

Workpackage 4

**Analysis of the national framework for
women and men in Science**

Poland

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1. Analysis of the situation of women in science

1.1 Women in Science in Poland – An overview for the years 1995-2005

Academic opportunities in Poland are provided by both private and state-owned universities. The number of young people starting university education grows permanently. The total of Polish academic students in 2005/2006 was 1.953.832. Women constitute 56,5% (1.103.890) of the total number of students. Amongst the academic staff women constitute 40% out of total of 87.789 academic teachers. (GUS 2006).

In 2004 an Enwise¹ report (Waste of talents, European Commission 2004 website) on the situation of female scientists in countries of Central and Eastern Europe and the Baltic States was prepared by the European Commission. It shows how the situation of women scientists in Poland has been influenced by the communist past and describes dynamic changes of the transition period in post-communist countries. It describes also the pre-communist times when women in Poland had access to education and their political rights were more advanced than those of women in Western Europe. During the communist regime women's rights were used instrumentally and the official propaganda emphasized the equality of sexes to improve their image. However no special consideration was given to improve the situation of female scientists. Women had no real choice regarding taking up a job or staying home. The second salary was crucial for the family because of the poor economic conditions in communist Poland. There used to be many women students and academic teachers but relatively few women reached any higher positions in science. The transition to the market economy brought about dramatic changes in research and big changes in women's situation on the labor market. The position of women at universities and other research institutions has remained relatively strong in quantitative terms, but weak in qualitative terms.

During the communist era one of the means of repressing people who belonged to the so called class of "intelligentsia" (i.e. people with higher education) was a legal obstacle for their children in admission to universities. The whole society was divided into "peasants", "workers" and "intelligentsia". Children of the two former classes had extra points for the sheer sake of their "social" background. Children of "intelligentsia" had to pass their tests far better to make up for the "wrong" background. Back in the 50ties however if the peasant parents were not "loyal" to the communist regime children could not study at all.

Another bizarre phenomenon was facilitating higher education for communist dignitaries. There were schools created just for them dishing out diplomas with no respect for educational standards and in extra short time. Both of these factors have without doubts influenced the numbers and quality of graduates which has far reaching consequences until now. This very complex situation has not been adequately researched up till now and it would be superficial to quote any data on that and even more so to draw conclusions concerning women.

The report called "Review of the situation in Poland" (Pininska 2001) states that women in 2000 accounted for 38% of the scientific workforce in Central and Eastern European Countries and the Baltic States. Statistical data indicate that formal equality of women in the field of science is not fully reflected in their academic careers. Women are absent from bodies and institutions shaping the science policy and from higher position in science administration.

It is a general opinion shared by many Poles that women and men have the same possibilities of being successful in scientific careers. Women scientists share this view and think that any affirmative action that would help their promotion could belittle them as serious and reliable scientists. Therefore they do not like to mention the difficulties they have to

¹ Enwise stands for "Enlarge women in science to the East" and concerns Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia.

overcome because of their gender although their success was often achieved at the cost of enormous sacrifice.

After the transition many women lost their jobs and it became more and more difficult for them to obtain jobs even if they were highly educated. According to the OECD data (database of 1998) the rate of unemployment in Poland (employees with the title of Master of Science (MSc). and higher) is 2.2% and 2.8% for men and women, while the overall rate of unemployment is 7.5 and 10.8 for men and women respectively. Rates of employment of university graduates (MSc. and higher), according to the same source, are in fact still high, but remain on the level of 90.1% and 84.7% for men and women respectively.

Despite the same educational level there is no full equality of employment opportunities and women still encounter more problems reconciling their careers and homemaking.

Women still are the ones taking “double shifts” pursuing their careers and also playing the roles of housewives. The current right wing government of Poland stresses the role of women as mothers and wives. Their individual development - including the role of female scientists is of lesser importance

Women’s scientific careers in Poland tend to hit the glass ceiling once they reach their PhD. Women are about 40 % of PhD holders in science (Doctor of Science) and they make 20 % of professors. On this last level of a scientific career a horizontal differentiation of the proportion of women appears and in some areas (like agricultural, medical sciences) this proportion positively goes up to 30%. (Pininska 2001, website)

This is an important question whether women who achieve PhD level choose to disrupt their careers or they are prompted to do so by family and financial situation. It has not been researched either why in certain areas women fare much better than in others.

The Enwise report shows that in Poland women are squeezed out of competitive R&D systems, but absorbed into struggling low-expenditure systems as a kind of ‘back-up’ human resource. Gender equality has still to be built into the research world in the Enwise countries.

The report also shows that in Enwise countries women are still under-represented in the top positions in academies of sciences and in universities. Women constitute a major part of teaching staff, but tend to be concentrated in the lower academic positions. Men are three times more likely to reach senior academic positions than women.

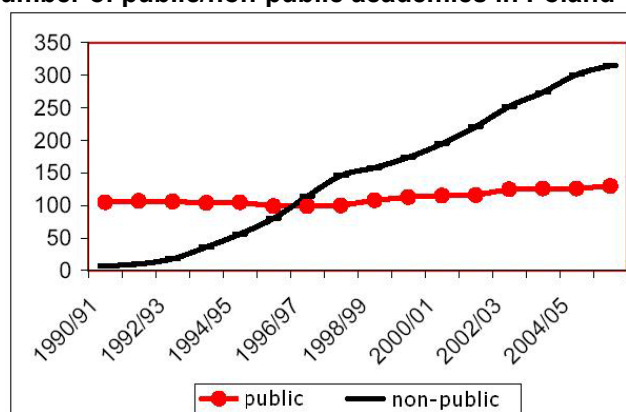
1.2 Women and men at universities – the Gender pyramid²

1.2.1 University entrance qualification

According to the Main Statistical Office in the academic year 2005/2006 among 445 academic educational institutions in Poland (including schools of the ministry of defence, internal affairs and administration) 130 were public. They were educating 1,3 million people (68,2% of all students), including 312,5 thousand people in the first year. The general number of colleges tripled (Fig. 1) since the beginning of the '90 when private colleges started to function (now in Poland private colleges outnumber public ones like 2 to 1).

² The detailed data for all charts presented in chapter 1.2. is gathered in Appendix 1.

Fig. 1. Number of public/non-public academies in Poland 1990-2005.



Source: GUS.

Polish school system changed in 2002. Before there were 8 years of primary education and 4 or 5 (for technical schools) of secondary. Now it is divided into three tiers: 6 years of primary school, 3 years of gymnasium, 3 years of high school (4 years for technical schools). Education is obligatory till one reaches the age of 16. After completing the secondary education a graduation exam has to be taken to enter the university (college, academy, etc.), known as "matura"

In the result of the education system reform - in 2005 - new and universal secondary school graduation exams were established (now all the students have to take the same standardized tests throughout Poland). Since then most colleges and universities stopped relying on entrance exams as criteria and depend on the results of the final exams from schools. Colleges look at the grades which a particular candidate achieved in the area related to the one he/she chooses to study.

After this reform a new problem appeared when students wanted to change their minds about future studies. If one chooses to study e.g. biology one needs to present "matura" grades in that area. If one chooses another subject for "matura" and decides to study biology later it may turn out to be impossible as colleges have no insight into the competence of the candidate in that area. Obligatory subjects for "matura" are Polish and a foreign language (both in written and oral forms) and one additional subject. It may be biology, chemistry, physics and astronomy, geography, history, history of music, history of art, mathematics, civics, theory and history of dance or a minority language). A student may choose up to three subjects from the list of additional subjects. That means a student has to take at least five exams and a maximum of seven.

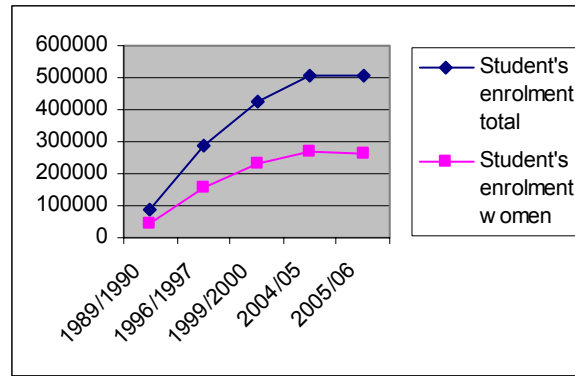
Additional problems arose from the decision of the Minister of Education – Roman Giertych (League of Polish Families) He granted so called “secondary school graduation amnesty”³ that allowed students to continue the education at the higher level even though they failed one exam out of five obligatory ones. It definitely compromised the quality of education. The reason for it was that 100 thousand students in 2006 failed the secondary school graduation exams (Giertych blames the system reform). Most of universities announced that in this case they would rather re-introduce the entrance exams to avoid the unreliable results of exams.

1.2.2 Women in science – general data

The number of young people entering institutions of higher education is growing – this tendency can be observed for the last several years.

³ Ordinance amendment signed by Ministry of Education – Roman Giertych in 12.IX.2006. – concerns secondary school certificates from 2005, 2006 and 2007.

Fig 2. Number of enrolled students in Poland 1989-2005.



Source: Own study according to GUS.

Since the end of the '80 (data from student's enrollment 1989) / beginning of '90 - the number of enrolled students in public colleges and universities was oscillating around 100 thousands people (see Fig.1). However as soon as private schools were created – the increase in numbers was really high (see enrolled students – Fig.2 and Table 1).

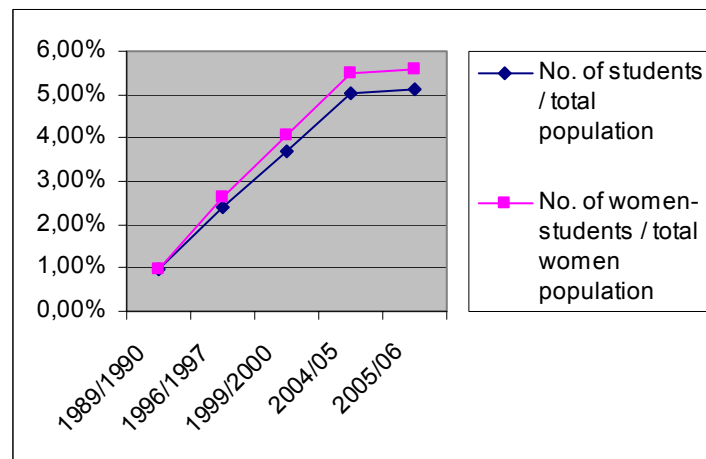
Table 1. Number of students in Poland (all kind of academic institutions) 1989-2005.

	1989/1990	1996/1997	1999/2000	2004/05	2005/06
Total no. of students	374269	922167	1425846	1917293	1953832
Total no. students - women [%]	51,63%	56,62%	56,89%	56,48%	56,50%

Source: Own study according to GUS.

Nevertheless it has to be taken into consideration that the population of women in Poland is higher than men. By comparing the number of all students to total population and number of women-students to total female population of Poland - we can conclude that there is slight difference in numbers in favour of women (5,6% of women's population is studying compared to 5,12% of both sexes students in the whole population).

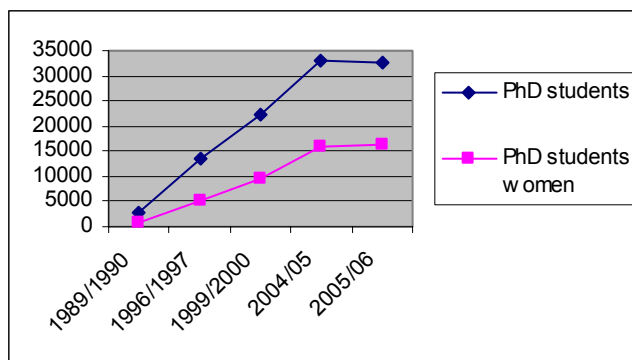
Fig 3. Percentage of students in whole population and women-students in women's population, 1989-2005.



Source: Own study according to GUS.

The number of PhD students at the same time has grown as well. From only 2696 PhD students (27% women) in 1989/1990 to 32725 students in general (49% women) in 2005/2006. It means 12 times increase for PhD students in general and 22 times for female PhD students.

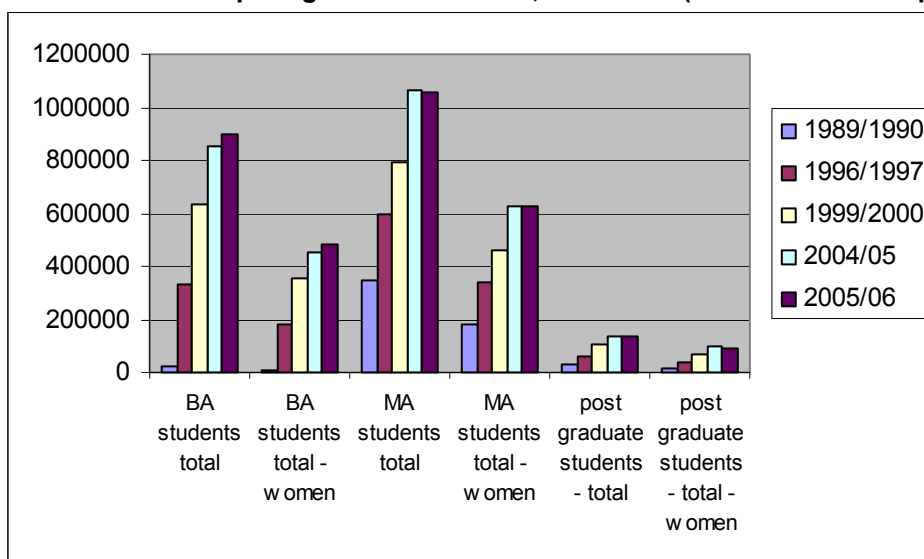
Fig 4. PhD students in total and PhD students – women, 1989-2005.



Source: Own study according to GUS.

By the general analysis of the data we can infer that still it is more common to study for 5 years to receive the Master's degree than for 3 or 4 years to receive Bachelor's degree. Basically for a few years right now there has been a tendency in education to divide MA studies into 2 parts: BA and complementary MA (it is connected with the ECTS system⁴ giving students the opportunity to study abroad within Socrates/Erasmus exchange programs). They used to be separated – and BA mainly concerned technical studies – giving the title of “engineer” at graduation That explains why in 1980/1990 women constituted 41,67% of all BA students, however it changed into 53,37% in 2005/2006. As we observe in Fig. 5 female students were a majority among all kind of students (especially in post-graduate studies where in 2004/2005 they constituted more than 70% of all students).

Fig 5. Bachelor/Master and post-graduate students, 1989-2005 (exact data – see appendix 1).



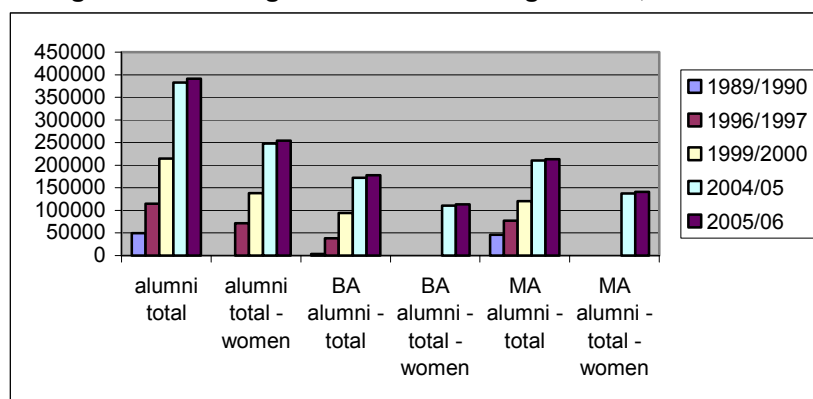
Source: Own study according to GUS.

Finally we can analyze the data of the graduates. During the academic year 2005/2006 women constituted 65% of all graduates (66% for MA and 64% for BA). And this tendency was growing from 1996/1997 – when at that time women constituted 62% of all graduates. From Fig. 6. one can conclude that women in Poland are better educated than men (more of them accomplish the goal of higher education than men) – and for the last few years it is

⁴ ECTS - European Credit Transfer System - ECTS was introduced in 1989, within the framework of Erasmus, now part of the Socrates programme. ECTS is the only credit system which has been successfully tested and used across Europe. ECTS was set up initially for credit transfer. The system facilitated the recognition of periods of study abroad and thus enhanced the quality and volume of student mobility in Europe. Recently ECTS is developing into an accumulation system to be implemented at institutional, regional, national and European level. This is one of the key objectives of the Bologna Declaration of June 1999 (ECTS).

women who have mainly benefit from education. However on the labor market the expectations from women are higher than from men. It is not rare that women are over-skilled for the position they take.

Fig 6. Number of graduates – including women, 1989-2005.



No data available for: women – alumni total in 1989/1990, BA alumni – women in 1989/1990, 1996/97, 1999/2000 and for the same years for MA women graduates.

Source: Own study according to GUS.

1.2.3 Teachers, research staff and administration at universities

On the web pages of Polish Science (Nauka Polska), where data is collected and updated from all universities and science institutions in Poland about 90 000 people are registered, who have at least PhD titles or are managers of science projects (without academic degree). So we can assume that currently in Poland this number of people work for science in different sectors.⁵ The number of women working as university teachers has slightly increased since mid-nineties.

On the other hand as gender pyramid implies there are inequalities. Women are 54 % of all Grade D assistants and lectors (foreign language teachers) and only 16% of professors – Grade A (November 2005, GUS). The detailed observations (see Table 2) show that definitely more women than men work as non – academic teachers. They make 70% of that professional group. The reason for this is probably the low position of that job in the academic hierarchy. Salaries of teachers do not exceed an average Polish income⁶. Motivation for this job is often seen as negative selection. Still women in Poland earn much less than men in the same age groups⁷.

Table 2. Number of academic teachers and staff in Poland, GUS, 1989-2005.

	1989/1990	1996/1997	1996/1997 women[%]	1999/2000	1999/2000 women[%]	2004/05	2004/05 women[%]	2005/06	2005/06 women[%]
Academic teachers - total (incl. part-time)	61475	70658	37,74	78091	38,45	85762	40,49	87789	40,98
Grade A - Professors total	4304	3857	12,70	4983	12,92	6325	15,94	6616	15,66
Grade B - Habilitated total	6603	9370	19,14	11177	20,75	12888	24,08	13239	24,68
Grade C - PhD - tutors	22786	24230	34,20	27773	35,10	34676	39,36	36379	40,44
Grade D assistants+lectors	16477	33201	48,49	34158	50,58	31873	54,92	31555	53,76
Employees - not academic teachers	11305	64631	66,92	67972	69,00	70975	68,07	71165	68,37
Part-time academic teachers - total	-	4834		5086		3152		3218	

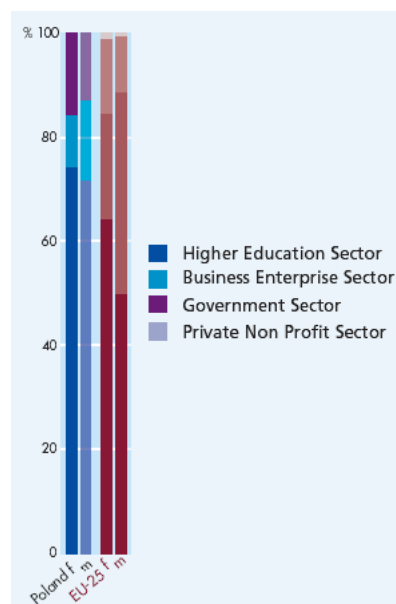
⁵ All the academic degrees higher than Master are registered in this database – this lies in interest of academies to notify updates to Polish Science web page.

⁶ According to the Ministry Decree (Ministry Decree 2004) – the monthly income of assistants, lectors and instructors are between 1650 – 2650 PLN gross, the average Polish monthly income according to GUS (GUS Wynagrodzenia) in 2005 was 2380 PLN gross (~626 Euro).

⁷ According to the Internet Research of Incomes in 2003 (Sedlak), the average income of women is 21% lower (age group 17-23) to even 67% less (age 36-40) than men in the same age group.

Source: Own study according to GUS.

Fig. 7. Distribution of researchers across sectors by sex, 2000 for PL and 2003 for EU.



It is very difficult to judge how many scientists work outside universities, in private sector or abroad. Due to the low salaries a lot of young doctors (PhD) especially from science and technical fields choose private sector because of the better conditions for their own professional development (better laboratories and work offers). According to the She Figures (She Figures 2006, 28) report in 2000 in Poland proportion of female researchers by sector was 41% in Higher Education Sector, 41% in Government Sector and 28% in Business Enterprise Sector (that gives in total 110%, however it might happen that some women at the same time work in two sectors). The distribution of researchers across various sectors is visible in the graph (Fig.7). Most of the researchers stay in the higher education sector, according to the official statistics there is zero-participation in non-profit sector (however there might be no data available). More men than women researchers move to private sector, at the same time more women work for government sector.

Source: She Figures 2006, 29.

By analyzing the numerical increase in achieving the scientific titles we can conclude that during the last several years there has been an unexpected rise in PhD titles – in 2005/06 number of titles is twice as high as in the beginning of '90 (see Table 3). Women started to play more and more important role at all levels – the increase is visible also among professors (jump from 12 to 27 %) – so we can conclude that democracy is more favorable for women, who want to choose scientific careers.

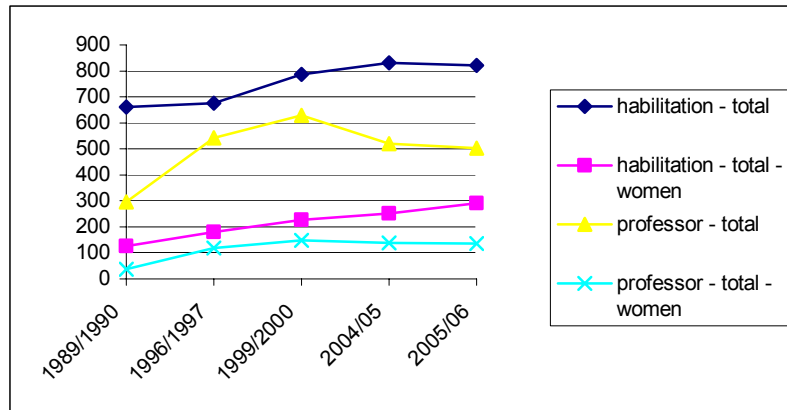
Table 3. Number of scientific titles granted in Poland, GUS, 1989-2005.

Title granted:	1989/1990	1996/1997	1999/2000	2004/05	2005/06
PhD - total	2140	2218	3724	5314	5496
PhD - women	28,32%	36,16%	40,84%	47,03%	49,38%
habilitation - total	662	676	787	830	821
habilitation - women	19,03%	26,78%	28,97%	30,36%	35,44%
professor - total	296	543	630	521	503
professor - women	12,16%	21,92%	23,49%	26,49%	27,04%

Source: Own study according to GUS.

The number of new professors and habilitations decreased in the last years (the reason might be better chances offered abroad or in business sector that result in brain drain of universities), however the number of habilitations by women has slightly increased (see Fig. 8).

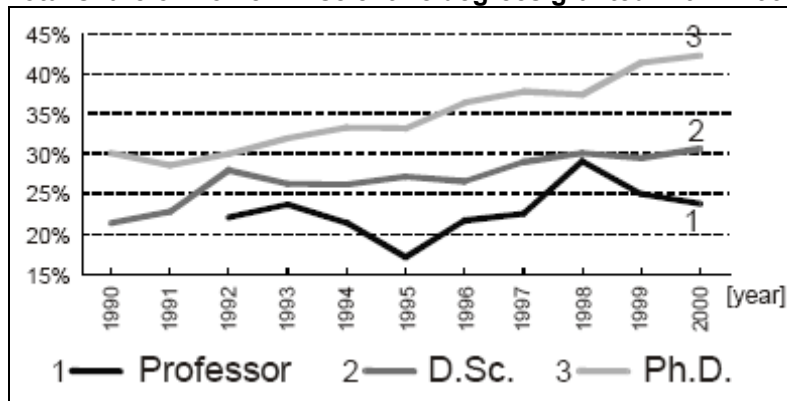
Fig. 8. Number of new professors and habilitations in Poland, 1989-2005 (see appendix 1).



Source: Own study according to GUS.

On the diagram below (Fig. 9) the rate of success „scissors” is shown in the vertical distribution of scientific degrees of PhD, DSc and professor.

Fig. 9. Total share of women in scientific degrees granted within 1992 – 2000



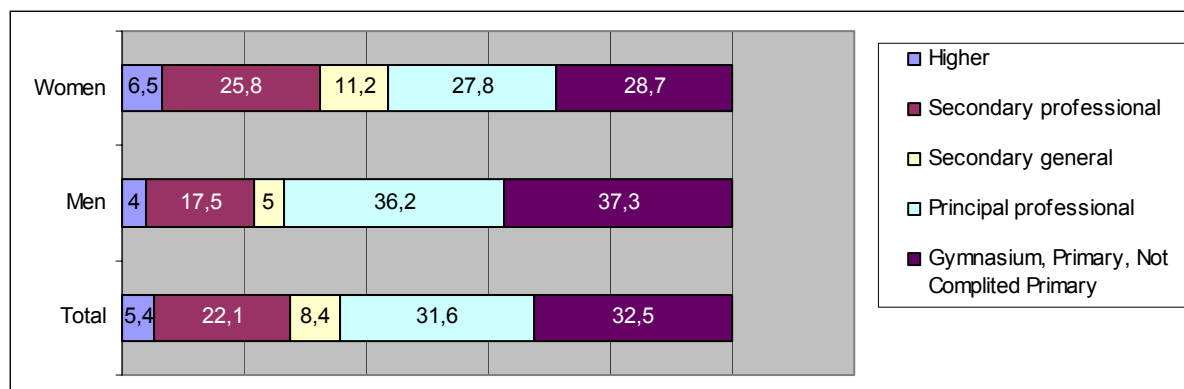
Source: Pininska 2001, 7.

It must be underlined that despite the fact that the share of women with PhD and DSc degrees in science is steadily growing, the development of careers of female professors has an oscillating character and the “rate of success” of women on the level of professor does not exceed 30%.

1.2.4 Unemployment of academics

Unemployment definitely affects women who make up 55,4% (Bezrobocie rejestrowane, GUS 2006) of all registered unemployed people - 2 485,6 thousand people in 2nd quarter 2006 – that is 2 points higher than in the same quarter of 2005. The most numerous group of unemployed are young people in age group of 25-34 .There are 693,5 thousand of them. Most of the registered unemployed have low level of education, only 5,4% of all unemployed had a university diploma. However the structure of unemployed women was different from the general population. 43,5% of unemployed women have secondary or tertiary education (comparing to 26,5% of unemployed men – see Fig. 10).

Fig. 10. Registered unemployment rate according to education in Poland, 2006



Source: Bezrobocie rejtrowane, GUS 2006.

The relatively high unemployment rate among highly educated can be caused by their education profile. The highest number of candidates and enrolled students choose social sciences, economy and law (see point 1.3), and it is exactly those graduates who very often have problems with finding accurate and satisfying jobs in field of their interest. At the same time labor market absorbs all IT and other engineers, students get lucrative job offers before they graduate and employers are clamoring for them.

1.3 Women and men in scientific fields

Although women dominate among students in general, the differences are quite clear. Female students more often choose specific fields of study that are often considered as less attractive for future employers and less advantageous financially. According to the area of study women dominate in social sciences (61,91%), teaching (pedagogic) (71,02%), twice as many women study humanities or art (70,62%), and three times as many do health and social care (75,89%). Men dominate as technicians and in industry, civil engineering, science - mathematics, biology, physics, and IT. It is a stereotypical pattern repeated from generation to generation. Percentages for other groups can be seen in Table 4. below.

Table 4. Students by group of study in academic year 2005/06, W-women, M-men, total number of students: 1953832, including women 1103890 (56,50%).

	total	% of all students	% of women among students of this discipline
teaching	204755	10,48%	71,02%
humanities + art general	177143	9,07%	70,62%
social sciences, economy and law	737407	37,74%	61,91%
Science (biology, physics, mathematics and IT)	149801	7,67%	34,26%
Health and social care	77643	3,97%	75,89%
technicians, industry, civil engineering	227546	11,65%	26,17%
agriculture	41112	2,10%	53,25%
services	113770	5,82%	49,49%
other specialities	224655	11,50%	57,34%

Source: Own study according to GUS 30.XI.2005.

In more detailed group divisions (not showed in the table) - the smallest number of women is enrolled in Information and Technology (IT) sciences (12,1% of IT students), transport services (13,6% of transport services students), engineering and technical sciences (17,9%), protection and security (21,0%). Women constitute a majority of the general number of medical fields students (76,3%) and biology (81,9%).

Among PhD students the situation is similar. Women are underrepresented in such fields of science like economics, forestry, law, mathematics, military, nature, physics, technical sciences or theology (for details look at Table 5).

Table 5. PhD Students according to their field of science, academic year 2005/06.

Field of science	PhD students total	PhD students total - women	%
Agriculture	1272	828	65,09%
Art.	23	16	69,57%
Biology	1225	816	66,61%
Chemistry	1211	755	62,35%
Earth	787	443	56,29%
Economics	5545	2385	43,01%
Forestry	208	61	29,33%
Humanities	8067	5162	63,99%
Law	2356	1138	48,30%
Mathematics	598	191	31,94%
Medical	2398	1426	59,47%
Military	138	11	7,97%
Nature	40	19	47,50%
Pharmacy	129	92	71,32%
Physics	1267	465	36,70%
Sport	362	220	60,77%
Technical	5077	1495	29,45%
Theology	1880	516	27,45%
Veterinary	142	92	64,79%

Source: Own study according to GUS 30.XI.2005.

What can also be observed women are underrepresented in those fields which attract most of the PhD students (except humanities) like: economy or technical studies.

Among the habilitated – women consist 36%. What may be surprising the biggest group of women can be found in the field of medical studies - 76,3% of students, but only 59,47% among PhD students and on the habilitation level only 34,13% women received the title. The same tendency can be observed in the field of humanities (see Table 6).

Table 6. Habilitations according to their field of science, academic year 2005/06.

Field of science	Habilitations total	Habilitations by women	%
Agriculture	86	33	38,37%
Art.	43	19	44,19%
Biology	44	29	65,91%
Chemistry	37	10	27,03%
Earth	19	8	42,11%
Economics	47	21	44,68%
Forestry	11	0	0,00%
Humanities	218	108	49,54%
Law	25	8	32,00%
Mathematics	13	1	7,69%
Medical	126	43	34,13%
Military	7	0	0,00%
Music	14	10	71,43%
Pharmacy	9	5	55,56%
Physics	44	7	15,91%
Sport	11	3	27,27%
Technical	177	36	20,34%
Theology	17	1	5,88%

Theatre	2	1	50,00%
Veterinary	5	1	20,00%

Source: Own study according to GUS 2005/2006.

The disparity is visible – the lowest number of women do habilitations in such fields as mathematics, physics, technical studies and theology.

Majority of the total number of 503 professor titles achieved in 2005/2006 belonged to men. Only 27% nominees were women. In some disciplines – like law, forestry or sport no women were represented. Except biology – where women-professors make up 48,65% - the participation of female professors does not exceed 40%.

Table 7. Professors' nominations according to their field of science, academic year 2005/06.

Field of science	Professor title total	Professor title - women	%
Agriculture	55	15	27,27%
Art	19	5	26,32%
Biology	37	18	48,65%
Chemistry	22	6	27,27%
Earth	15	5	33,33%
Economics	23	9	39,13%
Forestry	5	0	0,00%
Humanities	67	22	32,84%
Law	10	0	0,00%
Mathematics	15	1	6,67%
Medical	94	37	39,36%
Military	2	0	0,00%
Movie	1	0	0,00%
Music	8	3	37,50%
Pharmacy	8	3	37,50%
Physics	27	2	7,41%
Sport	2	0	0,00%
Technical	80	8	10,00%
Theology	2	0	0,00%
Theatre	3	1	33,33%
Veterinary	8	1	12,50%

Source: Own study according to GUS 2005/2006.

The best overview for these data is presented by Fig.9 in 1.2.

1.4 Income of women and men at universities

Salaries are following the hierarchy and science titles and are regulated by the ordinance of the Ministry of national Education and Sport (Ministry Decree) (see Table 8).

Table 8. Monthly basic wages of academic teachers at public universities.

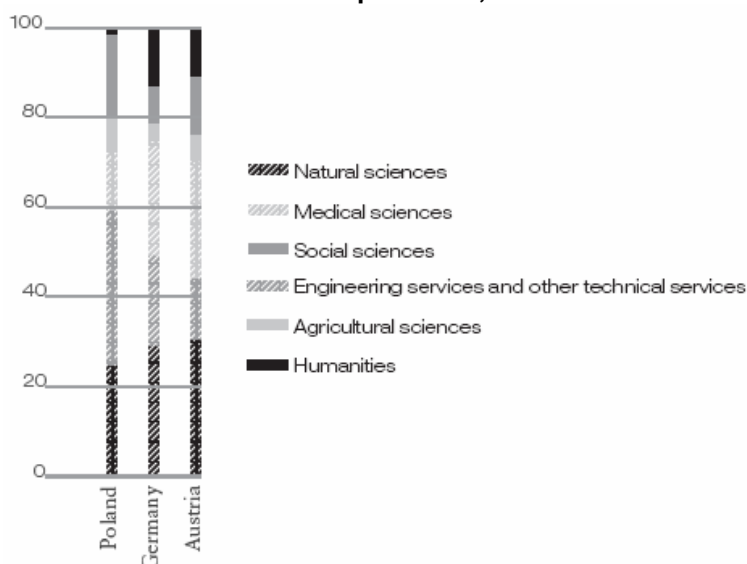
Group of posts	Post	Rate of essential remuneration in PLN - gross (3,8PLN=1Euro)
Professors	Ordinary professor	3750-6100
	University professor with academic title	3500-5600

	University professor with habilitation or PhD title	3200-5100
Readers, tutors and senior lecturers	Reader, tutor with habilitation title	3000-4500
	Tutor or senior lecturer with the PhD title	2650-4100
	Senior lecturer without PhD title	2100-3200
Assistants, lecturers, lectors and instructors	Assistant	1700-2600
	Lecturer, lector (language teacher), instructor	1650-2650

Source: Ministry Decree, 11.08.2004.

However – as we see in Table 7 – the differences between minimum and maximum wages are quite high, but we also have to take into consideration that the academics on the higher level very often work additionally in business sector or for government and have more grants or extra incomes opportunities than those on the lowest level (occupied mostly by women – see Table 2). Success rates in raising the research funding were measured by DG Research (She Figures 2006, 70) and for Poland it was 4,6% (Success rate men minus success rate for women, see Fig. 14 in point 3.3.2.). Poland is mentioned as one of the poorest countries of EU, what seriously affects the expenditures on research and development. In 2000 according to Eurostat S&T Statistics Researchers the proportion of female researchers was 39% and R&D expenditure in Purchasing Power Standards per capita for a researcher was only 25000⁸ (for Luxembourg it was 180000) That means that although there are many women working in science (comparing to other countries) they receive relatively little money. How the funding is shared among various disciplines is shown in OECD diagram (Fig.11).

Fig. 11. Higher education R&D expenditure by field of science, as a percentage of total higher education R&D expenditure, OECD 2003.



Source: OECD 2006,11.

Very little money go to humanities or social sciences, where women are concentrated, but a lot – also comparing to Germany and Austria – is spent on engineering services and

⁸ Purchasing power parties (PPPS) are defined as currency conversion rates that both convert national currencies to a common currency and equalize the purchasing power of different currencies. Purchasing power standard (PPS) is the artificial common currency into which national currencies are converted.

technical services (male sectors). In all the compared countries natural sciences are the target of high expenditure, what is understandable considering the laboratories costs (in this sector – chemistry and biology, where women dominate, are at the lower level)

1.5 Women and men in decision-making

The Polish **Ministry of Science and Higher Education** was restructured in the end of 2005 and beginning of 2006 due to the governmental change which took place in the second half of 2005. Its name was changed (previously it was called the Ministry of Science and Information Technology) and there were many changes in the staff, especially on the decision making level.

The Ministry has at its disposal a budget on scientific research and administration of public scientific institutions including the educational facilities. Until recently the funds for research were distributed by the **State Committee for Scientific Research** which was a governmental institution set up by an Act of the Polish Parliament on **12th January 1991**. The Act has established the Committee as the supreme authority on State policy in the area of science and technology.

In February 2005 the **State Committee for Scientific Research** - Komitet Badań Naukowych (KBN) was liquidated and replaced by **Council of Science** (Rada Nauki). (In the State Committee for Scientific Research there were 4 women out of the total of 60 elected representatives of the science community (6.6%).) The Council for Science was created simultaneously with passing of the **Act on Principles of Financing Science on 5th February 2005**. It replaced the earlier Committee for Scientific Research, which used to be elected on the basis of democratic procedure and was a decision making body in the area of financing science.

The Council for Science constitutes a formal representation of research community and plays an advisory role to the Minister of Science and Higher Education, who has a decision-making role in the field of scientific policy and funding of R&D. The Council for Science is independent from the Minister in issuing its opinions and plays both advisory and expertise role in the area of scientific policy within the Ministry of Science and Higher Education. Its tasks are split among departments of the Council (Art. 21 Section 1 of the *Act on Principles of Financing Science*).

Amongst the 70 members of the Council for Science there are 2 women, both of them in the Sub-Committee **on Research for the Development of Science**. There are no women in the two remaining **Sub-Committees on Scientific and Technology Policy and on Research for the Development of the Economy**, not to mention the positions of the Chairman or Deputy Chairmen.

In the **Polish Academy of Sciences** (Polska Akademia Nauk – PAN) –another decisive and consultative body in the area of scientific research– there are 5 women out of 182 national members (2.7%); in the board of management of Academy we find one woman out of 30 members (3.3%). The Polish Academy of Sciences is a state scientific institution founded in 1952. From the very beginning, it has functioned as a scientific society acting through an elected corporation of top scholars and research organizations, via its numerous scientific establishments. It has also become a major scientific advisory body through its committees.

The Foundation for Polish Science (Fundacja Nauki Polskiej – FNP) is an independent, self-financing non-profit organization established in 1991 as a result of the system transformation in Poland. The Foundation's mission is to provide assistance and support to the scientific community in Poland. As an initial investment, FNP received 95 million zlotys allocated by the State Treasury from the remainder of the Central Fund for the Development of Science and Technology, liquidated in 1990. These assets, re-invested in the financial market, are the source of revenue allocated for the statutory activities of the Foundation.

The strategy of FNP is to support individual scientists and research groups working in

various areas of the natural science and humanities, of greatest importance for the technological, cultural and economic development of Poland. There is one woman in the authorities of the Foundation out of its six members (in the Council and the Executive Board).

The women's participation in decision-making bodies **in university scientific units and research institutes** looks very poorly, as their share as heads/managers does not exceed a few per cent. A substantial increase of the number of women in the position of Dean, which in 2000 reached the level of 45% of all posts, is optimistic. However, the participation of women in managerial positions in the decision-making institutions in the field of science is exceptionally low.

Amongst the highest rank officials in the **Ministry of Science and Higher Education** (Ministerstwo Nauki i Szkolnictwa Wyższego – MniSW) there is not a single woman. The situation is better as far as heads of the Departments are concerned – there are 7 women out of 14 heads of Departments. Amongst 33 members of the IX term (years 2006-2009) Main Council of Higher Education there are only 5 women. (Kostarczyk 2004, website)

Although in Poland there is a slightly higher number of women amongst the graduates of the higher education institutions, and there is quite a big number (40%) of women amongst academic staff in the decision making positions, unfortunately in positions where educational and scientific policies are made the participation of women falls drastically to 5.52% (ibid. website)

1.6 Social situation of men and women at universities

The data on social situation of women and men at the institutions of higher education is not available. The phone conversations with representatives of the Departments of the Ministry of Science and Higher Education had confirmed this fact. The representative of the Department of Students and PhD Students' Affairs said that there is no gender segregated data as far as distribution of financial support to students is concerned and no information concerning single mothers. There is no data available as far as the motivation to take leave by male and female students. The same situation was confirmed during the phone conversation with the Director of the Department of Employees of Institutions of Higher Education.

The possibility of combining the scientific career and studies for mothers and single mothers mirrors the general situation of women on the labour market in Poland. As stated in the World Bank Report from 2004, the situation of working women in Poland is, to a large extent, still defined by the double role that women are expected to take up according to the stereotypical dominant model of family life. This model requires that a woman's professional career must be reconciled with her role in family life, and, in particular, with meeting the social expectations related to motherhood and to caring for the elderly. Women's professional status is also impaired by the shortage of public funds that in the past decade affected the development of institutional childcare and care for dependent persons, and by gender related judgments, which have the potential to limit women's access to employment and promotion. Indeed, culturally conditioned stereotypes are reflected in discrimination in the areas of labor legislation and social security.

1.7 Further important data about the situation of women and men in university research

Until the pre-accession period Polish authorities put very little significance on developing data on women in science and generally they were not particularly interested in researching the situation of women or introducing legislation concerning women's rights. (Except for the program introduced shortly after United Nations Beijing Conference aiming at encouraging a more effective participation of women in scientific and political life.) The Polish authorities

have prepared a special National Program of Activities for Women which was officially ratified by the government in April 1997 but is no longer operating and a new Program has not been put in place. The old Program was focused on: Research of sociological, legal and statistical character of women's scientific, professional and political opportunities in contemporary Poland, preparing a permanent, complex research system and creation of a national data bank covering all information on women's situation, practical implementation of the results in activities for the sake equality of career opportunities between men and women, particularly in the field of science. The Program was implemented by the State Committee for Science which managed to do part of the planned research work mainly concerning Warsaw University. They were planning to undertake a similar study of women's opportunities at other universities, first of all at Warsaw University of Technology but no data on that research could be found.)

This situation changed with the process of accession to the EU. There have been some data developed regarding many spheres of women's lives especially concerning their situation on the labour market and health. Unfortunately, as far as the situation of women in science is concerned no special effort was made by the authorities to produce any reliable data. The best known research on the situation of women in science comes from the "Review of the situation in Poland" made by Helsinki group on Women and Science in 2001, from Enwise report from 2004 and She Figures 2006.

1.8 Evaluation/Analysis of the availability and presentation of data about the situation of women and men at universities

The available data is sufficient for current analysis, though more reliable data come from no earlier times than the pre-accession period – see appendix 1. There is no data available to provide a quantitative evaluation of the current life situation of female academics. Lack of data concerns the social situation of female academics and students, no information can be collected about single mothers or parental leaves. Besides the Ministry Decree (see Table 7) there is no data available about incomes of female and male academics. It would be much easier to estimate the women's situation in Higher Education if such data were available with the segregation of titles, position occupied, and scientific field. No sex segregated data is available about grants received by institutions and academics from private sector as well as from EU funds. There is lack of data about women with academic titles working for business (and their incomes as well as grants for R&D purposes by private sector) and for NGOs sector (for Poland there is no data – it means no research has been conducted in this area so far).

2. Description/Analysis of the national policies and regulations regarding equal opportunities for men and women and instruments for the implementation

2.1 Legal frame for equal opportunities and affirmative action in science and at universities in particular

The Polish legislation on the equal treatment of women and men is expressed in art. 32 & 33 of the Polish Constitution. (*Art. 32 1. All persons shall be equal before the law. All persons shall have the right to equal treatment by public authorities. 2. No one shall be discriminated against in political, social or economic life for any reason whatsoever. Art. 33 1. Men and women shall have equal rights in family, political, social and economic life in the Republic of Poland. 2. Men and women shall have equal rights, in particular, regarding education, employment and promotion, and shall have the right to equal compensation for work of similar value, to social security, to hold offices, and to receive public honors and decorations.*)

After 1989, in the so-called Third Republic of Poland, the government policies for gender equality and the advancement of women went through many changes. The position, powers and even the name of the office of Plenipotentiary (for Equal Opportunities of Women and Men) have undergone several modifications. Political turning points and subsequent changes of ruling coalitions brought about changes in the attitude towards women's rights. The tendency towards belittling women's problems was reflected in the modifications of the name of the office of Plenipotentiary. These names included: plenipotentiary for women, for women and family, for family and women, and in the end - for family. (Nowakowska 2004)

On November 4, 2005 the Polish Prime Minister announced that the office of Plenipotentiary for Equal Status, a central administration body responsible for the delivery of basic policies counteracting discrimination, supporting gender equality and offering equal opportunities for marginalized groups will be liquidated.

International contracts and legislation of the European Union ratified by Poland impose on the state the obligation of undertaking legislative actions to ensure compliance with principle of equal rights of women and men. One of the steps in this direction was making legal changes to the act of June 22nd, 2001 about employment and social welfare.

Regulations added by those amendments complete the list of tasks for the local authorities in the field of fighting unemployment. Criteria set by local authorities to grant foreigners permits for work cannot include requirements which discriminate candidates because of sex (and other criteria like religion etc.). Similarly advertising for "help wanted" cannot have any discriminatory references to gender.

In 2001 amendment to the Labor Code was also adopted by European Union legislation.

The amendments - among other issues - explicitly direct employers to treat men and women equally as far as wages are concerned. For a long time there was a discussion in the Polish Parliament on the Act on Equal Status for Men and Women. The Act on Equal Status of Women and Men was prepared as an initiative of the Parliamentary Women's Group. The law was supposed to ensure the implementation of equal rights of men and women in all aspects of social, economic and political life. The participation of representatives of either sex in elected or appointed bodies should amount to 50%. The names of women and men should be put on the poll lists alternately. The project included prosecution of employers submitting female candidates for work to inquiries concerning their marital status, family life and plans related to it during job interviews. Observing of the law would be monitored by the Office for Equal Status of Women and Men with agencies in each voivodship (regional province). There was also a postulate to include the principle of equal treatment of women and men in the school textbooks. This meant changes in stereotypes presenting women only as mothers, wives and caretakers while men were presented as having professional careers

and undertaking creative activities. It was supposed to give additional guarantees for a complete implementation of the principle of equal rights for men and women, as article 33.2 of the Constitution of the Republic of Poland includes only exemplary situations where principle of equality of women and men in the face of the law is to be observed (equal right to education, employment and promotion, equal pay for work of equal value, social security and occupying posts, performing functions and acquiring titles and distinctions). Unfortunately the Polish Parliament never voted in favor of the Act and now with the conservative, right wing having parliamentary majority there is no possibility to pass this Act at all. Gender equality is still far from being a reality in Central and Eastern Europe, according to the report *Equal Opportunities for Women and Men: Monitoring Law and Practice in New Member States and Accession Countries of the European Union*, published by OSI's Network Women's Program.⁹ The research identified a general lack of awareness among men and women about how gender inequality affects their daily lives as well as a lack of political will to enforce existing national European policies with regard to gender equality. The report urges the government in Poland to adopt official gender equality strategies and appeals to all governments to collect gender disaggregated statistical data, without which gender equality policies can hardly be successful.

Integration of a gender perspective into general policies in Poland progresses at a relatively slow pace. For the time being, the Polish state does not have a cohesive set of policies which would be aimed at promotion of the *gender mainstreaming*. Such changes of the Polish laws as were mandated by the *acquis communautaire*.

Nowadays the concept of *gender mainstreaming* is little known not only to the public opinion in general but also to the government officials in Poland. Hopefully as European integration processes will continue and National Action Plans (NAPs) drawn in Poland in the years to come will have to embrace gender issues both the government and the social partners will be forced to develop consistent gender mainstreaming policies.

In the Polish government there is a body responsible for family and women's affairs, namely the Under-Secretary of State in the Ministry of Labor. Unfortunately no activities are undertaken by this Office to inspire introduction of gender mainstreaming in the institutions of higher education. Also the Ministry of Science and Higher Education does not make efforts to introduce gender mainstreaming into their work.

2.2 Organizational aspects

In Poland there is a Steering Committee on Women in Science in the Ministry of Science and Higher Education. Unfortunately in a phone conversation with one of the former members of the Committee it turned out that the Committee is not visible or active probably because of its low prestige and lack of support of the authorities of the Ministry. Thanks to the financial support of the European Union the Researcher's Mobility Portal was created which contains information on women in science.

2.3 Measures adopted to promote the role of women/equal opportunities in science

There are no special measures to promote women in Science provided by the Polish authorities.

⁹ The findings and recommendations in *Equal Opportunities for Women and Men* are based on monitoring conducted by national gender equality experts and local NGO representatives in Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Romania, Slovakia, and Turkey.

2.4 Gender equality/affirmative action criteria in the allocation of budgets

No special measures related to gender exist in the allocation of budgets for scientific R&D.

2.5 Funding for promotion of women; equal opportunity policies

There are no special measures to fund promotion of women like e.g. provisions of women's offices, funding for women's affairs commissioners. Special funds, incentives, provisions for the reconciliation of paid work and home care work, substitutes for persons in parental leave do not apply to the promotion of women in science in Poland. There is a special scholarship for women called L'Oreal for Women in Science provided by UNESCO -L'Oreal Partnership.

2.6 The role of women's and gender studies and research at universities

Several Gender Studies exist in major academic centers in Poland like Krakow, Warsaw, Poznan, Lodz, Szczecin or Wroclaw. Some have started already in the 90s. In most cases they were started by feminists who were often both activists and academics. In most cases gender studies are located at universities at Departments of Social Science but in the case of Krakow (The Feminist Academy) they are run by an NGO. They are post-graduate studies and they are not part of regular credit requirements. Usually students have to pay in order to attend courses. There is also a Center at Warsaw University dealing with Interdisciplinary Research on Gender.

Students of gender studies become acquainted with feminist theories and from this theoretical perspective try to figure out how to create change within their own life as well as how to bring about change in both local and global environments. In turn, students interested in issues affecting women, will have an opportunity to deepen their knowledge and familiarity with feminist theories. Classes are conducted in an interactive manner, often in workshops, and provide activists of the feminist movement with academic and practical experience.

In recent years gender studies received a lot of interest from the students but unfortunately there has not been much support on the side of the authorities even though the last Plenipotentiary for Equal Status of Women and Men came from the academic background herself. Often the university is not willing to create gender studies (case of Gdansk University) and the academics who want to run a gender course or start gender studies have to go through a lot of bureaucratic procedures.

3. Financing of the university sector

3.1 The general context

Council for Science

The Council for Science was created along with coming into force of the Act on Principles of Financing Science on 5th February 2005¹⁰. In fact it replaced the pre-existing Committee for Scientific Research, which used to be elected on the basis of democratic procedure and was a decision making body in the area of science financing. The Council for Science constitutes a formal representation of research community and plays an advisory role to the Minister of Science and Information Society Technologies (IST), who has a decision-making role in the field of scientific policy and funding of R&D. The Council for Science is independent from the Minister in issuing its opinions.

Organisation of the Council for Science

The Council for Science plays both advisory and expertise role in the area of scientific policy within the Ministry of Science and IST, whose role corresponds, inter alia, to an R&D funding agency. Its tasks are distributed among organs of the Council (Art. 21 Section 1 of the Act on Principles of Financing Science).

The Council for Science consists of maximum **70 members**. The scientific community elects 33 of them and the Minister appoints others on the basis of his or her own decision or from among candidates designated by other ministers and organisations of research institutions. The Council is divided in **4 collegial bodies** (Art. 22-27):

- a) the **Committee on Scientific and Technology Policy** (max. 11 members) – Art. 22 Section 2,
- b) the **Committee on Research for the Development of Science** (28 members) – Art. 23,
- c) the **Committee on Research for the Development of the Economy** (max. 26 members) – Art. 24 Section 2,
- d) the **Committee of Appeal** (5 members) – Art. 25 Section 1.

The Minister has competence to set up specialised or interdisciplinary groups, consisting of members of the Council's Committees mentioned in points b and c as well as of competent external experts (Art. 30 Section 1).

The chairs of the Council's Committees mentioned in points b and c, may appoint, if approved by the Minister, working groups to perform particular tasks. Those working groups must constitute a part of organisational structure of a given Committee and may be set up only for a stated period of time (Art. 30 Section 4).

Members of the Committee on Research for the Development of Science and the Committee of Appeal will be elected every 4 years by professors employed in Polish research institutions (Art. 27).

Role of the Council for Science

The Council for Science as such does not make decisions concerning funding of scientific activity or research institutions. Tasks of the Council are accomplished by its organs, not by the Council as such.

The Committee on Scientific and Technology Policy is the only organ of the Council that plays a role of a **policy advisor**.

¹⁰ This Act adapts the way of financing science to the new circumstances connected with among others – the Polish accession to the EU. Changes made in Act would ease the access to funds for research and development from EU structural and cohesion funds, from off-set investments and EU research programs. According to the Act the budget spending remained on the same level as a year before (2,9 billion PLN). Act entered into force in February 5th, 2005.

- 1) It has a formal task to give opinions on draft documents concerning the state's science and technology policy and its innovation policy as well as bills and economic and financial arrangements concerning the development of science and technology.
- 2) Each year the Committee gives opinions on a financial plan specifying the amount of money allocated for all the streams of financing science (see the description of those streams in the next section of this document).
- 3) The Minister can ask the Committee for opinion on other issues of his or her interest.

The Committee on Research for the Development of Science and the Committee on Research for the Development of the Economy participate in the process of **evaluation of applications for funding scientific activities from the state budget**. Hence, their functions concentrate rather on **distributing money for science** than on advising. According to the Act on Principles of Financing Science the tasks of the two Committees are: conducting formal appraisal of research institutions (every 4 years) and assessing applications for funding of research activities. The Committee of Appeal should give opinion on appeals to Minister's decisions concerning financing science.

It is the **Minister who has the competence to decide on accepting or rejecting applications for funding**. However, before taking decisions the Minister is obliged by law to submit all the applications to the appropriate Committee of the Council in order to obtain its opinion (Art. 3 Section 3 of the Act on Principles of Financing Science). The Committee presents its opinion in the form of applications' ranking or an evaluation of an application. The Minister issues a decision on the basis of the Committee's opinion.

3.2 Description of laws and treaties regulating financing of universities

The science financing system is described in a detailed way by **Act on Principles of Financing Science on 5th February 2005**. Except for military R & D projects (which are financed through direct transfers from the Ministry of Finance to the Ministry of Defence), all government support for separately budgeted research is channelled entirely through Council for Science (Financing of R & D).

There are **six ways of R & D financing**:

- a) Core funding for statutory R & D activities, i.e. institutional finance provided selectively to designated research establishments, units and university departments for covering the costs of their own research activities. Schools at the university level cannot use those funds to finance their educational or training activities.
- b) Investments in R & D infrastructure, such as buildings and equipment.
- c) Peer-reviewed research grants based on research proposals, presented by small research teams or individual researchers, no matter where they are employed or what scientific degrees they hold. Applications are evaluated by an appropriate group of the Committee **twice a year**. Research projects should deal with new scientific problems and must not be financed from the state budget in any other form.
- d) Subsidies for R & D programmes of national importance commissioned by enterprises, state administrative bodies or local authorities. The financial means are allocated for the implementation of projects and the utilization of research findings.
- e) Subsidies for international scientific and technological cooperation resulting from intergovernmental agreements.
- f) Subsidies for selected R & D support activities (e.g. information services).

Besides the national expenses on science also the local governments spend their money on higher education (see Table 9). However this amount of money is not very high and is spent on stipends to grant the best students (this is regulated by the Act on Local Government from March 8th 1990 (USTAWA 1990)).

Table 9. Public Expenditures for Higher Education 1995-2005 in million PLN (3,8PLN=1Euro), GUS.

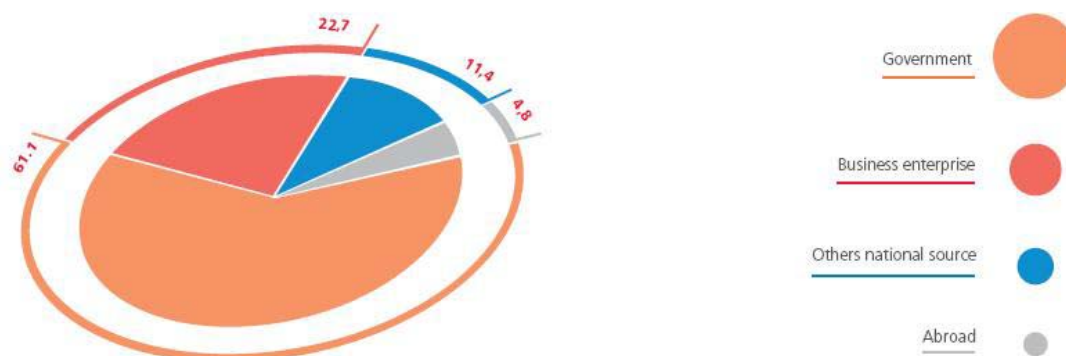
years	national budget expenses	local gov. budget expenses	share of public expenses in GDP [%]
1995	2174,70	2,80	0,75
1996	3002,40	8,90	0,83
1997	3752,20	11,40	0,80
1998	4272,30	10,70	0,77
1999	5070,50	14,20	0,82
2000	5326,70	20,40	0,78
2001	6370,70	32,60	0,89
2002	6829,60	38,60	0,88
2003	7049,20	28,20	0,87
2004	8822,30	31,90	1,00
2005	9676,50	76,80	1,00

Source: Own study according to GUS.

By comparison with other countries – the Polish investment in science sector is very low (according to OECD report it's one of the lowest – together with Mexico and Slovak spending). Poland spent in 2005 about 1% of it's GDP on R&D. At the same time Denmark spent 1,8 of its GDP and Sweden 1,5.

In the brochure of Polish science – published just before accession – the Ministry shows the share of expenses according to the source of funding. In 2002 the biggest share belonged to government (61,1%) then business enterprise (22,7%), 11,4% came from other national sources and only 4,8% from abroad. This situation has probably changed since Poland joined European Union and is gaining money from European programs.

Fig. 12. R&D Expenditure by main sources of funds 2002



Source: Ministry of Education and Science 2002, 26.

Investments for R&D in 2004 (the latest GUS report: Nauka i Technika 2004) were 5155.400,0 thousands PLN and were 13% higher than in 2003 (in 2002 and 2003 outlays for R&D hold on the same level). The external funds (mainly from business enterprises) increased about 16,3%. At the same time EU funds constituted 2,7 % of whole R&D money. According to the statistics – among all 96,5 thousand of employees in R&D sector - 38,9 % were women.

Science expenses of the Ministry and resources allocation criteria

The overall scheme of financing the higher education follows the outlines of the Act of the Rules of Financing Science (Dz.U. z 2004r. Nr 238, poz. 2390, Nr 271, poz. 2703). Expenses of science covered by Ministry are placed in national budget in an amount that would assure reaching by Poland the level of expenses coming off the Lisbon Strategy. Further these

money is dedicated to: the science units for their statutory activities and investments in research and development works, tertiary education institutions for their own research, science units representing science networks – for common research, science units and other institutes – for realization of tasks in defined period of time and under certain rules, ministries managing the departments of government's administration, managers of central organs of government's and the chairman of the Polish Science Academy.

According to the Ministry of Science and Informatization order (Dz.U.05.161.1359) from August 5th 2005, for all kinds of funds the proposal must be drafted and send to the Ministry. The Science Council then evaluates the proposals and selected proposals are granted.

While the financial resources are allocated the general note describing so far activities of institution is taken into account. This note describes the category of science institution in scale from 1 to 5. Assessment is made every 4 years according to the questionnaires filled by universities every year. The following criteria are evaluated:

- In case of scientific activities – the development of personnel, owning the rights to confer the scientific titles, owning laboratories with accreditation and quality systems, number of implemented research projects, target projects, and international programmes, achievements – especially prizes,
- In scope of scientific activities results – reviewed publications of employees, scientific monographies and academic manuals written by employees,
- In scope of practical usage of the results of scientific research and development works – new technologies, materials, products, systems, services and methods, implementations, patents, protecting laws for utilization patterns.

Incomes of the universities from their operational activities¹¹

From the analysis of incomes of tertiary education institutions (universities, academies, technical schools, art schools) we draw a conclusion that both – public and non-public institutions receive majority of their money from didactics (students' fees – in case of public institutions – the daily studies are free of charge, however the evening studies, post-graduate and external studies are paid), very little – 11% in case of public and 0,6% in case of private institutions - of the whole income comes from research grants (see Table 9). The estimates are that about 40% of all Polish students pay for their studies (korba 2006).

Table 10. Incomes from the operational activities of the tertiary education institutions in Poland in 2005 in thousands PLN (3,8PLN=1Euro).

	Incomes from operational activities	Including				
		teaching ¹²	research ¹³	excluded enterprise	sell of goods and materials	others ¹⁴
Total	14625062,8	12429450,2	1436407,4	100460,6	33398,9	556614,6
Public tertiary education	12431693,4	10355307,4	1422070,3	88394,4	29752,4	468170,6
Private tertiary education	2193369,4	2074143	14337,1	12066,2	3646,5	88444

¹¹ The basic financial categories in higher education in Poland (budget) can be found in Appendix 2.

¹² Explained in Table 10.

¹³ Donations for financing statutory activities (including own research and activities supporting research), resources for the realization of research projects, resources for the realization of the defined purposes, subsidies for the scientific international cooperation, selling other works and research services, and resources for the realization of projects and undertakings designed by Ministry.

¹⁴ Incomes that are not directly connected with academies' activities – amounts that come from liquidation or sale of capital assets, or non-capital assets, and other constituencies resulting from falling under the statue of limitations, gaining compensations, donations and other incomes.

Source: Own study according to GUS 2006, p.309.

Most of the academies raise their tuition in September 2006, because according to the new Tertiary Education Act from July 27th 2006 (Dz.U. nr 164, poz. 1365) institutions would receive the donations from the country budget from January 1st 2007. only for educating full-time students

Table 11. Incomes from the didactic activities of the tertiary education institutions in 2005, in thousands PLN (3,8PLN=1Euro).

	Incomes - teaching	Including			
		From country budget	Local gov. budget and other public funds	Tuition fees	Other charges
Total	12 429 450,2	7 618 020,1	46 122,6	4 047 416,9	717890,6
Public Institutions	10 355 307,2	7 614 172,0	15 694,9	2 075 061,0	650379,3
Private Institutions	2 074 143,0	3 848,1	30 427,7	1 972 355,9	67 511,3

Source: Own study according to GUS 2006, p.311.

As we can observe in Table 11 the 95% of the incomes of private colleges comes from tuition fees and in public institutions tuitions amount only to only 20% of the income.

Official other polish example sources of funding:

- **Stefan Batory Foundation (BF)** (Polish Open Society Institute – George Soros Foundation) was registered in Poland in May 1988. Its mission is to support the development of an open, democratic society in Poland and other Central and East European countries. The Foundation offers plenty domestic and international programs.
- **Józef Mianowski Fund (MF)** - a Foundation for the Promotion of Science – was established in 1881 in Warsaw. It offers a scholarship scheme for researchers and scholars from abroad, mainly from Central and East European countries, interested in research at Polish scientific centers. It is indicated that candidates contact the relevant institution prior to application. Grants may cover periods of time ranging from one to twelve months. The monthly grant is approximately equal to an average monthly salary offered to a person holding a corresponding post in Poland plus the costs of accommodation at a level not exceeding that of an academic hostel. Budgeted money for scholarships in 2006 exceeded 500.000,0 PLN. Each year about 100 people are awarded (according to the information collected by telephone calls – the proportion of female to male awarded in about 1:1).
- **Foundation for Polish Science (FNP)** – annual allocations awarded by FNP to beneficiaries in the science sector exceed 20mil PLN, with 22.7mil PLN of expenditure for statutory activities being scheduled for 2006. All grants, prizes and scholarships available from the Foundation under its various schemes are awarded solely on a competitive peer-review basis (FNP was described in point 1.5).

3.3 Management instruments for financing/budgeting of universities

3.3.1. Description of management instruments for budgeting of universities

The financial resources for science are governed by the Ministry of Science and Informatization (MNil) according to the rules accepted in the Act from October 8th, 2004 about the rules of financing science (Ministerstwo Nauki, 2007).

Financing science concerns financing of activities undertaken within the framework of the implementation of a scientific policy, scientific and technical or innovative state policy, and especially scientific research, development works and implementation of other tasks particularly important for the civilizing progress. Ministry defined the amount of financial

resources for science in a financial plan that refers to this part of a budget which is assigned to science.

The financial resources for science are assigned for financing:

- the statutory activity,
- investments needed for scientific research or development works,
- research projects,
- target projects,
- international scientific cooperation,
- activities supporting research,
- programmes or undertakings defined by Ministry,
- activities of revisers and advisory organs to Ministry, reviewers and experts as well as control activities.

Ministry, after consulting with the appropriate organ of the Scientific Council, grants the financial resources for science by taking decision based on proposals submitted by the commissioned institutions.

By assigning the financial resources for science the following criteria are taken into account:

- compatibility of stipulated works or tasks with the goals of the scientific policy, scientific and technical or innovation policies of a state,
- scientific level of works and tasks
- practical utility of expected results of works and tasks
- importance of works and tasks in relation to development of international cooperation in scope of science and technology,
- possibility of co-financing from other than governmental sources for science.

As for financing the statutory activities the proposal requires the opinions of: Ministry responsible for supervision of the scientific and development institution, the president of the Polish Science Academy – with respect to scientific outpost of the Polish Science Academy, and the president of the university with respect to basic organizational units of this school.

The financial resources assigned for science for the research conducted by universities are remitted by Ministry directly to the public universities (on the basis of proposals of the ministries supervising them) and non-public academies (on the basis of proposal of the ministry appropriate to the higher education cases). For the statutory funds the system of assessment described in point 3.2 (page 23) is used

The list of assessments (all faculties of universities, technical universities, academies) – is available on-line under the address:

http://www.nauka.gov.pl/mein/index.jsp?place=Menu08&news_cat_id=970&layout=2

The purposes of financing Research and Development was described in point 3.2.

The total Ministry expenditures for science in 2005 (as stated in the protocol from budget implementation) can be divided into 2 parts:

- 1) Section 730 – Science: 2.892.329 (in thousands PLN),
- 2) Section 750 – Public Administration: 31.842 (in thousands PLN).

Table 12. Science budget – target and financial plan of the section 730: “Science” for 2005, in thousands PLN (3,8PLN=1Euro).

Section	in thousands PLN
730 Science	2892329
Chapter	
73001 Research and target projects in a field of natural sciences	201323
73002 Research and target projects in a field of technology	456331

73003	Research and target projects in a field of social sciences, humanities and strict sciences	63029
73005	Statutory activities and investments of the scientific units and academies' own research	2105446
73006	Activities supporting research	53758
73007	International scientific and technological cooperation	2400
73095	Other activities	10042

Source: Sprawozdanie z wykonania budżetu (2005).

Comparing those expenditures to the year 2004 – we can state that the amount is stable:
The total Ministry expenditures for science in 2004:

- 1) Section 730 – Science: 2.892.191 (in thousands PLN),
- 2) Section 750 – Public Administration: 25.873 (in thousands PLN).

However the administration costs has risen 23%, which is quite high.

Tendencies and changes

The World Bank organized a workshop in Warsaw on June 23-24, 2005 (Będziński 2005) – on which it pointed directions of development of Polish science and financing of higher education. First recommendation was that financing should be based on contracts. tied with ordering education in certain course. Financing should also be co-dependent with the didactic tasks – so the money should follow a student (this is very interesting observation – considering a fact, that students are not mentioned as the most important factor among the university evaluation methods). The scope of financing of higher education should be an outcome of the requirements of scholarships for students and grants and realistically evaluated costs of education (also incurred by students paying their fees). Choices concerning particular grant-receivers should be made according to the national research priorities. Information about education costs and expectations from the labour market should be systematically published. Those changes can be expected, however it would be hard to study (or the studies would become very expensive) in a field that cannot be “sold” on the labour-market so easily – like philosophy or other humanities (where women are in majority). The voices of Independent Academic Forum (IAF) criticize current mechanism of financing tertiary education in Poland because of its inefficiency, central planning and unfairness of money distribution. Despite the level of education they offer – all public institutions receive the institutional funding from the budget and their operations are not based on economic performance – so very often the public money is wasted (this is the opinion of liberal democrats). This extravagance is caused very often by policy which does not encourage saving. The rules are that if the allocated money is not spent entirely - less money is granted for the next year.

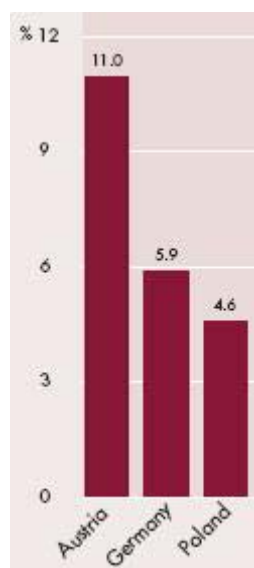
Interesting proposition was to stimulate development by raising Venture Capital and attracting business sector to academic research and other propositions by European Commission in “Raising EU R&D Intensity” report 2003 (KBN 2004).

Finally the strategy of expansion of higher education in Poland by the year 2010 is published in English on the website of Ministry of Education (MENiS) with the following aims: sustaining and expanding universal and accessible higher education, improving the quality and the effectiveness of the higher education system, education for work - work after education, science, research and staff development, developing the infrastructure of higher education institutions and opening up access to the Internet, lifelong learning and e-learning, harmonization within the European Higher Education area. Nevertheless once again – the motivation for preparing such a document was the EU pre-accession process, so the monitoring of its implementation is in question (the financial framework was suggested in this documents only for 2003-2005).

3.3.2 Gender indicators for the allocation of budgets

There are no particular gender indicators that influence the mechanisms of budget allocations in science in Poland (nothing is mentioned in acts nor in ministry ordinances). When Poland joined European Union, Polish government was obliged to implement EU law into the Polish legal system. One of them is gender mainstreaming policy (Article 141 of Amsterdam Treaty) as EU priority. However no one in the Ministry¹⁵ was able to answer if any gender indicators are taken into account while allocating money for science. This topic is not an issue in Poland.

Fig. 13. Research funding success rate differences between women and men, 2004.



However some gender analyses are available – like research funding success rate (see Fig. 13). The data comes from WiS database of DG Research and shows the success rate for men minus rate for women. The same database indicates number of applicants and beneficiaries of research funding by sex, 2004 (see Fig. 14).

Source: She Figures 2006, 92.

Fig. 14. Number of applicants and beneficiaries of research funding by sex, 2004.

	APPLICANTS		BENEFICIARIES	
	Women	Men	Women	Men
Austria	207	891	85	464
Germany	2747	18329	1518	11218
Poland	2527	6704	798	2428

Source: She Figures 2006, 70.

As we can observe – women in Poland constitute 27% of all applicants, however almost the same proportion of women and men receive grants (about 32% of women and 36% of men-applicants).

4. Conclusions

The conclusions made by Pininska (Pininska 2001, 11-13) are still very valid and up to date. The most visible problem is women's access to the real and widely supported equality in science. This goal however is seen as too marginal and elitist to move into action the necessary state structures, represented mainly by men. Without increasing the number of women in those very decision making structures the situation will not change.

¹⁵ Telephone calls to various Ministry of Education and Science departments – including Economic Department – done on November 23rd 2006.

Another difficulty is very low support for the equality of women by those women who already enjoy a professional success in science in Poland. One of the reasons is their excessive workload. They are usually busy with managerial tasks (as managers or deputy managers) apart from strictly scientific work and have to deal with a lot of time-consuming economic, administrative and financial tasks at their workplaces (Pininska 2001, 12). This limits their extra-professional activities to a minimum. This could lead to a characteristic negative selection of the women's movement "activists" to involve less professionally "successful" persons and thus make them look "over-demanding". This in turn undermines the credibility of women's movement which in such a situation, particularly in scientific community, is negatively perceived.

One of the recommendations is to make the decision-makers aware of the existing status of women in science and prompt them to consider it in shaping the policies of employment and education.

This can be achieved by promotion and lobbying by the appropriate people in the Ministry of Science and Higher Education as well as the office responsible for equal status of women and men of women in science (also by establishing grants and prizes for women in science or designing and implementing programmes that are promoting women in science.)

As mentioned in point 1.8. – there is lack of data (esp. gender disaggregated) in Poland, in many fields (esp. those concerning financing of science), that impedes research of actual women's status and position in science. This issue concerns academics as well as female-students.

The government should work out the programme and long-term strategy (based on solid socio-historical research) that would promote women in science and improve conditions of women to encourage them to start and continue their scientific careers. It is important also to include successful women – professors and scientists – in promotion activities to support women in science.

Appendix 1

Detailed data about Polish higher education according to gender 1989-2005:

	1989/1990	1996/1997	1999/2000	2004/05	2005/06
Population total (thousands) 31.XII	38038,4	38639	38654	38174	38157
Population total - women (thousands)	51,22%	51,35%	51,41%	51,62%	51,64%
Student's enrolment total	90455	287468	423094	507721	505059
Student's enrolment women	49,96%	53,41%	54,34%	52,54%	52,26%
Total no. of students	374269	922167	1425846	1917293	1953832
Total no. students - women	51,63%	56,62%	56,89%	56,48%	56,50%
BA students total	25369	329430	635598	854745	900586
BA students total - women	41,67%	54,74%	55,63%	53,09%	53,37%
MA students total	348900	592737	790247	1062548	1053246
MA students total - women	52,35%	57,68%	57,91%	59,21%	59,18%
alumni total	49662	115120	214570	382851	391465
alumni total - women	-	62,35%	64,34%	64,83%	65,04%
BA alumni - total	3769	38105	93973	172282	177809
BA alumni - total - women	-	-	-	64,20%	63,89%
MA alumni - total	45893	77015	120597	210569	213656
MA alumni - total - women	-	-	-	65,35%	66,00%
post graduate students - total	27847	58802	107441	136205	135 930
post graduate students - total - women	59,62%	58,53%	65,25%	70,59%	68,38%
finished post-graduate-total	16998	36836	61047	90762	98317
finished post-graduate-total - women	48,58%	56,52%	59,41%	68,50%	69,35%
PhD students	2696	13351	22239	33040	32725
PhD students women	26,89%	39,34%	43,68%	48,27%	49,29%
PhD titles - total	2140	2218	3724	5314	5496
PhD titles - total - women	28,32%	36,16%	40,84%	47,03%	49,38%
habilitation titles - total	662	676	787	830	821
habilitation titles - total - women	19,03%	26,78%	28,97%	30,36%	35,44%
professor titles - total	296	543	630	521	503
professor titles - total - women	12,16%	21,92%	23,49%	26,49%	27,04%
Academic teachers - total (incl. part-time)	61475	70658	78091	85762	87789
Academic teachers - women (incl. part-time)	-	37,74%	38,45%	40,49%	40,98%
Grade A - Professors total	4304	3857	4983	6325	6616
Grade A - Professors total - women	-	12,70%	12,92%	15,94%	15,66%
Grade B - Habilitated total	6603	9370	11177	12888	13239
Grade B - habilitated total - women	-	19,14%	20,75%	24,08%	24,68%
Grade C - PhD - tutors	22786	24230	27978	34676	36379
Grade C - PhD - tutors - women	-	34,20%	34,98%	39,36%	40,44%
Grade D assistants+lectors	16477	33201	34158	31873	31555
Grade D assistants + lectors - women	-	48,49%	50,58%	54,92%	53,76%
Employees - not academic teachers	11305	64631	67972	70975	71165
Employees-not academic teachers-women	-	66,92%	69,00%	68,07%	68,37%
Part-time academic teachers - total	-	4834	5086	3152	3218

Source: Own study according to GUS.

Appendix 2

Basic financial categories in higher education in Poland in 2005, in thousands PLN (3,8PLN=1Euro).

	Total incomes	Total costs	balance of exceptional profits and loses	financial result gross	charge of financial result	financial result net
Total	14 837 731,80	14 423 809,50	1 183,80	409 656,00	3 050,90	406 605,10
Public tertiary education	12 563 040,90	12 339 555,50	1 215,00	219 250,30	935,4	218 314,90
Private tertiary education	2 274 690,90	2 084 254,00	-31,2	190405,7	2115,5	188290,2

Source: GUS 2006, p.309.

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Council for Science:

http://meinen.mnii.gov.pl/meinen/index.jsp?place=Menu08&news_cat_id=426&layout=5

Financing of R & D -

http://meinen.mnii.gov.pl/meinen/index.jsp?place=Menu08&news_cat_id=313&layout=2

FNP – Fundacja Nauki Polskiej: <http://www.fnp.org.pl/ang/ofundacji/wladze.html>

GUS – Główny Urząd Statystyczny: <http://www.stat.gov.pl/>

GUS Wynagrodzenia – Przeciętne miesięczne wynagrodzenie w gospodarce narodowej w złotych w latach 1950-2005 (podstawa wymiaru emerytur i rent):

http://www.stat.gov.pl/dane_spol-gosp/praca_ludnosc/mies_wynagr/index.htm

IAF - Independent Academic Forum: <http://www.nfa.pl/print.php?what=article&id=20>

KAF - Konrad Adenauer Foundation: <http://www.kas.pl/>

Krajowy Punkt Kontaktowy: <http://www.6pr.pl/kpk.html>

MENiS – Ministerstwo Edukacji Narodowej i Sportu:

http://www.menis.gov.pl/menis_en/higher_education/strategy.php

MF - Józef Mianowski Fund: <http://www.mianowski.waw.pl/programme.htm>

Ministry of Science and Information Technology Home Page:

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International Web-sites:

7th Framework Programme: <http://www.kpk.gov.pl/inauguracja7pr/english/>

ECTS – European Credit Transfer and Accumulation System:

http://ec.europa.eu/education/programmes/socrates/ects/index_en.html

FF - Ford Foundation: <http://www.fordfound.org/about/guideline.cfm>

Fulbright - Fulbright Grants Program: <http://www.fulbright.edu.pl/index.php?strona=74>

GMF - German Marshall Fund of the United States: <http://www.gmfus.org/grants/index.cfm>

MCA - Marie Curie Actions: <http://cordis.europa.eu/mariecurie-actions/>

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VF - Volkswagen Foundation: <http://www.volkswagenstiftung.de/index.php?id=3&L=1>

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