

**Workpackage 4**

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

**Germany**

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## **0. Objectives of the analysis of the situation of women and men in science**

As the basis for the SSA, we looked at the respective national framework for gender budgeting in science. This included three major aspects which have been analysed in parallel by the Austrian, the German and the Polish team:

1. Analysis of the situation of women and men in science
2. Description of the national policies and regulations regarding equal opportunities for women and men and instruments for the implementation
3. Financing of the university sector

In the first chapter, the relevant national and international reports on women in science have been analysed to assess the present situation and the need for action. Of particular interest were the academic career from school leaving qualifications to habilitation and professorship as well as the employment situation for women and men. Regarding these aspects all three partner countries show a gender pyramid. More diverse is the picture in respect to the distribution of women and men according to scientific fields. But still there are gender patterns in all examples. Additionally, we looked at the income situation and the success rates in grants applications and the proportion of women in leading positions in ministries, scientific boards and higher education institutions which is, generally speaking, to a high degree disadvantageous for women. Further more the social situation of women and men at universities has been analysed as for class background, origin, parenthood and civil status. In the case of Germany and Austria, there has been much improvement of collecting sex-disaggregated data in science and higher education (e.g. regular reporting on the promotion of women in science). In Poland, existing data is less comprehensive. However in all three partner countries more research is necessary to explain why and where women become “lost” to science.

The second focus has been laid on the analysis of national university policies and regulations regarding equal opportunities for women and men. We looked at the legal and organisational frame for equal opportunities and affirmative action in science and at universities in particular in Austria, Germany and Poland, and as far as they exist, concrete measures have been depicted. To assess the significance of these actions, we also examined the funding for the promotion of women and the role of women’s and gender studies and research at universities. There is a considerable diversity among the partner countries of this project. Austria has a wide range of equal opportunity mechanisms and an official gender budgeting policy on national level. Germany has according to an overview by the Commission implemented most national policies to promote gender equality in science in comparison to all other European member states (Commission Staff Working Document 2005). Up to now, in both countries women’s participation in science is extremely low. To the contrary, Poland has no positive action measures, but has probably due to the legacy of the socialist gender policy a relatively high percentage of women with a full professorship.

The financing of universities – covered by chapter three – is differently organised in the three countries. Laws and treaties which regulate financing and budget planning in scientific organisations, but also the distribution of competencies between federal and state ministries, university management and faculties have been analysed to find out interface with gender budgeting measures. Additionally, the existing management instruments for the budgeting of universities have been examined. In recent years, universities all over Austria and Germany have implemented new public management instruments, and Poland is starting with the implementation. The advantage of these instruments is that they pursue to some extent the same aims as gender budgeting. Both strategies have objectives such as transparency, efficiency and target group orientation. Business management allows assigning results to

spending, and controlling instruments assess processes and the achievement of goals. In case all these instruments would be oriented towards the improvement of gender equality, this would be an important contribution to gender budgeting. As a consequence the analysis of the national framework show how far the implementation of new public management has proceeded and to which degree gender budgeting activities are connected to this reform actions.

# 1. Analysis of the situation of women in science

## 1.1 Women in science in Germany – An overview

In 2003, the proportion of researchers in the total labour force by sex was 9% men, 4% women for the EU-25 and in Germany 15% men, 4% women (She Figures 2006, 27). Across the EU as a whole, only 29 % of researchers were women and only 15 % of those at the highest academic grade (grade A) were women (ibid., 8). For Germany the figures are even worse; in 2003 the proportion of female researchers was 19 % and only 9.2 % of those who held grade A-positions were women (ibid., 25 and 57). (According to She Figures 2006, German data on growth rates for researchers by sex was unavailable. But for the period 1998-2001, the annual growth rate in higher education was very low, with 3.8 for women and -0.1 for men in Germany compared to 8.0 and 3.1 in EU-15 (She Figures 2003, 35).)

There is a significant difference in women's share between the higher education and government sectors on the one hand and the business enterprise sector on the other: Women researchers are principally found in the higher education and government sectors and their participation is particularly low in the business sector, which employs the largest number of researchers in most countries, including Germany.

- proportion of female researchers in the Higher Education Sector (HES): EU-25 35%, DE 25%
- proportion of female researchers in the Government Sector (GOV): EU-25 35%, DE 27%
- proportion of female researchers in the Business Enterprise Sector (BES): EU-25 18%, DE 12% (She Figures 2006, 28)

In the business enterprise sector Germany ranks together with the Netherlands on the lowest position of all EU member states. At the same time, the BES accounts for 70 % of total German research and development (R&D) expenditure (Götzfried 2004, 1).

In the Enwise-Report, the authors argue that a pattern emerges in expenditure *per capita* researcher: the highest proportions of women are to be found in the countries and sectors with the lowest R&D expenditure and the lowest proportions of women are in the sectors with the highest R&D expenditure (European Commission, Community Research 2004b, 81). This is particularly true for Germany where the financial resources available for researchers are high (the rate of expenditure per researcher is 19,925 Euro) but the women's share of 16 % is low. In Poland the picture is inverse: The rate of expenditure per researcher is 1,862 Euro and women's share of R&D personnel is 42.9 %. In Austria, the difference is much less, but nevertheless significant: 19,703 Euro per researcher with a women's share of 31.9%. (figures for the year 2003, see CEWS, Statistik).

In 2001 women in Germany made up 24.4 % of those in R&D (full-time equivalent, includes researchers, technical and other staff). Women's participation has remained stagnant since 1995 (23.9 %). (Bundesministerium für Bildung und Forschung 2004, 178). With regard to the question of the placement of highly qualified women in their profession, the distribution pattern for R&D is revealing. Women account for a greater proportion of the technician jobs and other personnel than they do for research posts as the following table shows.

**Table 1: Number of R&D personnel in HES, GOV and BES by occupation and sex, Germany 2003**

	Researchers				Technicians				Other			
	Total	W	M	Women in %	Total	W	M	Women in %	Total	W	M	Women in %
HES	174,231	43,593	130,638	25	29,009	13,133	15,876	45.3	43,510	31,696	11,814	72.8
GOV	43,935	11,895	32,040	27	9,709	4,632	5,077	47.7	31,052	17,359	13,693	55.9
BES	171,219	20,205	151,014	11.8	82,734	21,870	60,864	26.3	84,242	22,177	62,065	26.3

Source: She Figures 2006, 89-91

## 1.2 Women and men at universities – the gender pyramid

### 1.2.1 Academic career: from school-leaving qualifications to habilitation

In the year 2004, women made up the greater proportion of all school-leavers holding qualifications for higher education (*Fachhochschulreife* or *Hochschulreife*) at 53 % (Statistisches Bundesamt 2006, 21; see also table 4). In recent years the numbers of each sex entering higher education were more or less equal. Comparing 2004 with 2002, there was a slight decrease of the female proportion of first enrolments from 50.6 to 48.8 %. Despite the existence of an initial equilibrium between female and male students today, the proportion of women at higher academic career levels remains comparatively low.

In the winter semester of 2002/2003 approx. 786,000 women were registered at German universities. This is equivalent to 47.1% of all students. Ten years earlier, the proportion of women had been just 39.7% (1992). Clear differences between the different types of institution may be observed. Whilst the number of women studying at universities is already slightly higher than the number of men, women are clearly still underrepresented at *Fachhochschulen* (universities of applied sciences). One reason for this appears to be that the range of subjects offered by *Fachhochschulen* (e.g. engineering studies) seems to be less attractive to women than that offered by universities. (17. Sozialerhebung des DSW 2003, 47)

The percentage of women who successfully complete their course is now higher than their share of the overall student population. In the year 2004, 48.8% of over 231 000 successful finalists at German universities (all degrees except PhD) were women. The highest proportion of women was to be found amongst those gaining teaching qualifications (74%). The proportion of women gaining a university degree or corresponding diploma in 2004 stood at 50%. Women were in a minority for all other types of higher educational qualifications. For qualifications from *Fachhochschulen* the figure was 44% and for master's degrees 36%<sup>1</sup>. (Statistisches Bundesamt 2006, 23)

<sup>1</sup> The number of higher education courses in Germany leading to a bachelor's or master's degree is increasing and currently stands at 45% of all courses. 12% of all students are enrolled in such courses; amongst entrance level students the figure is 28%. (Hochschulrektorenkonferenz 2006a). The percentage of women taking bachelor's degrees in the year 2002 was 53.2% with 32.7% gaining master's degrees. The reduction in the percentage of women moving on from a BA to an MA is explained by Mühlenbruch et al. on the basis of currently available data as being due to two phenomena: "On the one hand, master's degrees are currently offered primarily in subjects and fields of study which women tend not to choose; engineering is particularly overrepresented. On the other hand, the decline indicates the presence of (...) gender-specific obstacles in making such a transition." (2005, 31-32)

The dropout rate almost doubled in the period between 1974/75 and 1991/92, from 16% to 31%. Since the beginning of the 1990s the dropout rate has stagnated at about one third. The dropout rate at universities (26%) remains higher than that at *Fachhochschulen* (22%). The dropout rate amongst women is generally lower than that for men – which also explains their higher rate of graduation. Exceptions to this rule can be found in medicine (2002: 12 % of women, and only 11 % of men abandoned their course of study), mathematics, natural sciences, computer sciences (FH) (2002: women 49 %, men 38 %) as well as agricultural studies, forestry and nutrition (FH) (2002: women 23 %, men 13 %) (Heublein et al. 2005, 19 and 23).

**Table 2: German student dropout rates according to sex and type of institution in percentages**

Class of: Graduates	Total		Male		Female	
	1999	2002	1999	2002	1999	2002
Total	23	25	25	27	20	23
University	24	26	26	29	23	24
<i>Fachhochschule</i>	20	22	23	24	16	18

Source: Heublein et al. 2005, 16.

The percentage of doctorates awarded to women stood at 39% (2004). In this Germany is below the EU average which was 43% in 2003. Although the share is continuously increasing (1999-2003: 1%) but this growth rate too is clearly below the EU average (1999-2003: 7%). When the development of numbers of doctorates are compared the figures for women are better than those for men. Thus, the numbers of doctorates awarded to men in the EU rose by just 2% in the period from 1999 – 2003 and in Germany it actually fell by 3% over the same time period. (She Figures 2006, 21-22)

About 2,300 individuals successfully complete the procedure qualifying them to become professors at universities in the year 2004 (*habilitation*). Women made up some 23% of this highly qualified group of junior academics. This proportion is relatively low in comparison with that of women students and graduates. It has, however, almost doubled since 1992 (13%). (Statistisches Bundesamt 2006, 23)

Comparison with habilitations shows that appointments to professorships did increase, but subject to a time-lag. The proportion of women appointees is almost always below the proportion of women habilitating. (Statistics on new appointments have been collected only since 1997.)

**Table 3: Proportion of women in habilitations, appointments, professorships and C4/W3-professorships<sup>2</sup>, 1997-2004**

	Habilitations		Appointments		Professorships		C4/W3-Professorships	
	Total	Proportion of women	Total	Proportion of women	Total	Proportion of women	Total	Proportion of women
1997	1,740	15.7	1,437	15.2	37,668	9.0	12,412	5.5
1999	1,926	17.7	1,270	13.9	37,974	9.8	12,579	6.3
2002	2,302	21.6	1,455	17.7	37,861	11.9	12,549	8.0
2004	2,283	22.6	1,837	17.5	38,443	13.5	12,529	9.1

Source: CEWS, Statistik und Indikatoren 2006

<sup>2</sup> C4 or W3 professorships are the highest post at which research is normally conducted in Germany.

Clear regional differences can be found in the proportion of women amongst university professors. The percentage of women is lowest in Bavaria at 9.1% and highest in Brandenburg with 17.2%. (BLK 2005b, table 4.2.4., proportion of women professors according to federal state and type of institution for the years 2001 to 2003; see also Deutscher Bildungsserver, for statistics for individual federal states)

The figures for 1992-2004 show that the proportion of women rose throughout all levels of the academic world, although the extent to which this is the case differs according to status group.

**Table 4: Proportion of women in education and science at different levels of the academic career in Germany in 1992, 2002 and 2004**

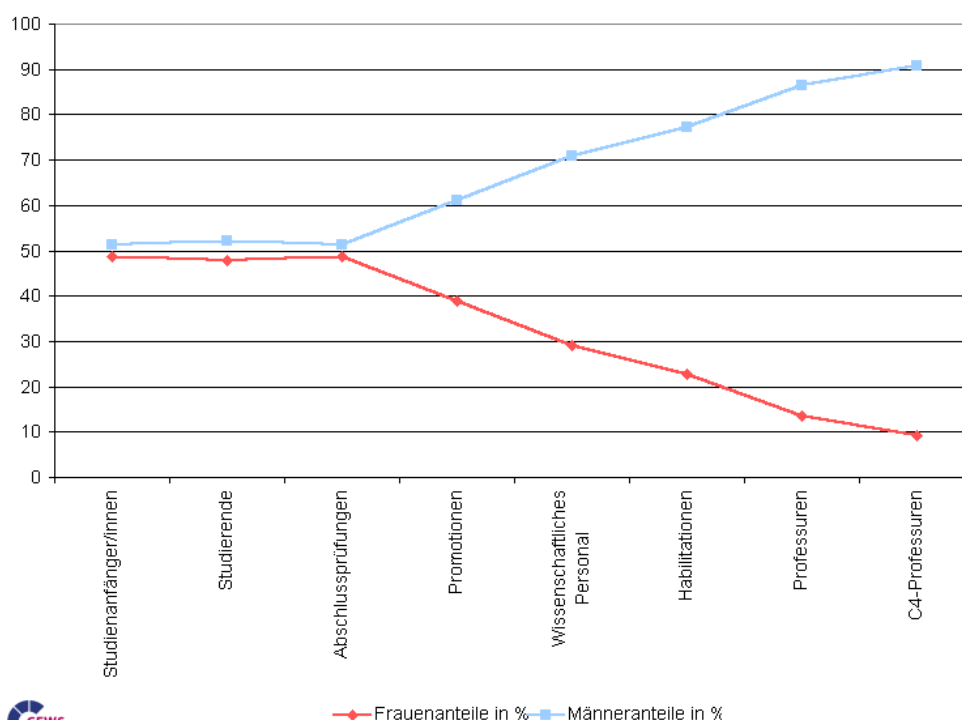
	1992	2002	2004
Qualified to enter higher education	47.6	53.1	53
New entrants (first enrolment)	43.3	50.6	48.8
Students	39.7	47.4	47.7
Degrees (total of higher education)	39.6	47.0	49.2
Of which degrees from Universities & Colleges of Art (1)	43.3	52.8	(2003: 53.7)
Doctorates	28.9	36.4	39.0
Habilitations	12.9	21.6	22.7
Professorships	6.5	11.9	13.6
C4-Professorships / Grade A	3.8	8.0	9.2

(1) Final degree at scientific higher education institutions without “*Fachhochschule* degree”, “doctorate”, “arts degree” and “other degree”

Sources: GEW Genderreport 2004, Tab. 5.18, 5.19; Statistisches Bundesamt Deutschland 2005, Women and Science 2002, Enclosure 1.

As these numbers make clear, it appears to be particularly difficult to move from one level of qualification to the next. This may also be seen in the following diagram:

**Figure 1: Percentage of women and men at various stages of the academic career, 2004**





A CEWS study analysing cohorts and the proportions making transitions demonstrates that in every group of subjects, other than engineering, there was a pool of potential scientists made up of women who had begun or completed their studies in the 1980s which remained unutilised. For almost all subject groups, the decisive qualification stages are the doctorate and the habilitation. The cohort analysis shows clearly different developments in the various subject groups, with the comparison between languages and cultural studies with engineering studies being especially noticeable. The subject groups with a proportion of women of more than 60% amongst first-year students (languages and cultural studies, art and veterinary medicine) exhibiting the heaviest losses in percentage points (35 - 40 %) when it came to the level of appointments. In the engineering sciences the proportion of women was substantially lower than elsewhere, standing at just over 10% in 1984. With a proportion of new appointees to professorships of only just under 9% hardly any women are therefore lost in the course of qualifications. It must however be feared that here too, a growing proportion of women at entrance level will not lead to a corresponding rate of increase at the higher stages either. (See Bund-Länder-Kommission 2005b, Teil II, Sonderauswertung des CEWS, Kohortenanalyse und Übergangsquoten, 4ff) As yet, very little is known about the reasons for the "leaky pipeline" – how, when, why and which women abandon a scientific or academic career.

### 1.2.2 Distribution according to activity

Women make up slightly more than half of all staff at higher education institutions, when it comes to the group of the scientific, academic and research assistants their share is just below a third. The higher the position the fewer women one finds at that level. Only 9.2% of C4 professorships (chairs) are currently held by women. The development since 1992 does show a slight improvement.

**Table 5: Proportion of women in education and science in Germany, 1992, 2002 and 2004 (in %)**

	1992	2002	2004
Total staff at higher education institutions		51.2	51.2
Academic staff (total)	(1995: 13.8)	27.7	29.2
Scientific and creative staff and lecturers and assistants	25.6	32.7	34.0
Professorships	6.5	11.9	13.6
Junior professors (W1) (1)	:	32.4	
C4/W3 Professorships / Grade A	3.8	8.0	9.2

(1) Junior professorships were introduced in 2002.

Sources: GEW Genderreport 2004, Tab. 5.18, 5.19; Statistisches Bundesamt Deutschland 2005, Women and Science 2002, Enclosure 1.

When seen in international comparison with Austria and Poland as well as with the EU 25 Germany comes out worse than the rest of the EU member states at all stages.

**Table 6: Proportion of female academic staff by grade<sup>3</sup> and total, 2004**

	Grade A	Grade B	Grade C	Grade D	Total
EU-25	15.3	32.2	42	43.3	36.4
DE	9.2	16.1	25.9	35.6	29.2
A	9.5	16.2	35.6	37.9	29.7
PL	19.5	27.4	41	:	34.9

Source: She Figures 2006, 57

The Glass Ceiling Index (GCI) is an indicator that measures the relative chance for women compared to men of reaching a top position. In She Figures 2006, the GCI compares the proportion of women in Grade A to the proportion of women academics (Grade A+B+C), indicating the opportunity, or lack of opportunity for women to move up the hierarchical structure in their profession. A GCI of 1 indicates that there is no difference between women and men being promoted. A score of less than 1 means that women are over-represented and a GCI score of more than 1 indicates a glass ceiling effect showing that women are under-represented in grade A positions. (She Figures 2006, 52) Of the 23 EU countries reported, only 7 countries (i.e. Germany 1.9, Poland 1.8) have figures just below 2, although even these point to a substantial glass ceiling effect. Austria has 2.7, the average is 2.1 (ibid., 59)

Women make up the majority of non-academic staff (2004: 69.5%). Despite staff cutbacks this figure has remained constant. (Statistisches Bundesamt Deutschland 2005)

According to Lind (2004, 117) the gender distribution of jobs for student assistants corresponds to that amongst students. However, these positions offer different degrees of opportunity with regard to taking first steps toward an academic career. Female students are often granted less insight into academic activities in the course of such work, are involved less in academic discussions and are entrusted with less qualified, administrative tasks.

### 1.2.3 Employment situation

In 2003, Germany had a women's employment rate of 58.4%. This figure is however reduced if one also takes the criterion of employment volume into account. In the year 2003 the women's employment rate of 59% masked a figure of merely 46% full-time equivalent employment. Considering the growth rate during the last 15 years, Germany remains far from achieving the European employment strategy target of 60% by the year 2010. From 1991 to 2004 there has been an increase of women's employment by 10.3% (men -9.4%; total -1.7%). However, women's participation in the labour market with tertiary education increased by 69.7% (men 22.6; total 37.3%). (1. Datenreport zur Gleichstellung 2005, 99 and 686)

In a 1992 study, only two per cent of the university professors surveyed and seven per cent at the *Fachhochschulen* described themselves as part-time employed. Amongst non-professorial university staff 25% were employed part-time (Enders/Teichler 1995, 30). This last figure might have changed a lot in the meanwhile.

<sup>3</sup> The academic staff grades A-D refer to the division by the European Commission, see She Figures 2006, 100: Grade A: The single highest grade/post at which research is normally conducted. Grade B: Researchers working in positions not as senior as top position (A) but more senior than newly qualified PhD holders. Grade C: The first grade/post into which a newly qualified PhD graduate would normally be recruited. Grade D: Either postgraduate students not yet holding a PhD degree who are engaged as researchers, or researchers working in posts that do not normally require a PhD.

Professors at higher education institutions are usually civil servants for life (in exceptional cases they may be employees with a permanent contract). All posts for qualification are limited in time. At universities, qualification is usually achieved by a doctorate, usually on a fixed-term (part-time) job, by *Habilitation* with a C 1 job (fixed term is 6 years). A new amendment of the Framework Act for Higher Education introduced the positions of junior professorships instead of the former *Habilitation*. Since 2002, young scientists with a PhD have had the possibility to conduct independent research. Junior professorships are limited to six years. With the creation of a Tenure Track it will in the future be possible to change to a permanent job if a chair becomes free or is created. At least one change of university must have taken place after the doctorate, however. The proportion of women of junior professorships stood at 32% in 2002. According to the rules on limitation contained in the framework law the period within which to obtain further scientific/academic qualifications is limited to twelve years, with a maximum of six years for the doctorate. After this period, the candidate is expected to have found a permanent scientific/academic position. No account is taken of whether the candidate worked part-time during this period or whether children were raised (see Luz 2005). On 13.09.06 the Federal Cabinet agreed on draft legislation which would permit temporary employment even after the twelve years if the position can be financed by outside means. In addition, the period of limitation is to be extended by two years per child raised. (zwd 2006a)

Amongst non-professorial university staff the percentage of permanent employees was 21% in 1992, and amongst those without a doctorate a mere 8%. Amongst those with a doctorate 33% were in permanent employment. (Enders/Teichler 1995, 30-31) Seen in international comparison, Germany can be seen to have a particular degree of job uncertainty and dependence (ibid.). How women and men deal with the fact of high job uncertainty and dependence during their qualification phase at higher education institutions needs further analysis. As the figures show above, a high percentage of women quit a scientific career which might be due to these conditions. As the studies referred to below suggest, it is also more likely for women academics to find themselves at more precarious working conditions than men.

In his examination of the age structure of eleven research institutions and the employment of women Hinz (2000) concludes that the proportion of temporary positions has a clear effect on the proportion of women employed. The more temporary jobs in the institutions, the higher the proportion of women will be. "The argument that the temporary positions are comparatively unattractive for men is highly plausible." (ibid. 207)

Summarising four studies from the nineties, Lind concludes that female academics/scientists in the non-professorial middle-range positions, tend to be in lower-status jobs that are frequently part-time, with shorter duration of contracts and equipped with fewer resources (2004, 107).

No separate data are available on employment/unemployment amongst female academics/scientists. An international comparison by the OECD shows clearly that in Germany the employment rate is more strongly influenced by qualification than in most other OECD states and that the gender-specific employment rates become more similar with increasing standard of education. (Bundesministerium für Bildung und Forschung 2006) The unemployment rate of women and men with *Hochschulreife* or equivalent each stood at 6% in 2004 (1. Datenreport zur Gleichstellung 2005, Abb. A 2.5, 685). These figures are low, compared with the average of 9.9% for the general population.

Whilst in 1994, the unemployment rate for women (10.1 %) was markedly higher than that for men (7.3 %), it fell slightly in 2004 (9.3 %) to below the unemployment rate for men (10.3 %). Although unemployment rates fell throughout the EU 15 they increased in Germany, Austria and Poland.

**Table 7: Proportion of unemployment rates by sex 2004 and 1994**

	Unemployment rates						Long-term unemployment (12 months or more) % of total unemployment	
	Both sexes % of civilian labour force		Women % of civilian labour force		Men % of civilian labour force		2004	1994
	2004	1994	2004	1994	2004	1994		
Austria	5.0	3.6	5.5	4.0	4.6	3.3	24.5 <sup>a</sup>	18.4
Germany	9.9	8.5	9.3	10.1	10.3	7.3	51.8	44.3
Poland	19.0	14.4	19.9	16.0	18.2	13.1	47.9	40.4
EU-15	8.3	11.2	9.2	12.7	7.6	10.1	42.6	48.4

a) 2003

Source: OECD in Figures 2005

### 1.3 Women and men in scientific fields

It remains the case that students choose courses according to gender specific patterns. Considerably more men study natural sciences and engineering (their share is 64.5% or 79%) and considerably more women study languages and cultural studies (66.9%), art (63.7%) and veterinary medicine (81.9%). The numbers are relatively equal in law, economics and social sciences and in medicine. It has to be mentioned that the relatively equal figures of the subject group agricultural studies, forestry and nutrition deceive the high proportion of men in agricultural studies and forestry and the very high proportion of women in nutrition.

**Table 8: Development in the student structure according to subject groups (in %)**

Winter Term	languages and cultural studies, sport		law, economics and social sciences		Mathematics, natural sciences		Medicine		Veterinary medicine		agricultural studies, forestry and nutrition		Engineering studies.		Art		Total	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
95/96	63.5	36.5	41.4	58.6	33	67	46.7	53.3	72.3	27.7	49.3	50.7	16.2	83.8	60.7	39.9	41.7	58.3
02/03	66.9	33.1	47.7	52.3	35.5	64.5	56	44	81.9	18.1	54.6	45.4	21	79	63.7	36.3	47.4	52.6

Source: GEW Genderreport 2004, Tab. 5.5, 37

The central authority for university placement (ZVS) is responsible allocating places to study biology, medicine, pharmacy, psychology, veterinary medicine and dentistry. Although universities are increasingly free to select their own students, most still leave the choice to the ZVS (Kupfer 2004, 95). Bahro and Berlin (2003) compare the proportion of women at the application stage in numerus clausus<sup>4</sup> subjects with the proportion of women receiving places and give figures to show that "female applicants are not placed at a disadvantage by the ZVS selection process" (quoted after Kupfer 2004, 96).

<sup>4</sup> Numerus clausus subject means that there is only a limited provision of places to study in this field. Applicants are selected according to their rank of final marks of their *Abitur* (qualification for higher education). The lowest mark of the ranking which is sufficient to get a place is the numerus clausus of the respective subject.

Women obtained doctorates most frequently in agricultural studies, veterinary medicine (54.3 %) and education (52.6 %), with the lowest rates in engineering, manufacturing & construction (11.4 %). Similar trends can be seen throughout the EU 25 including Austria and Poland although the Germans come off particularly badly in the field of engineering.

**Table 9: Proportion of female PhD graduates by broad field of study, 2003**

	Education	Humanities & Arts	Social Sciences, Business & Law	Science, Mathematics & Computing	Engineering, Manufacturing & Construction	Agriculture & Veterinary	Health & Welfare	Total
EU-25	60.5	51.4	43.1	40	21.9	49.6	51.1	43
D	52.6	49.5	34.5	29.9	11.4	54.3	47.7	38
A	65.3	47.5	43.4	30.2	18.9	65.9	72	41
PL	:	51.6	42.7	50.1	24.1	53.8	47.2	45

Source: She Figures 2006, 21 and 39

Unfortunately, the employment statistics in She Figures 2006 are sorted differently from those for doctoral graduates; the trend remains however that women are strongly underrepresented in natural sciences and engineering research.

**Table 10: Proportion of female researchers in the higher education sector by academic discipline, 2003**

	natural sciences	engineering and technologies	medical sciences	agricultural sciences	social sciences	humanities	Total
EU-25	29.1	21.3	39.9	39.7	39.3	38.3	35
D	17.7	11.5	34	30.5	29.8	29.8	25
A	21.6	12.6	35.8	40.9	36.3	42.8	30
PL	38	19.2	53.6	49.7	46	45	41

Source: She Figures 2006, 28 and 42

Except for the humanities (16.3%) female professors in the other fields stand at between 3.8% (engineering and technology) and 8.9% (agricultural science). While Germany and Austria have a comparable distribution based on a low standard, both come off very badly when compared to Poland.

**Table 11: Proportion of female grade A staff by main academic discipline, 2004**

	natural sciences	engineering and technologies	medical sciences	agricultural sciences	social sciences	humanities	Total
EU-25	11.3	5.8	15.6	14.9	16.6	23.9	15.3
D	5.6	3.8	5.8	8.9	8	16.3	9.2
A	4.4	3.7	8.9	5.6	9.6	19.1	9.5
PL	16.9	8.7	28.2	24.3	20.6	22.5	19.5

Source: She Figures 2006, 57 and 60

#### 1.4. Income of women and men at universities

At *Fachhochschulen* there are C 2 and C 3 professorships; at universities C 3 and C 4 professorships – in relatively few cases also C 2. At *Fachhochschulen* there is also some teaching staff for special tasks whose pay is considerably below that of professors. At universities, qualification is usually achieved by a doctorate, usually on a fixed-term BAT IIa (part-time)

job, and by *Habilitation* with a C 1 job (fixed term is 6 years). (For more details see Schimank 2001, 119)

The proportion of female professors varies considerably according to salary group: While 19.6% of the C2 professors appointed for a fixed period were women the proportion of women appointed to tenured C2 professorships was just 14.5%. For the C3 professorships the figure stood at 11% and at just 8% for the C4 positions. (Lind 2004, 15-16)

In 2002 a new pay scale for professors came into effect (5. HRG ÄndG 2002). The aim was to bring pay rates at *Fachhochschulen* into line with those at universities, which is why the C4 posts were discontinued. Variable, performance related earnings in addition to the basic salary (without upper limit) were introduced. Little data is available on the new pay structure since it only affects new appointments. However, it is expected that another professorial pay gap will open up in the future. This concern was expressed at the 14th annual conference of the Federal Conference of Higher Education Institutions' Women's Representatives (BuKoF) that the performance related bonuses will lead to a gender gap similar to that shown to have arisen by a study from the USA<sup>5</sup> as well as by other experiences with flexible salaries (BuKoF 2003, 88).

There has been also a change of pay rates in public services according to the new collective agreement (2005) which also effects scientific staff at universities and most governmental or private non-profit research institutes. For the first time, performance will be reflected in earnings. At present 1% and later 8% of the total personnel costs shall be distributed according to performance of employees. Up to now, gender has not be discussed in the collective agreement of public services. However, as argued above, the effects could be negative for women.

Seen in terms of the national economy, the gender pay gap in Germany stands at 23% (2004). The pay differential in Germany rose by one per cent compared to the previous year, unlike all other EU states. Moreover the average in the EU 25 lay clearly below the German figure, namely at 15%.

The income of female higher education graduates is particularly close to that of their male counterparts at 86 per cent, however. In 1997 women with tertiary education earned just 72% of the income enjoyed by men. (1. Datenreport zur Gleichstellung 2005, 193). Nevertheless, as the following table shows, here too one has to distinguish between the individual professions. The smallest differential is found in natural sciences (88.6%), female engineers receive just 76.3%, and female economists and social scientists on average receive just 73.3% of male income rates.

**Table 12: Gross monthly earnings of women in full-time employment according to professions in Germany 2003 (excerpt)**

Profession	Earnings in €	Women's income in % of men's income
Natural scientists	3830	88.6
Computer experts	3727	83.9
Other engineers	3375	76.3
Other technical professions	2834	75.2
Economists, social scientists, statisticians	3739	73.3
Policymaking and managing administrators	3815	72.3

Source: 1. Datenreport zur Gleichstellung 2005, 186

<sup>5</sup> A Study on the Status of Women Faculty in Science at MIT, 1999

The most important provider of research funding, both in terms of volume and significance, is the Deutsche Forschungsgemeinschaft (DFG). In 2004 12.3% of grants to individuals went to women (2001: 10.3%; 2003: 13.2%) and 9% of the grants for coordinated programmes (7.9% and 9.2%). The figures for the previous years show that financial encouragement of women is stagnating. Of the all postdoctoral grants awarded 29.3% went to women (compared with 28.5% in 2003 and 30.9% in 2001). The only clear increase occurred in engineering studies, where the proportion of women increased from 8.7% in 2001 to 18.2% in 2004. (zwd Bildung, Wissenschaft, Kulturpolitik, 2005) The comparatively high proportion of women in the DFG scholarship programmes (29.3 % compared to 12.3 % grants to individuals and 9% grants for coordinated programmes) is due to the fact that these are mainly directed at younger academics whereas the other DFG programmes are drawn on mainly by established scholars who approach the DFG with applications for support. (Deutsche Forschungsgesellschaft 2004). On average the proportion of women receiving support was always two to four percentage points behind the male applicants during the years 2000 to 2003. A study of the award of postdoctoral grants in Sweden by Wenneras and Wold (1997) evaluated applications by women and proved that they had to produce 2.5 times more publications than their male fellow applicants in order to be classified as equally competent by the evaluation committee. No comparable study exists for Germany. A study aimed at discovering whether the differences in grants to women and men are attributable to their sex is, according to a DFG statement, currently in preparation. In their examination of outside finance in the field of sociology, Allmendinger and Hinz (2002) attributed the lower success rates of women to the gender specific concentration of research subjects: half of all applications made by women could be assigned to the topical focus of women and gender research. That is to say that competition was particularly fierce.

Throughout all subject groups in 2004 women applied for funding at the DFG less often than men and also received less. The proportion of funding received by women was lower than the proportion of women applying for funding and lower than the proportion of women amongst successful applicants:

**Table 13: Proportion of women in applications and grants according to subject groups (2004)**

Fields	Proportion of women in %			
	Applications	Funding applied for	Grants (number)	Grants (volume)
Science	8.2	7.7	7.2	6.2
Engineering	4.2	4.4	3.9	3.7
Life Science	17.0	16.4	16.0	15.3
Humanities, Arts, Social Science	22.5	20.6	20.6	19.7
Total	13.0	12.2	11.9	11.1

Source: CEWS, Statistik und Indikatoren 2006

According to the European Commission, in 2004 the research funding success rate difference between women and men in Germany was 5.9 % (She Figures 2006, 70). However, it must always be remembered that women are in a minority in many of the key subjects for which research funding is sought, so that even equal rates disguise continuing differences in numbers. (ibid., 66)

In a study for the Bundesministerium für Bildung und Forschung (2003a) Färber et al. analysed the low representation of women scientists from Germany in EU-funded research. A

main result is the fact, relatively many of the generally low level of positions that women in Germany achieve allow little opportunity for research, for example in the teaching positions at the universities of applied sciences, while very few obtain positions at research institutes. Since the EU-framework programme is directed at academics active in national research programmes, there are indications that the bias on science and technology in European funding has a marked effect on the chances of female academics from Germany. However women do succeed, although their conditions concerning their own positions (payment, security) are not as good as men's. Thus, Färber et al. conclude that their quality is better than their positions in the German research system.

Furthermore, there is a large number of study foundations that support especially gifted students, PhD students and post-doctorate lecturers. In some programmes women already outnumber men. The Hans Boeckler Foundation and the Cusanuswerk - Bischöfliche Studienförderung state that the proportion of female beneficiaries is more than 50 %. The Heinrich Boell Foundation has an even higher proportion of women: 2001, 74 % of student scholarships and 67 % for graduates were awarded to women. Both the Friedrich Ebert Foundation and the Rosa Luxemburg Foundation describe the promotion of women as a priority. (Bundesministerium für Bildung und Forschung 2003b)

According to the Deutsches Studentenwerk 14 % of female students' monthly income consisted of Bafög (state support), in contrast to just 12 % for male students. But since women have on average less money at their disposal than do men, these figures reveal little about absolute amounts of support. All that can be said is that Bafög is of greater importance to female students than for male students. (17. Sozialerhebung des DSW 2003, 174-175)

## 1.5 Women and men in decision-making

The Federal Minister for Science and Education is a woman, Dr. Annette Schavan. In 2006, three of the 16 *Länder* had female ministers responsible for higher education and science. In 2006, the president by rotation of the standing committee of the ministers of the *Länder* responsible for higher education (Kultusministerkonferenz, KMK) is Ute Erdsiek-Rave, Schleswig-Holstein Minister for Education and Women. 50% of the presiding committee are women; KMK members include 7 women and 23 men (proportion of women 23 %) (Kultusministerkonferenz, Aufgaben und Organisation).

The *Akkreditierungsrat* (accreditation committee) is the supreme body overseeing the transformation of courses to BA and MA and has 12 % women (2 women, 15 men) (CEWS-Newsletter 2006).

The *Deutsche Forschungsgemeinschaft* (DFG) presiding committee includes one woman at present (one vice-president out of eight plus the president). The DFG senate, which decides on research strategy and policy, advises politicians and decides on the composition of its specialist committees (who assess applications for support) currently consists of 43 members (including 3 permanent guests) of whom 9 are women (20,9 %, in 1988 the proportion of women was 16 %). (DFG-Website, 10.11.06)

The number of women and men on academic boards as a whole were 603 women compared to 2,915 men which is a proportion of women of 17 % (2004, She Figures 2006, 92).



In 2006, the first woman became president of the association of university rectors (Hochschulrektorenkonferenz, HRK): Prof. Dr. Margret Wintermantel. The HRK is the voluntary association of the state and state recognized universities and institutions of higher education in Germany. It currently has 259 member institutions. About 98 per cent of all students in Germany are enrolled at one of these institutions. (HRK auf einen Blick)

From 1997 to 2004 the proportion of women amongst university leadership more than doubled and currently stands at 15.8% The proportion of women amongst heads of higher education institutions (*Rektoren, Präsidenten* and Founder Principals) is below their share of professorships, whilst the proportion of women amongst deputy heads is higher. Over the years, however, strong fluctuations have taken place.

**Table 14: Proportion of women in leading positions at higher education institutions (in %)**

Function <sup>6</sup>	1997	1999	2001	2002	2004
<i>Rektor</i>	4.4	4.6	7.7	6.8	7.1
<i>Präsident</i>	5.3	11	8.3	11.5	13.5
Founder Principal, Founder Commissioner	21.4	14.3	-	7.7	:
<i>Prorektor</i>	9.8	8.8	12.7	15.9	18.2
<i>Vizepräsident</i>	17.4	10.3	14.2	19.9	19
<i>Kanzler</i>	9.6	14.3	12.5	17.4	18.3
Total	9.2	9.8	11.4	14.6	15.8

Sources: GEW Genderreport 2004, Tab. 5.23, S. 55, Bund-Länder-Kommission 2005b

The CEWS has collected statistics for the years 2003-2005 on the proportion of women in the higher education committees (*Hochschulräte*) of the individual federal states. With a nationwide share of about 20% women are underrepresented. A slight fall in the proportion of women was observable over this period. There are also great differences between the federal states. The comparatively high proportion of women in Lower Saxony (2005: 34%) and Schleswig-Holstein (2005: 28.2%) can be explained by legal regulations. In other states, the laws require only an "adequate representation of women". The tail enders for 2005 were Bavaria and North Rhine-Westphalia (each with a 13.5% proportion of women), Mecklenburg-Vorpommern (11.4%) and Saxony (9.8%). (see CEWS, Statistik und Indikatoren)

## 1.6 Social situation of men and women at universities

Until the end of the 1990s, due to the "Bildungsexpansion" (expansion of education) there has been a continuous increase of school leavers holding qualifications for higher education with its highest rate in 2002 with 38% of the age group (17. Sozialerhebung des DSW 2003, 104). Despite this expansion there remained a social bias. 2000, out of 100 children of a high social status group 81 children reached university qualification compared to 11 children out of 100 with lower social status (ibid., 119). Parents' educational attainment is still of eminent importance to start tertiary education (ibid., 110ff). But there are also big differences according to the parents' professional background. 63% of civil servants' children study, but only

<sup>6</sup> Depending upon a university's constitution the head is a *Rektor, Präsident* or Founder Principal with slightly differing competences. There are always several *Prorektoren* or *Vizepräsidenten* with different occupations at a university. Every university has a *Kanzler* who is the head of administration with high competence in budgeting.

18% of workers' children go to university (ibid., 90). Therefore the social composition of first year students is rather misleading: The fathers of 23 % of first year students are civil servants, 24 % are self-employed, 42 % are white collar workers and 12 % are blue collar workers (2000) (Schnitzer et al. 2001, 100; for absolute figures and developments since 1985 see also p. 101). Female students are more likely to have parents with qualifications for higher education (54%) than male students (50%). Accordingly less female students come from parental homes where the parents completed secondary school (18% compared to 22% of male students) (ibid. 118).

Färber et al. reveal in their study of women scientists from Germany in EU research that most women who are successful in EU funding have an academic family background. For women researchers the role of their mothers seem to be quite important: 44% of those who attained EU funding had a mother with university degree compared to 5 % of their male counterparts. (Färber et al. 2003, 48; similar observations are compiled by Lind 2004, 55ff)

In 2003, 12.1% of female school leavers with foreign origin attained qualification for higher education compared to 8.5% of male school leavers with foreign origin (1. Datenreport zur Gleichstellung 2005, 40). In 1998, 3.8% of all students were "Bildungsinländer" (students with a foreign passport who passed the German school system) and 7.2% were "Bildungsausländer" (foreigners who have a foreign qualification for higher education) (Schnitzer et al. 2001, 424). The proportion of male "Bildungsinländer" was higher than the proportion of female "Bildungsinländern" (56% to 44%). The group of foreign students differ very much in respect to social origin, living conditions and choice of field of study. In comparison with German students, foreign students as a whole are younger, get less financial support by their parents and are more likely to receive Bafög or work (ibid., 429ff). (see also Kupfer 2004, 120ff)

In the age group of 30 to 35 years old women, the proportion of those of foreign origin with university degree or PhD is even higher than the proportion of German women and men (12.6% compared to 11.2% and 11.5%) (1. Datenreport zur Gleichstellung 2005, 91).

About 6% of students have children of their own (58% have one child, 42% two or more children). At 7%, there are slightly more student mothers than fathers at 6%. (17. Sozialerhebung des DSW, 316) 8% of the fathers and 15% of the mothers are not in a permanent relationship (ibid., 319). The most obvious difference to the figures for childless students is that in the numbers of those taking time-out from their studies. Only 13% of childless female students took a time-out but 56% of women with children interrupted their studies at least once. For male students the differences are less marked but still very clear: 14% of childless male students but 34% of the men with children interrupted their studies. The DSW emphasizes that the interruptions are not at all short term time-outs to bring up children followed by a frictionless resumption of studies. "As a rule of thumb it can be said that whether women or men, whether with children or not: about half the students interrupting their studies also change institution, course or both." (Ibid., 325-326)

For academics it is not actual motherhood that proves to be the central obstacle to an academic career. Rather it would appear to be that there is widespread notion of inconsistency which leads to low expectations of the performance of female academics in general (whether with or without children). Although managing both roles does mean an enormous burden for female academics with children (in contrast to male academics with family who can rely on their partners' care), there is no clear evidence showing better performance by male or childless female academics than by female academics with children. (Lind 2004, 99-100)

Female professors are more frequently single or divorced than are male professors. Female academics also much more frequently remain childless than do male professors or women in other academic professions. Younger female academics have children more frequently than older female academics. (Lind 2004, 64-65). At the same time the former describe combining the demands of an academic career with those of children as the central problem during the qualification stages. The reasons for the increase of female academics with children needs further analysis. For instance, it would be interesting whether it is an effect of equal opportunity measures.

### **1.7 Evaluation/analysis of the availability and presentation of data about the situation of women and men at universities**

In 1989, the *Bund-Länder* Commission for Educational Planning and Research Promotion (BLK) submitted for the first time a report to the heads of the Federal and the *Länder* governments on the "Promotion of Women in Science", which contained proposals and recommendations in particular on the appointment of women's representatives at universities and non-university research institutions, on procedures to fill vacant positions, on specific support measures for female scientists, on the drawing up of women promotion schedules as well as on women's studies. This report was updated in 1996; the recommendations were elaborated in more detail and specified. In this report, the situation of the new *Länder* since 1990 was examined for the first time. In 2005 the Commission published the ninth continuation of its report on "Women in Decision Making at Universities and Non-University Research Institutions" (Bund-Länder-Kommission für Bildungsplanung und Forschungsförderung 2005b). These statistics are a valuable source for sex-disaggregated data in science.

The statistical evaluations refer to bipolar male female categorisations. It is rare for several characteristics (such as origin, social situation, sex etc) to be linked so as to provide a more complex picture. More detailed gender differentiated research into the allocation of outside funding and the gender pay gap in science remain desiderata.

There are no data available to provide a quantitative evaluation of the current life situation of female academics. Younger female academics wish to combine profession and family, and are thus removed from empirically notice. Longitudinal analyses relating to career paths of academics in general and female academics in particular would also be of interest. These could show reasons explaining why and where women become "lost" to science ("leaky pipeline").

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

The Helsinki Group (European Commission, the Helsinki Group on Women and Science 2002) states that there is considerable diversity among its member countries in terms of policies - which is particularly true for Austria, Germany and Poland. This includes both the scientific infrastructure and the equality climate. According to an overview by the Commission Germany has implemented the most national policies to promote gender equality in science in comparison to all other European member states. The following table shows the wide range of national policies to promote gender equality in science (2004).

**Table 15: Equality Measures in science by country**

	DE	AT	PL
Equal treatment legislation (general)	X	X	X
Commitment to gender mainstreaming	X	X	X
National Committee on Women & Science	X	X	X
Women & Science Unit in Research Ministry	X	X	
Publication of Sex-disaggregated Statistics	X	X	
Development of Gender equality indicators	X	X	
Gender balance targets: public committees	X	X	
Gender balance targets on university committees	X		
Gender Equality Plans in Univ.& Research I.	X	X	
Gender or Women Studies & Research at Universities	X	X	
Programmes on W&S, special funding available	X	X	
Nationwide Centres on Women & Science	X		

Source: European Commission, Community Research 2005, 11

With reference to the equality provisions contained in the Amsterdam Treaty the German federal government recognized the equality of women and men as a general guiding principle in a cabinet decision dated June 23rd, 1999. In a cabinet decision from the year 2000 it introduced gender mainstreaming as a general guiding principle for all political, normative and executive measures undertaken by federal ministries. The implementation of gender mainstreaming was a central project of the government's "Moderner Staat – Moderne Verwaltung" programme. In the same year, an inter-ministerial working group was established on gender mainstreaming (IMA-GM). Pilot projects were initiated in all federal ministries.

The federal ministry for education and research already established the goal of equality as a general target and in the individual chapters of its 1999 budget (for greater detail see Ebeling 2000, 416f). A pilot project on "new media in education" was started with the intention of promoting the development of educational software for schools, professional training and universities from a gender point of view. (see Bundesministerium für Familie, Senioren, Frauen und Jugend 2004)

A feasibility study on gender budgeting at federal level was commissioned in 2005. Though the study has been completed in the beginning of 2006 the results are not published yet. With the change in government in 2005 the fundamental question arose of whether the gender mainstreaming process started in 1999 would be continued. The federal ministry for women's affairs announced a new equality policy to be announced at the end of 2006.

Through the so-called "Exzellenzinitiative" in which German universities can apply for about 1.9 billion Euro funding for excellence, the topic of equal opportunities experienced more attention, at least for a time. One of the general criteria for evaluating applications is "measures taken for the equality of women and men"<sup>7</sup>. In February 2006, the president of the Deutsche Forschungsgesellschaft (DFG) Ernst Ludwig Winnacker reported the negative opinion of the experts back to the applicants, "one can not avoid the impression – so the international experts – that the topic receives more lip-service than concrete measures and target-setting". (zwd 2006c) Again in his farewell speech as DFG president Winnacker addressed the inequality of opportunity for women and men in science.

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

At the constitutional level, the basic principle of equal rights is laid down in Article 3 Section 2 of the Basic Law of the Federal Republic of Germany: "Men and women shall have equal rights. The state shall promote the actual implementation of equal rights for women and men and takes steps to eliminate disadvantages that now exist." By adding the second sentence to Article 3 Section 2 in 1994, the federal government's equal rights policy was developed decisively further since German reunification. Some of the *Länder* constitutions were amended accordingly.

A second Equal Rights Act (1994) recognised the need to tackle structural inequality in the ranks of the federal administration itself. Beginning in 1989, all 16 *Länder* have meanwhile enacted Equal Opportunities or Equal Rights Acts. Some of these laws are also applicable to the academic sector in a supplementary fashion; in some *Länder*, regulations that are to bring about an implementation of equal rights and actual non-discrimination in the sense of structural equal opportunities have been incorporated in higher education laws. (Women and Science 2002, 1)

The federal and *Länder* laws oblige authorities on all administrative levels (Federal Government, *Länder*, municipalities, higher education institutions as well as all other public authorities) to appoint women's representatives (*Frauenbeauftragte*) and, in general, to involve them in all staff-related, social and organisational measures which may affect women's affairs. A new Equal Rights Act (*Bundesgleichstellungsgesetz*) from 2001 strengthened the competences and veto rights of the women's representatives. The offices of the federal administration had to establish *Frauenförderpläne* ("female personnel development plans") which contained explicit targets for the participation of women at all levels of the hierarchy. This Federal Equal Rights Act also forms the basis for equal rights agreements for non-university research institutions. In some *Länder*, higher education institutions as well as other public authorities have to establish *Frauenförderpläne*, too, which must contain targets for the participation of women at all hierarchical levels together with measures to reach these targets. (Women and Science 2002, 7; European Commission, The Helsinki Group on Women and Science 2002, 39)

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<sup>7</sup> „In allen drei Förderlinien ist die Eignung der Maßnahmen zur Förderung der Gleichstellung von Männern und Frauen in der Wissenschaft zu berücksichtigen.“ (Bund-Länder-Vereinbarung über die Exzellenzinitiative 2005, § 3 (1))

As far as industry is concerned, the above-mentioned equal rights laws of the Federal Government and the *Länder* do not apply. However, large companies in particular have appointed women's representatives.

By its amendment in 1998, the Framework Act for Higher Education (HRG) establishes important framework conditions for equal opportunities in the higher education sector, which have been implemented by the corresponding higher education laws of the *Länder*.

- It mentions the universities' women's affairs and equal rights representatives whose responsibilities and participation rights shall be regulated by *Länder* law (§ 3);
- introduces an evaluation and performance-oriented funding of universities. The appropriation of government funds will be geared to universities' performance in teaching and research, their support for young scientists and the enforcement of gender equality (§ 5 and § 6).
- Habilitation is no longer the standard criterion for the appointment of professors (§ 47 and § 48).

Furthermore, the Federal Educational Allowances and Parental Leave Act was amended; it provides for parental leave of up to three years per child for both parents (mothers and fathers) and includes the option of both parents taking parental leave at the same time.

The new equality law, the *Allgemeine Gleichbehandlungsgesetz* (AGG) came into effect on 18.8.2006. The statute implemented four EU Directives granting protection from discrimination on the grounds of sex, ethnic origin, race, disability, age, religion or ideology, or sexual identity in the workplace and in general business transactions.

## 2.2 Organisational aspects

In order to promote the implementation of equal opportunities for women in education and research the BMBF has established a special department. It has the task of implementing gender mainstreaming with the help of its own budget item, "strategies for implementing equal opportunities for women in education and research". The department is part of the ministry's section for "strategy and fundamental issues".

At the level of the *Bund-Länder* Commission for Educational Planning and Research Promotion (BLK), the working group "Promotion of Women in Science" was set up; Officials in the Divisions in charge of Women in Science in the responsible ministries of the Federal Government and the *Länder* are members of this working group; further members, in particular from the Science Council, participate in an advisory function. The working group is a kind of national steering committee. Experts are consulted on specific tasks, such as discussions on statistics. The situation of women in science has been made visible through several reports since 1989 and put up for discussion by a broad public. Yet the continuation is threatened by the reform of federalism: The federal and *Länder* ministers decided the dissolution of the *Bund-Länder* Commission for Educational Planning and Research Promotion by the end of 2006 (*Süddeutsche Zeitung*, 24.10.06).

The women's representatives in the Federal Government and the *Länder* have organised themselves in the Federal Conference of Higher Education Institutions' Women's Representatives (BuKoF) and in the *Länder* Conferences of Higher Education Institutions' Women's Representatives (LaKoF). These organisations are funded by the Federal Government and

by some *Länder*. Co-operation between these Conferences and the responsible ministries at Federal Government and *Länder* level has considerably increased over the past few years.

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

A variety of measures had been adopted to promote women and equal opportunities in science. Of outstanding importance were the funds of the Special Funding Programme for Higher Education and Research II/III (1990-2000) and the Academic Science Programme (2001-2006).

One of the main aims of the Academic Science Programme (HWP) has been to create equal access for women to the academic infrastructure enabling their permanent integration into academic structures. To this end they pursued a twofold strategy. On the one hand, structural obstacles to women should be dismantled, on the other hand special assistance measures be offered to women. This approach by the HWP approach was broader than the two previous programmes HSP II/III, whose focus lay on assisting women and on combining family and profession. 30.7 million Euro were available for the "equal opportunities for women in research and teaching" programme every year. Furthermore they also attempted to ensure that other programmes affecting individuals included at least 40% of women. (Löther 2003, 8)

The website, [www.cews.uni-bonn.de/hwp](http://www.cews.uni-bonn.de/hwp), shows all measures supported by the HWP. The following presents a selection (Women and Science 2002; Löther/Mühlenbruch 2005):

1. Measures aimed at qualifying women for professorships
  - In North Rhine-Westphalia, a women's studies network was established and extended. 45 professorships were established, in particular in subjects in which women's studies were not yet or, not sufficiently, represented, such as architecture, medicine, law, economics, history and technically-oriented subjects.
  - In Lower Saxony, the Dorothea Erxleben Programme was established in 1994, which has provided 37 positions at universities as well as 14 positions at *Fachhochschulen* so far, in order for women to qualify for a professorship by habilitation or sufficient other achievements.
  - Almost all *Länder* have established grants or appointments for women to obtain the qualification for professorships in universities, *Fachhochschulen* or colleges of art. The oldest habilitation-programme, the Lise-Meitner-Programm, has been assisting young female academics from North Rhine-Westphalia since 1991. (for an evaluation see Lind 2005) (for Bavaria see Schindler/Steward 2005 and Krischer 2005)
2. Improving the proportion of women in natural science, technology and engineering studies
  - There are two women-only study courses "industrial engineering" (FH Wilhelmshaven and FH Stralsund) and an international women-only study course in computer science at German Universities of Applied Sciences.
  - Bremen's project "Women studying natural sciences and technology" supports projects including publicity in schools, support measures during the course of study, right up to careers information after graduation.
  - Mentoring projects or programmes for schoolgirls in various *Länder*, e.g. Ada-Lovelace-Project (for its evaluation see Sander 2005)
  - Open days and "summer universities" for girls

### 3. Career support for women

- Mentoring
- Career center for female students and graduates
- Further education and training

### 4. Gender studies and co-ordination für women's and gender research

- In 1994, the Maria-Jahoda Visiting Professorship for International Women's Studies at the Ruhr University in Bochum was established. Other visiting professorships were established in Lower Saxony (Maria-Goeppert-Mayer Professorship for international Women and Gender Studies) and Rhineland-Palatinate (International and interdisciplinary Visiting Professorship).
- Since the beginning of 2003 students of higher education institutions in Hamburg can take part in a Gender and Queer Studies programme. The course is run by 70 teachers and 5 female gender professors drawn from both institutions.
- The coordination for women's and gender research in Saxony-Anhalt is intended to promote research in these fields and also to assist women in obtaining academic qualifications.

Furthermore there are numerous programmes by foundations and *Länder* as well as guidelines and plans for promoting women at individual universities. Berlin's Free University is exemplary in this regard (for details see *Frauenförderung und Geschlechterforschung an der Freien Universität Berlin 2000*; *Frauenförderung als Querschnittsaufgabe 2002*; Färber 2000, 109ff).

In September 2000 the "Centre of Excellence Women and Science" (CEWS) was opened in Bonn, which is a national centre for co-ordination, information and consulting. The centre aims to increase the proportion of women in executive positions in science and research, to increase the efficiency of measures for equal opportunities and to implement Gender Mainstreaming. To help universities to find women for leadership positions or panels the CEWS maintains the FemConsult-Database which contains 6500 data sets of women scientists.

Furthermore, an evaluation procedure for the TOTAL E-QUALITY award specifically designed for the situation at higher education institutions and non-university research institutions has been developed. The first award based on this procedure was presented in spring 2002. (Questionnaire see TOTAL E-QUALITY Deutschland 2001)

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

The efficiency of the measures mentioned above is measured on the one hand by regular reports on the progress of women in science. The regular statistics reports in particular show clear progress but also reveal areas with a need for action. (See reports by Bund-Länder-Kommission)

By the amendment of the Framework Act for Higher Education (HRG) in 1998, and therefore the introduction and evaluation of higher education institutions' funding on the basis of their performance in teaching, research, promotion of young scientists and the implementation of equal opportunities, a start has been made towards the development of instruments supporting and speeding up this process in the *Länder*.



In some *Länder*, equal opportunity parameters for the awarding of funds to higher education institutions have been developed, for example by allocating part of the funds according to whether and to what extent the proportion of women among students, graduates and new appointments has increased or decreased. This kind of incentive systems is intended to increase awareness of the fact that the promotion of women is an activity of higher education institutions that is evaluated and rewarded. (see also chapter 3.3)

## 2.5 Funding for promotion of women; equal opportunity policies

According to the national report by Hadulla-Kuhlmann and Hartung (Women and Science 2002, 5), more than one billion marks was made available for specific measures for women between 1990 and 2000 within the framework of the Special Funding Programmes for Higher Education and Research II and III (HSP), which were co-financed by the Federal Government and the *Länder*. Apart from specific measures for women, this programme also contained further fields of support; the general rule was that, of all the funds used for personnel measures, 20% had to be spent on the promotion of women. This target was reached – in particular over the last few years of the programme –, and was even surpassed in some *Länder*. Within the framework of the Academic Science Programme (HWP, follow-up to the HSP II/III), from 2001 to 2006 a total of 30 million Euro annually has been provided by the Federal Government and the *Länder* for the programme section "Equal Opportunities for Women in Science and Research", of which 75% were to support the qualification of women for leading positions at universities, 15% should be used for women's and gender studies and 10% were to support measures to motivate women in scientific and technical subjects. According to Hadulla-Kuhlmann and Hartung, the overall percentage of women in personnel-related support measures over the past years has been significantly more than 40% and rising. E.g. in 1999, more than 12,000 women in science were supported under HSP III. (see also Bundesministerium für Bildung und Forschung 2004, 218ff; CEWS 2003, 8)

At least 80% of the present women promotion programmes in higher education are financed from HWP funds, according to Dagmar Höppel, spokesperson of the HWP commission of the Federal Conference of Higher Education Institutions' Women's Representatives (BuKoF). After the phasing out of the HWP she predicts a "major collapse" for 2007. (zwd 2006b) In the light of the reforms in federal structure, limiting federal influence on higher education policy, it is doubtful whether similar initiatives will even exist after 2007. This will not only have a major effect on women's share of PhD degrees but also in their share of habilitations since these programmes have been a major promoter for women in science in general.

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

Women's and gender research in Germany was born from the feminist movement. Participation in education, access to universities and to scholarship and science as a profession had been important demands already in the "old" feminist movement. Today equal opportunities policy and women's and gender research are strongly interconnected and partially overlap. Women's and gender research seeks to contribute to the modernisation and democratisation of scholarship, science, technology and society. It is represented in almost all academic disciplines and has taken shape as an independent discipline since the 1990s.

According to Kahlert (2003, 66-67) there are three broad categories in which it is integrated within the German academic scene:

- Women's and gender research has progressed furthest in the field of cultural studies. In some fields it is an established part of the curriculum.
- The extent to which women's and gender research approaches are reflected in social sciences varies, as does their acceptance and institutionalisation. Sociology and history are hesitantly opening up under pressure from the gender researchers, whereas politics, law and economics are still at the beginning.
- In natural sciences and technology gender-based approaches are little represented or even accepted.

In adjusting the courses of study to BA and MA the gender dimension is not part of the criteria for accreditation. Until now it has been left up to the applicant institution to decide whether to include gender competence in the objectives for the course of study (Jahn 2006, 28). The demand for gender just stages in courses of study has, however, become louder since it became clear that fewer women than men embark on a master's course after finishing the bachelor's course (see footnote 1).

In 2001 Brandes et al. investigated about 30 universities and *Fachhochschulen* in Germany which had institutionalised women's and gender research in one form or another. This corresponded to almost 10% of all universities, whereby a glaring north-south divide in favour of the north could be observed (see Metz-Göckel 2004, 54). According to a database at the Free University Berlin which assembles data on professorships in women and gender study, there are 108 gender professors in Germany (Zentraleinrichtung 2006).

A completely different form of institutionalisation was the temporary foundation of the "International Women's University 'Technology and Culture'" (IFU) during the EXPO 2000. The concept combined an international, transdisciplinary scientific perspective with educational reform structures. All its content focuses (body, city, information, migration, water and work) made gender relations the reference point for analysing problems. Furthermore, new approaches to participation and implementation were developed – among others through the inclusion of women as users and clients of the projects (Neusel 2000, 94; Metz-Göckel 2004, 64-65).

Both Kahlert (2003) and Metz-Göckel (2004) come to the conclusion, that in terms of extent, resources and degree of institutionalisation throughout Germany, women's and gender research can only be described as marginal. Nevertheless they remain a challenge to the most important academic organisations to rethink the gender dimensions of their institutional culture, their selection mechanisms and criteria for promotion (Metz-Göckel 2004, 65). And as this and the following chapter show, women's studies and gender researchers are attempting to influence the process of university reform with pilot schemes and scientific research projects.

### 3. Financing of the university sector

#### 3.1 The general context

The German higher education system can be characterised by its principle of “unity of teaching and research” which implies the prominent role of the professors and the public status of universities. There are a total of 338 higher education institutions with almost 2 million students (winter semester 2005/2006) (HRK-Hochschulkompass). 117 of the total are universities, 164 universities of applied sciences and 57 universities of art and music (including those run by the Churches and private universities, both acknowledged by the state). The German Basic Law guarantees the freedom of science, research and teaching (Article 5 Section 3) which implies a high degree of autonomy of universities. The legal foundation of the higher education system is laid down in the Framework Act for Higher Education (Hochschulrahmengesetz – HRG) at federal level and in the Higher Education Laws of the *Länder*. Whereas the Framework Act merely stipulates the general principles for studies, teaching and research nationally, the *Länder* laws regulate the ongoing operations of their higher education institutions largely autonomously. This legal arrangement reflects the federal principle of the cultural sovereignty of the *Länder*. A major change in the higher education system has been introduced by the amendment of the Framework Act for Higher Education in 1998. The federal authority withdraws in certain areas in order to encourage *Länder* attempts to strengthen institutional autonomy in staffing and financing matters and the *Länder* systems for financing and outcome-oriented planning.

Basic business concepts like transparency, target orientation and controlling thus found their way into the rules governing the relationship between the state and the university and into the organisation of the universities themselves. Keywords like internationalisation, competition and performance orientation, which reflect the increasing international competition in science today as well as the general economization policies of both federal and *Länder* governments together with the associated expectations of greater efficiency, have become essential factors in running and financing universities. Thus, Kreckel describes this process as a “subordinate economization” of the universities as a result of the “new economization of the state” (2004, 169).

The federal government is (still) an important provider of funding for higher education, especially for building expenses and for separately budgeted funds for research projects – and over the coming years for the increase of universities’ capacities. But much more important are the *Länder*, which provide the largest part of the universities’ institutional funding and whose Ministries of Education and Research are the government authorities that control and guide the higher education system.

In 2004 public spending on universities (*Grundmittel* or basic funding) by the federation and *Länder* (including university research) totalled 18.2 billion Euro. Compared to the previous year this represents a reduction of 3.1%. The *Länder* provided 89% of basic funding and the federation 11%. This ratio remained relatively constant between 1999 and 2004 (BLK 2006a, 23-24). In 2003, nationwide expenditure on research and teaching at universities stood at 1.1% of gross domestic product, including ca. 0.4% for research (BLK 2006b, 85).

Because of the increasing numbers of those studying, which more than doubled since 1975 (also as a result of reunification), nominal expenditure on universities has tripled. However,

once the effects of inflation have been taken into account, it becomes apparent that expenditure per student in the 90s had increased only slightly (see *ibid.*, 80-81). At present there is a great deal of controversy between universities, the *Länder* and the federation as to how to cope with rising student numbers (2.7 million by 2013). The federation and the *Länder* reached an agreement (known as the *Hochschulpakt*) according to which they would provide a total of 1.9 billion Euro by 2010. The president of the *Hochschulrektorenkonferenz* (HRK) has estimated that considerably more is required and demanded that assurances be given for planning beyond 2010, in view of the fact that developments will not have passed their peak by then. (Hochschulrektorenkonferenz 2006b)

54.5 billion Euro was spent on research (including military research) in 2003. 31.1% came from the public sector, 66.6% from business and 2.3% from the EU. Most of this money went into research by businesses. Universities received 9.2 billion Euro for research and development, of which 7.8 billion or 85.2% came from the state. Private non-profit research institutions received 6.3 billion Euro for research and development, of which 5.8 billion Euro came from the public sector. (BLK 2006a, 9) Public expenditure on research and development outside the universities increased more than 3.5fold since 1975. In 2003, public spending on research outside universities reached 0.43% of gross domestic product. (BLK 2006b, 110 and 117)

### **3.2 Description of laws and treaties regulating financing of universities**

The Framework Act for Higher Education (HRG) § 5, as amended in 1998, regulates the university funding in Germany as follows: "State funding of the universities shall be orientated on performance in research and teaching as well in furthering junior academics. Progress made towards achieving equality shall also be taken into account." On interpretation this marks a change state funding of universities from an input orientation towards output orientation whereas gender equality is a prominent indicator. A large part of the previous regulations covering the organisation and administration of universities was dropped, but for the first time, university funding became linked to equality between women and men.

These changes led to the amendment of all *Länder* Higher Education Laws over the next few years. All the *Länder* laws contain regulations concerning objectives as well as performance-oriented allocation of funding (Burkhardt 2004, 32). University councils or boards of trustees intended as independent bodies mediating between the state and the universities were introduced in all the *Länder* (apart from Bremen). The university leadership was given a new role, and the *Länder* Higher Education Laws (with the exception of Saxony-Anhalt and Schleswig-Holstein) have clearly strengthened its position in relations with bodies made up of university members. In many cases the university leadership was granted sole decision-making power in budgetary matters or as part of a cooperative model with authority being shared between university bodies and the university leadership. (see Kupfer 2004, 204ff)

The federal system as well as the various economic and political situations of the *Länder* led to different forms of university funding, regulated by higher education pacts, accords, contracts and/or agreements on objectives between the *Länder* governments and the universities. The state reserves the right to general control for itself by fixing the framework conditions while passing matters of detail on to the universities. § 5 sentence 2 of the Federal Framework Act (Equality) was adopted by all the *Länder* Higher Education Laws. By way of example, the Bavarian law of 23.05.2006 is included in the appendix.

However, the changes undertaken have frequently proved less far-reaching than the rhetoric might lead one to expect. Burkhardt has noted significant instances of similarity in the *Länder* Higher Education Laws to public sector budgetary methods. Thus, there are a number of differentiations according to "funds" and "positions" which refer to traditional assignments shown on an staffing plan (2004, 34 f). Furthermore around 80% of the funding is taken up by the field of personnel, the conditions of which are largely outside the influence of the universities. In practice therefore the "freely" disposable budgetary funds represent merely a fraction of the overall budget, although this is being expanded by stages (ibid., 35).

The Academic Science Programme (HWP) initiated by common agreement between the federation and *Länder* in 1999 for the further development of universities and science runs out at the end of 2006. (see chapter 2.3.) The *Hochschulpakt* is to take its place. Besides the development of the higher education capacities (see chapter 3.1.) the pact is also intended to promote research at universities. The principles decided on 11.10.2006 give no mention to equal opportunities as being a criterion for awarding subsidies amounting to a billion. (zwd 2006b)

The introduction of tuition fees for students was argued over for a long time, having originally been forbidden by the federation. However, on 26.01.2005, the Federal Constitutional Court declared the ban on tuition fees contained in the HRG to be unconstitutional. It is therefore up to the *Länder* to decide whether to introduce tuition fees. The *Länder* Baden-Württemberg, Bavaria, Hamburg, North Rhine-Westphalia as well as Saarland intend to do so. The fees are to be in the region of 500 Euro per semester. The earliest possible date for the introduction of general tuition fees is the winter semester 2006/07. (Kultusministerkonferenz, Wissenschaft/Hochschule)

### **3.3 Management instruments for financing and budgeting of universities**

#### **3.3.1 Description of management instruments for financing and budgeting of universities**

The majority of the recent procedures for allocation of funds to higher education institutions in Germany contain three components (see Leszczensky/Orr 2004, 5f; Leszczensky et al. 2004, 5ff):

- *discretionary incremental components*  
In this type of funding the state fixes the size of the budget and the allocation of the funds. Funding by means of incremental extrapolation from a historically established budget takes annual increases into account. This type represents the most common form of basic funding for universities.
- *indicator linked components*  
Here, the amount of state funding a university receives depends on its performance. It is calculated according to formulae. The proportion of funding allocated in this way varies greatly in the *Länder* (see below.)
- *Contractual components*  
Agreements on objectives and performance are reached on a cooperative basis. The extent to which they have been successful in attaining their targets is examined and evaluated after a certain period. Financial allocations can be linked to certain measures or to the attainment of the agreed targets – however, this has hardly ever been put into practice between state and university.

In addition, there are *earmarked project funds (zweckgebundene Projektmittel)*. The universities compete for the available project funds by submitting applications. Unlike the case of outside funding, the state determines the aim of the project in advance.

As a result of the increasing flexibility and globalisation of university budgets it is generally expected that the current predominance of discretionary incremental funding components will decrease in favour of funding allocation according to formulae and agreements on objectives. In the year 2003 twelve *Länder* had already introduced the indicator linked funding. The financial volume affected by it varied between 5% (Bavaria, Bremen, Hamburg) and 95% (Hesse and Rhineland-Palatinate) (Leszczensky/Orr 2004, 46). Strong fluctuations of the annual budget avoided by the use of indicators formed on the basis of an average over several years or by constraints limiting percentage profits or losses. The constraints in the *Länder* concerned effectively stand at 0.5% to 1.5% of the entire budget. These effective constraints also represent the maximum possible difference to the budget of the previous year (ibid., 49).

The indicators used in the individual *Länder* concern teaching, research, equality and internationalization and in some cases additional tasks as well. According to Leszczensky and Orr indicators on teaching dominate in all procedures with one exception (Berlin), the shares allotted to teaching and research are equal in size (2004, 51). Equality is taken into account by almost all procedures. The indicators used in this context refer either to ratios (e.g. the ratio of female professors to all professorships or of woman graduates to all graduates) or to changes in relation to previous figures (e.g. an increased proportion of women in the natural sciences). Absolute indicators are used only in Brandenburg and Hesse. Most procedures effectively allocate between 1% and 2% of funds according to gender indicators. (ibid., 52)

The indicators can be divided into *demand oriented* and *output oriented* components. An examination of the indicators used and the effect they have on allocation procedures shows that the funding procedures are assessed mainly in terms of 80% determined by quantitative demand factors such as the number of students within the normal duration of study. Measures of success (output) like numbers of graduates only influenced higher education budgets by at most up to 8% (ibid., 54ff).

The "translation" of indicator values into allocated funds takes place either in terms of a fixed bonus being paid for achieving certain situations ("*price model*") or of a fixed amount divided up between the universities according to the indicator values ("*distribution model*"). In addition variants exist, in which the allocation is made not according to the absolute value of the indicators but rather in terms of the relative differences to a benchmark period (*niveau versus differential approach*) (ibid, 72). The models of indicators used in the *Länder* also strongly differ from one another in terms of complexity. Leszczensky and Orr come to the conclusion that in order to avoid the danger of faulty decision-making a model should not only include all the relevant facts of the matter but also be clear in its implications for the universities. This second condition would, they argue, be most easily met by less complex models. The first condition would however require a sufficient degree of differentiation, for example through the number of indicators used. In this respect complexity does not of itself tell us anything about a model's suitability to manage a given situation. (2004, 76)

Almost all federal states use agreements on objectives or similar instruments to manage developments in higher education. According to König et al. (2004) three types may be distinguished: higher education pacts (*Hochschulpakete*) are agreed between the *Land* and all universities in a *Land* at the same time and regulate the financing, the numbers and types of

staff and partly targets regarding content for all universities in the same way (e.g. Hesse and North Rhine-Westphalia). Some *Länder* (e.g. Berlin and Hamburg) have concluded higher education agreements (*Hochschulverträge*) with each university on a one-to-one basis. They too contain agreements on the financing, the number and types of staffing of the institution involved, but also on objectives specific to the institution. Thirdly, there are pure agreements on objectives, like the *Hochschulverträge* these are reached between the *Land* and the individual institution and can cover a number of strategic aims but not university funding (e.g. Hesse and North Rhine-Westphalia).

The new management model also envisages an adjustment within the university itself away from allocation according to input towards an output oriented approach. This presupposes the development of an institutional profile. The budget will be directed towards the strategic targets contained therein. In accordance with the need for legitimation and settlement of costs, the financing of the individual faculties etc. has to adapt to fit the fixed tasks allocated by the state and, simultaneously, bring about specific incentives which can, as a higher-level target, steer the relationship of the individual sections so as to be in accord with the institutional profile. The allocation of funds within the institution can again take place according to formula-bound procedures or by discretionary procedures. It too can be linked to targets. In a current study of performance oriented budgeting by six German universities, Jaeger (2006) evaluates experiences with the new management mechanisms. He finds that agreements on objectives are used as strategic management instruments and are relevant for the allocation of resources in a variety of ways. The universities examined have found that formula based allocation procedures are suited to produce transparency and motivate performance, in financial terms however resultant reallocation of resources turned out to be slight since only small proportions of budget funds are tied to indicator based allocation procedures.

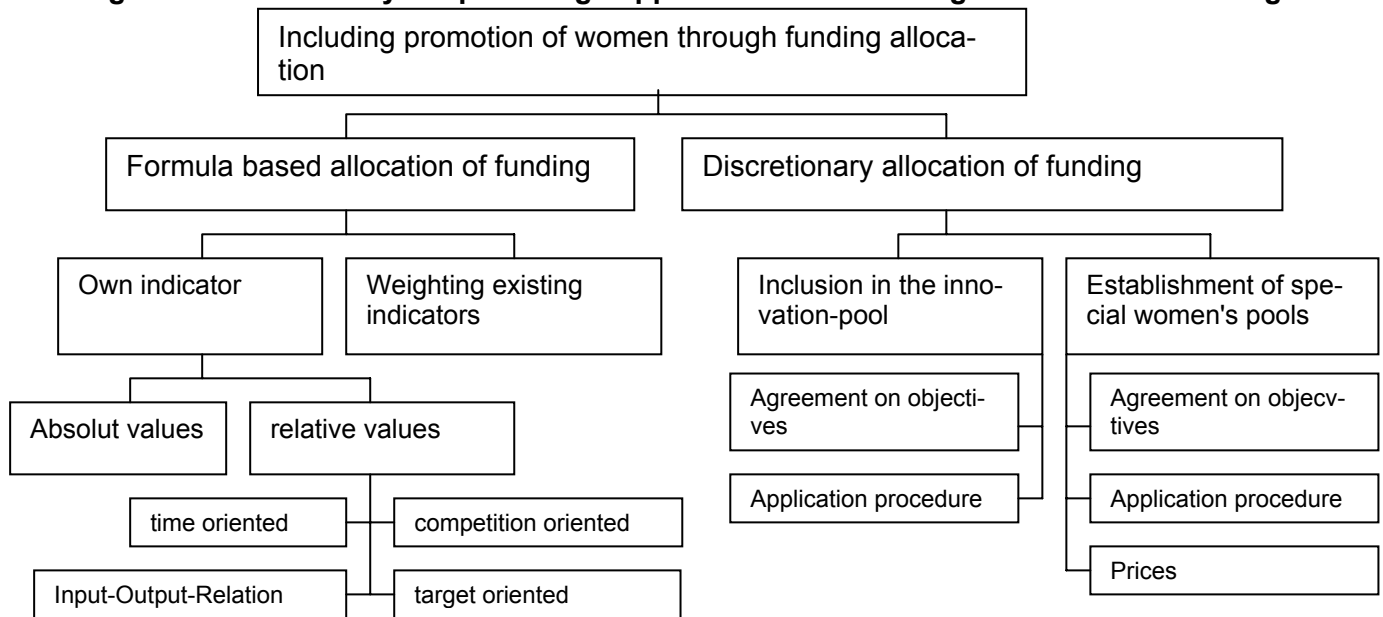
### **3.3.2 Gender indicators for the allocation of budgets**

A number of new management instruments are intended to make state objectives more effective through decentralised decisions. These objectives include the equality of women and men. Kirsch-Auwärter sees the merging of scientific and administrative activity as offering new starting-points for equality policy but also as bringing with it new inequalities, which need to be tackled (2002). In the context of the new mechanisms, one can use existing female personnel development plans to establish the objectives to be agreed and for accountability procedures. In addition a number of universities have several years experience in using funding allocation to provide incentives (e.g. FU Berlin, Dortmund University). In 2002, however, Färber still came to the conclusion, that all models up to that time represented no more than "first steps". "There are as yet no examples in which the relationships between equality and the other funding targets have been worked out, sanctions developed, or incentive schemes been operated for any length of time between *Länder* and universities and soundly evaluated" (119).

Ziegele (1997, 2000) lists several possibilities as to how equality targets might flow into the allocation procedure. He refers both to the discretionary allocation of funding from state central-pools (e.g. an innovation-pool or a women's promotion fund) and to the formula-based allocation of funding (see also the explanations in chapter 3.2.). Equality targets can be reflected either in terms of indicators of their own or by weighting existing indicators. Indicators can be developed in terms of absolute numbers or in terms of numbers based on relationships (referring to changes over time, in relationship to the mean, with regard to input and output as well as the degree of attainment). In the context of discretionary allocation of funding, Ziegele mentions the integration of equality in a general pool to be allocated by means of

agreements on objectives or applications. A separate pot would, however, provide a clearly defined sum for promoting women's development (2000, 33ff).

**Figure 2: Possible ways of providing support for women through allocation of funding**



Source: Ziegele (2000), 34

The following example presents models from the individual *Länder* (see also Informationsbörse Mittelverteilung as well as the overviews in Burkhardt 2004, 42f and Ernst 2003):

In Berlin's higher education agreements for 2003-2005 5% of the performance oriented allocation of funding was to take place according to equality oriented parameters:

At the universities:		
Female professors	0,2	(number of female professors / number of non-vacant professorships)
Newly appointed female professors	0,4	(number of female professors / number of professors appointed over the past two years)
Doctorates (w)	0,2	(Number of doctorates (w) / total number of doctorates)
Female graduates	0,2	(number of female graduates / total number of graduates)

Source: Frauenförderung als Querschnittsaufgabe 2002, 76

North Rhine-Westphalia did without its own women's parameter and integrated gender aspects into the available decision-making structure. In principle, success in equality terms was measured against a target figure of 50% women, with the figures being broken down into groups of subjects. During the first stage in 2001, around 29% of the total funds redistributed between the universities were reallocated as a result of gender oriented criteria. (Kaufhold 2002, 52 f)

In the year 1999, Lower Saxony introduced a system of allocating funds to Fachhochschulen whereby a flat rate was paid per female student, female graduate or female professor, multiplied by a representation related weighting factor that took the *Land*-average into account. (Burkhardt 2004, 39)



Hamburg represents an example of a three column model. It envisages an innovation-fund besides the basic and performance related budgets. It can be applied to for support in funding equality measures. (ibid., 40)

In the context of the research project "*Leistungsorientierte Budgetierung an Fachhochschulen in Sachsen-Anhalt nach dem Gender Mainstreaming Konzept*" (Performance oriented budgeting in Saxony-Anhalt according to gender mainstreaming) gender budgeting at a German higher education institution was attempted for the first time. The project linked higher education and equality policy issues in the field of internal management and was aimed at putting into practice the developments agreed to in principle by the education ministry and the universities. Amongst other things a model building-block for the development of indicators was presented that combined elements of the price model with that of the distribution model. A first test run to transform the project results into practice at the Hochschule Magdeburg-Stendal was in preparation in 2003. (see Burkhardt 2001, 2004)

A good example for internal implementation may be seen in the case of Dortmund University. The project "*Qualität und Innovation – Geschlechtergerechtigkeit als Reformstrategie (QueR)*" (Quality and innovation – gender equality as a strategy for reform) was started there in 1998, and made equality of opportunity part of the university's quality management. In doing this the project followed on from the controlling and information systems which had already been initiated as well as the existing possibility of flexible allocation of resources within the overall budget framework. Although performance and strain indicators had been introduced in 1994 along with an internal key for the distribution of funds for research and teaching these were not gender specific. The key was extended by the establishment of a so-called *Frauenförderbeitrag* (or contribution towards promoting women) in the context of the project. A *Frauenförderbeitrag* becomes due when there are differences between the proportion of women amongst university entrants, the proportion completing a course of study and the proportion obtaining doctorates. A *Frauenförderbeitrag* is part of the funds to which a faculty is entitled on the basis of the indicator key, but has to be spent on measures promoting equality. Further money is distributed via a system of quality points and through agreements on objectives. Equality indicators were introduced for this system too. Quality points can be gained, and with them funding, for the features "equality whilst studying", "staff development/support for junior staff" and for "structural improvements in organisation". The third component is the agreement on objectives between the university leadership (the *Rektorat*) and the faculties, which also covers equality targets and concrete measures. (Roloff 1998b, 2002b und 2003)

## 4. Conclusions

Today, almost as many women as men in Germany begin studying, and the proportion of woman graduates exceeds that of female students. The number of women occupying higher academic positions has also risen. Yet a disproportionate number of women still get lost on the road to the academic summit, so that only 9.1% of Grade-A positions are held by women. With regard to salary, tenure and status women have worse jobs than men with similar qualifications in academic life too. A high level of education leads to a lower than average unemployment rate for both women and men. Clear gender specific patterns are apparent in the choice of courses of study. Female students and doctoral candidates are catching up when it comes to obtaining scholarships and grants, yet as regards research funding women receive

proportionately fewer grants and also less funding than would correspond to their share of grant approvals. As regards decision-making, individual women have moved into prominent positions, but altogether their proportion has increased only slowly and tends to fluctuate in the various bodies on average from between 15% and 20%. There are no current investigations about the social situation of scientists at universities. No statement can therefore be made as to whether and if so how young female scientists can realise their often expressed desire to reconcile having a professional career with having a family.

Germany has comprehensive legislation and a broad range of instruments from official women's representatives and female personnel development plans to single-sex engineering courses. Since the end of the 80s more and more measures for promoting women in science have been adopted and the temporal correspondence of higher ratios of women allow one to conclude that the measures have been at least partly responsible for the improvement in the situation of women in the academic world since the end of the 1980s. Women's and gender studies became established during the 1990s and corresponding professorships instituted, yet their position has to be described as marginal.

It is not yet clear in which ways women might benefit from the various university reforms currently underway, although official women's representatives and women's and gender researchers are trying to influence them in the sense of gender mainstreaming. Whilst the introduction of new management instruments is regarded as representing an opportunity, the shift in courses of study towards the BA and MA as well as the planned introduction of tuition fees can be seen to be accompanied by new mechanisms of exclusion. The reform in the federal structure led to further decentralization in the higher education sector. Whether the *Länder* and the universities will enter the competition for equal opportunities is questionable. Which stance newly created bodies like the *Gemeinsame Wissenschaftskonferenz* will take remains to be seen.

The introduction of new management instruments by the *Länder* and universities is still in its early days. The individual *Länder* are also pursuing different ways. A withdrawal from government planned financing has been decided on and some *Länder* are already assigning overall budgets to the universities. Nevertheless, the funding that is actually freely disposable by the universities remains strongly limited because the largest share is for personnel costs. In 2003 indicator related allocation of funding stood at between 5% and 95%. Most *Länder* have begun to try out funding allocation models using formulae and equality indicators. This does not however mean that one could speak of these as being the first attempts at gender budgeting in German higher education. The experiences gained from implementing gender budgeting in public administration have first to be applied to the universities. Gender budget's potentials are assumed in its positive effects in respect to gender equality on the planning and evaluation of science policies and strategies, the efficiency and transparency of the allocation of resources and the decision-making process. The present stage of structures that are still open and of experimentation with instruments and procedures, offers a good chance of introducing gender budgeting.

## Appendix 1

### Bavarian Higher Education Law, 23.5.2006 (German Excerpt)

#### Art. 5 Finanzierung

(1) Der Freistaat Bayern stellt den Hochschulen nach Maßgabe des Staatshaushalts Stellen und Mittel zur Durchführung ihrer Aufgaben zur Verfügung. Die Hochschulen tragen zur Finanzierung ihrer Aufgaben durch Einwerbung von Mitteln Dritter, mit ihrem Körperschaftsvermögen und durch sonstige Einnahmen bei. (...) Soweit im Staatshaushaltsplan oder in diesem Gesetz nichts anderes bestimmt ist, stehen von der Hochschule erzielte Einnahmen dieser zur Verwendung für Hochschulzwecke zur Verfügung. Zum Nachweis der wirtschaftlichen Verwendung der Stellen und Mittel wird bei den Hochschulen eine (...) Kosten- und Leistungsrechnung eingeführt.

(2) Die Zuweisung der staatlichen Mittel orientiert sich an dem zur Erfüllung der Aufgaben nach Art. 2 erforderlichen Bedarf und an den in Forschung und Lehre sowie bei der Förderung des wissenschaftlichen Nachwuchses erbrachten Leistungen. Dabei sind auch Fortschritte bei der Erfüllung des Gleichstellungsauftrags zu berücksichtigen. Die Kriterien für eine leistungs- und belastungsbezogene Mittelzuweisung werden im Benehmen mit den Hochschulen vom Staatsministerium für Wissenschaft, Forschung und Kunst (Staatsministerium) festgelegt.

(3) Die Hochschule stellt auf der Grundlage ihrer Entwicklungsplanung und etwaiger Zielvereinbarungen sowie unter Berücksichtigung der staatlichen Vorgaben einen Voranschlag zum Staatshaushaltsplan auf.

(4) Auf Antrag der Hochschule kann das Staatsministerium im Einvernehmen mit dem Staatsministerium der Finanzen eine weitere Haushaltsflexibilisierung und die Einführung von Globalhaushalten zulassen. (...)

## Appendix 2

### Higher Education Legislation

#### Federal Legislation

**Hochschulrahmengesetz** in der Fassung der Bekanntmachung vom 19. Januar 1999 (BGBl. I S. 18), zuletzt geändert durch Artikel 1 des Gesetzes vom 27. Dezember 2004 (BGBl. I S. 3835) unter Berücksichtigung der Entscheidung des Bundesverfassungsgerichts vom 26. Januar 2005 (2 BvF 1/03), [www.bmbf.de/pub/HRG\\_20050126.pdf](http://www.bmbf.de/pub/HRG_20050126.pdf) (26.10.06)

**Gesetz zur Reform der Professorenbesoldung** (Professorenbesoldungsreformgesetz – ProfBes ReformG) vom 16. Februar 2002, Bundesgesetzblatt Jahrgang 2002 Teil I Nr. 11, ausgegeben zu Bonn am 22. Februar 2002.

**Bundesgesetz über die individuelle Förderung der Ausbildung** (Bundesausbildungsförderungsgesetz – BAföG) vom 26. August 1971 (BGBl. I S. 1409) in der Fassung der Bekanntmachung vom 6. Juni 1983 (BGBl. I S. 645, ber. S 1680); zuletzt geändert durch Ausbildungsförderungsreformgesetz vom 19. März 2001 (BGBl. I S. 390-395).

#### Länder Higher Education Laws

(see [www.hochschulverband.de/cms/index.php?id=100](http://www.hochschulverband.de/cms/index.php?id=100), 26.10.06)

**Baden-Württemberg:** Zweites Gesetz zur Änderung hochschulrechtlicher Vorschriften (Zweites Hochschulrechtsänderungsgesetz – 2. HRÄG) vom 1. Januar 2005

**Bayern:** Bayerisches Hochschulgesetz (BayHSchG) vom 23. Mai 2006  
Gesetz über die **Universitätsklinik des Freistaates Bayern** (Bayerisches Universitätsklinikgesetz – BayUniKlinG) Vom 23. Mai 2006

Gesetz über die Rechtsverhältnisse der Hochschullehrer und Hochschullehrerinnen sowie des weiteren wissenschaftlichen und künstlerischen Personals an den Hochschulen (**Bayerisches Hochschulpersonalgesetz** - BayHSchPG) vom 23. Mai 2006

**Berlin:** Gesetz über die Hochschulen im Land Berlin (Berliner Hochschulgesetz) in der Fassung vom 21. April 2005

**Berliner Universitätsmedizinengesetz** vom 05.12.2005

**Brandenburg:** Gesetz über die Hochschulen des Landes Brandenburg (Brandenburgisches Hochschulgesetz - BbgHG) in der Fassung der Bekanntmachung vom 6. Juli 2004

**Bremen:** Bremisches Hochschulgesetz (BremHG) in der Fassung vom 11. Juli 2003

**Hamburg:** Hamburgisches Hochschulgesetz (HmbHG) vom 18. Juli 2001, zuletzt geändert durch Gesetz vom 4. Mai 2005

**Hessen:** Hessisches Hochschulgesetz Nichtamtliche Neufassung unter Berücksichtigung des Dritten Gesetzes zur Änderung des Hessischen Hochschulgesetzes und anderer Gesetze Vom 20. Dezember 2004 (GVBl. I S. 466)

Gesetz über die **hessischen Universitätsklinken** vom 26. Juni 2000, zuletzt geändert durch Gesetz vom 15. Dezember 2005.

**Mecklenburg-Vorpommern:** Gesetz über die Hochschulen des Landes Mecklenburg-Vorpommern (Landeshochschulgesetz - LHG M-V) in der Fassung vom 5. Juli 2002 geändert durch Gesetz vom 5. Juni 2003

**Niedersachsen:** Niedersächsisches Hochschulgesetz (NHG) in der Fassung vom 24. Juni 2002 geändert durch Gesetz vom 22. Januar 2004

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**Sachsen-Anhalt:** Hochschulgesetz des Landes Sachsen-Anhalt (HSG-LSA) in der Fassung vom 5. Mai 2004

**Schleswig-Holstein:** Gesetz über die Hochschulen und das Universitätsklinikum Schleswig-Holstein (Hochschulgesetz-HSG) in der Fassung vom 4. Mai 2000

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- Hochschulverband (universities' association): [www.hochschulverband.de/cms](http://www.hochschulverband.de/cms)
- Kultusministerkonferenz (KMK) (standing committee of the ministers of the Länder responsible for higher education): <http://www.kmk.org/>
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