economy	1,25	1,30	1,61	1,48	1,44	

The size of portions and percentage rates in the approved budget for allocation according to individual criteria in different years are shown in Table 9.

As obvious from Table 9, the development of the guide on allocation of subsidy from 2002 to 2006 led to gradual strengthening of the weight of criteria aimed at performance in research and at allocation according to project quality, which means that according to these criteria still greater volumes of subsidies were gradually allocated.

2.3.10 Research and development funding in public higher education institutions

The major sources of funding of research and development in public higher education institutions in recent period were

- subsidy for research, development and artistic activities provided by the Ministry of Education from the State budget within the special funds for higher education (program 077 – Higher education and science, students' social support),
- funds granted to public higher education institutions for research projects by the Agency for Support of Research and Development and within the framework of State programmes,
- sources for funding of research projects received from abroad.

A review of volume of funds for research and development in higher education institutions in individual years is given in Table 10.

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Table 9: Structure of allocation of subsidy within the approved budget according to groups of criteria

Item / Year	2002		2003		2004		2005		2006	
Subsidy for running of accredited study programmes	5 825 103	78,3%	6 660 503	80,1%	7 460 958	79,0%	8 023 612	77,5%	8 745 000	76,0%
Allocated according to historical principle	423 142	5,7%	407 555	4,9%	200 191	2,1%	194 987	1,9%	175 488	1,5%
Allocated according to performance in education	4 081 331	54,9%	4 908 730	59,0%	5 411 894	57,3%	5 074 840	49,0%	5 205 415	45,2%
Allocated according to performance in research	0	0,0%	0	0,0%	0	0,0%	731 191	7,1%	1 054 579	9,2%
Personal costs for PhD students	161 141	2,2%	250 000	3,0%	305 717	3,2%	523 531	5,1%	663 193	5,8%
Specificities	62 552	0,8%	199 451	2,4%	160 131	1,7%	155 760	1,5%	257 374	2,2%
Clinical workplaces	0	0,0%	0	0,0%	550 000	5,8%	550 000	5,3%	500 000	4,3%
Capital subsidy	1 047 000	14,1%	750 000	9,0%	701 000	7,4%	750 000	7,2%	750 000	6,5%
Allocated in other way	49 937	0,7%	144 767	1,7%	132 026	1,4%	43 303	0,4%	138 950	1,2%
Subsidy for research, development and artistic activity	584 395	7,9%	638 652	7,7%	948 874	10,1%	1 066 388	10,3%	1 119 000	9,7%
Allocated according to historical principle	220 202	3,0%	159 328	1,9%	95 889	1,0%	0	0,0%	0	0,0%
Allocated according to performance in research	120 050	1,6%	238 038	2,9%	465 869	4,9%	570 392	5,5%	622 000	5,4%
Allocated according to quality of research projects	219 000	2,9%	225 000	2,7%	355 000	3,8%	450 000	4,3%	480 000	4,2%
Allocated in other way	25 143	0,3%	16 285	0,2%	32 116	0,3%	45 996	0,4%	17 000	0,1%
Subsidy for development (according to quality of projects)	378 875	5,1%	370 000	4,4%	330 000	3,5%	450 000	4,3%	500 000	4,3%
Subsidy for students' social support	648 708	8,7%	650 000	7,8%	700 000	7,4%	810 000	7,8%	1 150 000	10,0%
Total subsidy	7 437 081	100,0%	8 319 155	100,0%	9 439 832	100,0%	10 350 000	100,0%	11 514 000	100,0%
Allocated according to historical principle in total	643 344	8,7%	566 883	6,8%	296 080	3,1%	194 987	1,9%	175 488	1,5%
Allocated according to performance in education in total	4 081 331	54,9%	4 908 730	59,0%	5 411 894	57,3%	5 074 840	49,0%	5 205 415	45,2%
Allocated according to performance in research and according to quality of projects	717 925	9,7%	833 038	10,0%	1 150 869	12,2%	2 201 582	21,3%	2 656 579	23,1%

Table 10: Structure of funds for research and development in public higher education institutions (thousand SKK)

Item / Year	2002	2003	2004	2005
Subsidy for research, development and artistic activity within the framework of special-purpose resources allotted to higher education	584 395	638 652	948 874	1 066 388
out of which:				
- operation and development of infrastructure	365 395	413 652	593 874	616 388
- grant agency VEGA	130 000	130 000	240 000	280 000
- applied research	50 000	54 000	59 000	80 000
- international scientific-technical cooperation	20 000	20 000	25 000	30 000
- grant agency KEGA	19 000	21 000	31 000	60 000
Agency for Support of Research and Development	14 142	30 379	34 619	138 122
State programmes of research and development	0	84 167	161 164	151 879
Funds for research grants from abroad ¹¹⁾	117 899	107 490	97 124	99 674
Funds for research and development activity of higher education institutions in total	716 436	860 688	1 241 781	1 456 063
Growth compared to 2002 in %		20%	73%	103%

From the point of view of total amount of funds for higher education science and technology in the course of 2002 to 2005, its support more than doubled. Regular increase of funds granted to higher education research and development from the funds earmarked as special purpose funds to higher education institutions contributed to this fact most of all.

The amount of funds which the public higher education institutions received for research projects through Agency for Support of Research and Development has substantially grew up, too. In 2005 the public higher education institutions became the most successful sector from the view of receiving these funds.

On the other hand, the capacity of higher education institutions to receive research grants from abroad has not practically changed during the period considered. ¹²⁾

2.4 Strengths and Weaknesses of the Funding System for Higher Education

In previous parts, we presented the description of the current system of funding of the Slovak higher education including the guide on allocation of funds to public higher education institu-

¹¹⁾ The methods of defining which funds received from abroad may be considered as research grants were made stricter for 2004 and 2005. Hence the volumes of funds for research grants in 2002 and 2003 are bigger than in 2004 and 2005.

tions, the government priorities in higher education formulated in the Program Declaration, and the instruments which the funding system used for the support of these priorities. We have also indicated the development trends of selected data on higher education for recent years and their link to the funding system.

Table 11: Funding (public) higher education sector in 2000 – 2006

Year	2000	2001	2002	2003	2004	2005	2006
Expenses for public HEI from State budget (approved budget in mio SKK)	5 109	6 196	7 456	8 361	9 440	10 350	11 514
Inter-year increase		1 087	1 260	905	1 079	910	1 164
Inter-year increase in %		21.3%	20.3%	12.1%	12.9%	9.6%	11.2%
Increase compared to 2000 in current prices		1 087	2 347	3 252	4 331	5 241	6 405
Increase compared to 2000 in current prices in %		21.3%	45.9%	63.7%	84.8%	102.6%	125.4%
GDP (in million SKK)	908 800	989 300	1 073 600	1 175 600	1 325 500	1 429 800	1 531 400
Share of total expenses for higher education in GDP	0.56%	0.63%	0.69%	0.71%	0.71%	0.72%	0.75%
Inter-year inflation		1,071	1,033	1,086	1,075	1,028	1,025
Inflation as at 2000		1,071	1,106	1,201	1,292	1,328	1,361
Inter-year inflation in %		7.1%	3.3%	8.6%	7.5%	2.8%	2.5%
Inflation as at 2000 in %		7.1%	10.6%	20.1%	29.2%	32.8%	36.1%
Budget in 2000 prices	5 109	5 785	6 739	6 959	7 309	7 795	8 460
Increase as compared to 2000 in 2000 prices		676	1 630	1 850	2 200	2 686	3 351
Increase as compared to 2000 in prices 2000 in %		13.2%	31.9%	36.2%	43.1%	52.6%	65.6%
Number of full-time students	88 192	90 446	92 140	97 932	97 759	106 194	113 197
Increase in number of full-time students in % compared to 2000		2.6%	4.5%	11.0%	10.8%	20.4%	28.4%
Number of part-time students	29 240	33 060	38 948	38 990	44 494	50 367	56 309
Recalculated number of students (part-timers with coefficient 0,3)	96 964	100 364	103 824	109 629	111 107	121 304	130 090
Increase in number of recalculated students in % compared to 2000		3.5%	7.1%	13.1%	14.6%	25.1%	34.2%
Sum for the recalculated student in stable prices of 2000 (in thousand SKK)	52.7	57.6	64.9	63.5	65.8	64.3	65.0

In this part we shall try to assess the existing funding system in the form of listing of its strengths and weaknesses. In doing so we shall come from experience of the Ministry as well

as from characteristics of the strengths and weaknesses of the system provided by representatives of public higher education institutions and their faculties.

Similar to the third part, we consider as vital to underline that the final assessment of the system to be used for defining its further trend shall need a more detailed review and longer time.

From the point of view of the future development of the funding system it is appropriate at assessing the funding system to distinguish its principles and rules, on the one hand, and their concrete implementation, on the other.

At the overall assessment of the funding system it may be stated that

- within the framework of the profound reform of the Slovak higher education which was carried out by implementation of the new Higher Education Act the new funding system represented, besides implementation of the principles of Bologna Declaration, the most significant change which had substantially influenced the operation of the Slovak higher education,
- the transformation of higher education institutions from the State budgetary organizations to statutory institutions regulating its economic management according to new rules including the use of accrual accounting enables to make their real economic state more transparent and to assess it in a standard way,
- by the transformation of higher education institutions jointly with evident annual increase of subsidy from the State budget to higher education sector, the long-lasting problem of its insufficient funding has started to be solved,
- the new funding system led to a change in behavior of higher education institutions; the higher education institutions became more active as they got into the environment with the elements of competition in which they must compete for substantial part of funds from the State budget,
- the new funding system contributed to the fact that in some areas the development in the Slovak higher education took up desirable trend; however, at the same time, this system evoked some negative tendencies.

Strengths of the current funding system are as follows

- economic management enabling transparency and assessment of real economic state of higher education institutions in a standard way,
- existence of clear and univocally defined rules of allocation of subsidies from the State budget to higher education institutions,
- transparency of the system of allocation of subsidy from the State budget to higher education institutions,
- concrete measures motivating higher education institutions to increase their activities in educational and research areas,
- regular increase of subsidies from the State budget to higher education,

- specific support for development in selected areas and mechanism of central development projects,
- support of access to higher education by the system of social scholarships,
- existence of motivation scholarships.

Weaknesses of the current funding system **from the point of view of its principles and rules** consist in

- despite regular increase of subsidies from the State budget to higher education in recent years their overall amount has been still insufficient,
- the system does not contain efficient possibility to prevent tendencies of decreasing the quality in the areas which make up inputs to the system (motivation to decrease demands on students in entrance procedure, throughout the study as well as in its conclusion, motivation to decrease demands at habilitation and nomination procedure),
- initial introduction of CPD and CED in 2001 was justified; the higher education system has undergone since then the development on the basis of which it is necessary to re-assess the above coefficients; there is no method available yet on how to do it; likewise, there are no grounds on setting the size of coefficients through which to distinguish the weight of student in individual levels of higher education; having solved the financing of artistic higher education institutions, the problem of artistic faculties or study fields in the field of art in non-artistic higher education institutions remained still open,
- the system of indicators used at assessment of research makes more advantageous the economically demanding areas in which higher amounts of funds are allocated within the framework of grants for research projects,
- non-addressed provision of contributions for housing from the point of view of individual students (the need of support for concrete students is not taken into account, those who will not get the housing in dormitories and must care for it by themselves, will not get any support), as well as from the point of view of higher education institutions (higher education institution will get a contribution for housing of its students to the extent of housing capacities),

Weaknesses of the current funding system **from the point of view of its implementation** consist in

- the way of managing the transition to new way of economic management including implementation of accrual accounting,
- missing update of long-term strategy of the Ministry in the field of higher education (the 2000 strategy still serves as a long-term strategy),
- delay in the process of complex accreditation which is inevitable for making provision for research character of university at financing,
- shortcomings in administrative and technical provision of operation of the system of allocation of subsidy from the State budget to higher education institutions; these activities are directly provided by the Ministry, input data for the system are not interlinked to the standard statistical findings as a result of which the higher education institutions must provide them several times,

- lack of control in input data provided by higher education institutions,
- delayed allocation of funds for research and development project - as late as in the course of the year,
- technical arrangement of adjustment of budget connected with the change in student numbers in the new academic year,
- insufficiently worked out system of allocating funds for development projects and missing system of systematic control of their results,
- lack of implementation of the rules for some specificities (e.g., practical training in some areas, making provision for considering justified differences in operational demands of higher education institutions),
- mutual balance of individual criteria in assessment of performance in research; at present, the need to re-assess too high effect of results in PhD study,
- lack of implementation of existing rules on allocating capital subsidies for constructions to public higher education institutions.

In connection with preparation of this material we have addressed the Rectors of public higher education institutions and Deans of faculties as well as some other members of higher education institutions with a request to express their opinions on the current system of funding. More than 30 replies came. As for the strengths, the replies contained only attributes presented above. As regards the weaknesses, a majority of the replies are contained among weaknesses shown above but other comments and proposals were also submitted.

Out of the above comments and proposals we shall mention those which have been repeated several times. They are:

- there are no clearly set up priorities on the part of the State, a serious review and forecast of the graduates' needs for conditions of the SR are missing,
- higher education institutions have no certainty in the amount of funds in long-term horizon,
- higher education institution cannot draw loans,
- the system at assessment of performance in research does not consider citations,
- the system does not take into account practical project outputs,
- coefficient of qualification structure should incorporate the posts of professors and do-cents only,
- the system lacks the provision of a base subsidy for survival of higher education institu-tions regardless of the student numbers,
- the State does not provide funds for covering write-offs,
- the system lacks firm normative per student, it is based on proportionate distribution of existing funds,
- the guide is too complex and technically demanding, the amount of input data is big,
- the funding system forces the higher education institutions to chase, cost it what it may, after the growth in student numbers,
- the accounting based on philosophy of positive and negative economic result operates as a strange element in the life of higher education institutions,

- own resources of the higher education institutions should be used only for development, the basic operation should be covered by the State.

To the comments above we present:

- The first three comments are justified but their acceptance exceeds the area of the creation of the higher education system of funding.
- The further 7 comments are comments and proposals on the very system.
 - The consideration of citations has its place in complex assessment of the level of research of the higher education institution or faculty rather than as a separate criterion for allocation of funds.
 - As regards practical project outputs used as a criterion, there is a problem in their quantification so far.
 - If the coefficient of qualification structure included the posts of professors and docents only, it would be an undesirable direct impulse for their extension. Conversely, the acquisition of scientific-pedagogical degrees is desirable since it is an expression of personal growth of the teacher which must be supported.
 - The requirement of the “basis for survival regardless of the number of students” has a rational core and it is used to a limited degree in several places in the system.
 - The comment on granting funds by the government for coverage of write-offs has been often repeated. True, (by an oversight) the guide does not mention explicitly these funds. The expenditures for write-offs are, however, form a standard part of costs for operation which the guide takes into account.
 - The transfer to fixed normatives is technically simple but it would require either limitation in number of entrants or another approach at development of budget for higher education institutions on the part of the State.
 - The comment on complexity and technical demands of the guide must be considered. On the other hand, its excessive simplification should result in the fact that it would not take into account the facts important from the point of view of the system functioning, as the higher education system is not simple.
- The last three comments are concerned with the question of the system impact.
 - The objection that the “funding system forces higher education institutions to chase after the increase of student numbers, cost it what it may” may be responded in various ways. Anyway, one of the objectives of the system was to support extension of higher education capacity and therefore the link of financing to student number is well-founded. But the higher education institutions have the possibility to get funds also for other activities belonging to the area of their main tasks, hence the quoted comment losses its justification.
 - The efforts of the Ministry related to assessment of result in economic management of higher education institutions is often negatively assessed and the efforts are interpreted as an compelling of higher education institutions to achieve profit in their activity. This is another misunderstanding. The transition to accrual accounting is an inevitable precondition for monitoring the actual economic state of higher education institutions and

thus the entire higher education sector. It should be noted that in the near future the entire public sector will have to transfer to the system.

- One of the frequently repeated ideas is the last comment that the State should cover the basic operation, and the own resources of the higher education institution should be used for their development only. As a principle, this idea is acceptable, its practical realisation, however, is conditioned first of all by further growth of funds to higher education, and from technical point of view it also contains the term “basic operation”, the definition of which also might represent an uneasy problem.

2.4.1 Conclusion to the Part on Assessment of the System

In addition to still insufficient amount of funds for higher education from State budget, the most remarkable problem of the funding system appears to be the problem of quality. In the most evident form it is the effort of higher education institutions to recruit and maintain the highest possible number of students up to their successful completion, even at the account of decreasing the requirements. As shown above, the system should contain efficient tool how to prevent tendencies for decreasing quality. Theoretically, this system does contain an obstacle to these tendencies: the Accreditation Commission has a capacity in such events to intervene and initiate a new accreditation of the given activity. Practical effect of this possibility, however, is null today.

To the problem of decreasing quality it is necessary to point out though that the system does not command to higher education institutions any decrease of quality, admission of excessive number of students and their retention, cost it what it may, just to receive more funds; it is their own decision by which they breach intentionally their duties.

As noted above, the problem of balanced system of indicators for research performance is not sufficiently resolved at the moment. But the major problem of some higher education institutions in the field of research does not rest in improving the system but in the fact that their performance in research is unusually low. The same refers to PhD study.

The funding system is directly connected to problem of tuition fee. Its introduction was one of the government priorities in recent period which could be just partially introduced in the form of tuition fees at exceeding standard length of study. The practical application of this measure shall be launched as late as the next academic year, hence it is not included in the review.

As regards the further development, we are convinced that the selected principles of the funding system are correct and need not to be changed. It is necessary to carry out a detailed review of results of the current application of the system and on its basis to supplement the system and improve its implementation.