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DRAFT REPORT

on Women and science
(2007/2206(INI))

Committee on Women's Rights and Gender Equality

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MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

on Women and science
(2007/2206(INI))

The European Parliament,

– having regard to the Council Resolution of 20 May 1999 on Women and Science[1],

– having regard to the Council Resolution of 26 June 2001 on science and society and on women in science[2],

– having regard to the Council Resolution of 27 November 2003 on equal access to and participation of women and men in the knowledge society for growth and innovation[3],

– having regard to the Council Conclusions of 18 April 2005 on reinforcing human resources in science and technology in the European Research Area (8194/05),

– having regard to Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)[4] (FP7),

– having regard to the Directive 2002/73/EC of the European Parliament and of the Council of 23 September 2002 amending Council Directive 76/207/EEC on the implementation of the principle of equal treatment for men and women as regards access to employment, vocational training and promotion, and working conditions[5],

– having regard to the Commission's Science and Society Action Plan (COM(2001)0714),

– having regard to the Commission staff working document of 11 March 2005 entitled "Women and Science: Excellence and Innovation - Gender Equality in Science" (SEC(2005)0370),

– having regard to the Commission Green Paper of 4 April 2007 entitled "The European Research Area: New Perspectives" (COM(2007)0161), and to the Commission staff working document (SEC(2007)0412) accompanying the abovementioned Green Paper,

– having regard to its resolution of 3 February 2000 on the communication from the Commission entitled: "Women and science - Mobilising women to enrich European research"[6],

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[1] OJ C 201, 16.7.1999, p 1.
[2] OJ C 199, 14.7.2001, p 1.
[3] OJ C 317, 30.12.2003, p 6.
[4] OJ L 412, 30.12.2006, p.1.
[5] OJ L 269, 5.10.2002, p 15.
[6] OJ C 309, 27.10.2000, p.57.

– having regard to its resolution of 9 March 2004 on reconciling professional, family and private lives[1],

– having regard to its resolution of 13 March 2007 on a roadmap for equality between women and men (2006-2010)[2],

– having regard to its resolution of 27 September 2007 on equality between women and men in the European Union - 2007[3],

– having regard to Rule 45 of its Rules of Procedure,

– having regard to the report of the Committee on Women's Rights and Gender Equality and the opinion of the Committee on Industry, Research and Energy (A6-0000/2008),

A. whereas research represents a crucial sector for the economic development of the European Union and Europe needs to recruit 700,000 additional researchers as part of the fulfilment of the Lisbon strategy for growth and employment,

B. whereas women researchers are in a minority within the EU comprising 35% on average of researchers working in the government and higher education sectors and comprising only 18% on average of researchers working in in the private sector ,

C. whereas sex-disaggregated data on researchers by qualification, field of science and age are still scarcely available even in EU countries,

D. whereas female researchers experience more difficulties in reconciling working and family life compared to male researchers,

E. whereas the lack of women in scientific leadership positions is still significant,

F. whereas in a majority of countries the share of women on scientific boards has not reached parity,

G. whereas one of the priority areas for EU action in the Roadmap for Gender Equality is equal representation in decision-making, including a target of 25 % of women in leading positions in public sector research,

H. whereas the European Research Council has not achieved a gender balance with only 5 women out of 22 in the Scientific Council,

I. whereas, even though women make up more than 50% of EU students and earn 43% of EU doctoral degrees, they hold on average only 15% of senior academic posts and thereby have considerably less influence with regard to research decision-making positions,[4]

J. whereas the current 7th Framework Programme on Research does not require mandatory gender action plans for project proposals,

K. whereas studies show that existing systems of evaluation and recruitment are not gender neutral,

[1] OJ C 102 E, 28.4.2004, p. 492.
[2] OJ C 301 E, 13.12.2007, p 56.
[3] *Texts adopted,* P6_TA(2007)0423.
[4] European Commission*, Women & Science: Latest Statistics and Indicators – She Figures 2006, p. 55*

1. Draws the attention of the Member States to the fact that education systems in Europe continue to sustain gender stereotypes, in particular in areas of research such as the natural sciences;

2. Notes that culture and a cultural understanding of "research", "good research", "excellence" and "innovation" may impede women's careers in science;

3. Notes the abiding imbalance between the share of women in different levels of scientific careers, and believes that alternatives to the current widely accepted "leaking pipeline" model may be necessary in order to establish effective measures to improve the situation; sees the "push and pull factors" model as an alternative, since it takes account of the interrelation of different factors, such as working environment, role models, competition, mobility requirements and family responsibilities;

4. Notes that the conventional approach to evaluating "excellence" and "performance" in terms of number of publications tends to underestimate skills which are often deemed more female in character, such as communication skills;

5. Regrets that the breaks women take in scientific careers for family reasons have a negative impact on their career opportunities, as most male colleagues do not take breaks and thus can achieve comparative positions at a younger age and gain an advantage in their further careers; asks therefore that age not be advanced as a criterion for excellence without the family situation's having been taken into consideration;

6. Notes that mobility is one of the crucial ways of developing and assuring research career advancement and notes that this can be difficult to reconcile with family life;

7. Notes that, while current recruitment processes tend to maintain the status quo in terms of favouring the employment of male researchers, more open and transparent recruitment procedures would enhance the chances of the qualities that tend to be more prevalent in women scientists being equally recognised and valued;

8. Welcomes the activities carried out by the European Platform of Women Scientists aiming to enhance the participation of women in science and to increase the number of women scientists in decision-making positions;

9. Calls on the Commission for awareness raising actions in the scientific community, as well as among policy makers on the issue of equal opportunities in science and research;

10. Calls on the Commission and the Member States for more transparent recruitment processes and for an obligation to ensure gender balance in evaluation panels and selection committees, ensuring they consist of at least 40% women and at least 40% men;

11. Calls on the Commission to ensure that attention is given to the question of women and science in FP7 by providing targeted gender-awareness training for those in decision-making positions, sitting on advisory boards and evaluation panels, drafting project calls and proposals and leading contract negotiations;

12. Stresses the role of infrastructure in facilitating a sustainable work-life balance, as well as the importance of enhancing the security of scientific careers;

13. Calls on the Commission and the Member States to improve the situation by means of integration of the family angle through possibilities for flexible working hours, improved child care facilities, cover of additional costs for moving abroad with a family as well as social security provisions accessibility across the borders; calls for improved conditions with regard to parental leave;

14. Calls on the Commission and the Member States for a change in the definitions of excellence and of a "good researcher", in order to take into account and overcome the differences between male and female scientific careers; stresses that female researchers contributes to the research world with different perspectives and choices of research topics;

15. Calls on the Commission and the Member States for positive actions to be taken to encourage female researchers and for further development of support and mentoring schemes, as well as targeted promotion policies; notes that simple measures like a sentence encouraging women in particular to apply has shown very positive results;

16. Calls on the Commission and the Member States for research funds targeted at women to counter the underfunding of women in research;

17. Stresses the importance of encouraging girls to take up scientific careers and suggests that the Commission and the Member States do so by promoting female researchers as role models and through adopting and implementing other measures conducive to achieving this aim;

18. Calls on the Commission and the Member States for further strengthening of networking among women scientists at national, regional and EU levels, which has been identified as an essential empowerment tool both for attracting more women scientists and for encouraging existing women scientists to participate in the policy debate and to enhance their professional advancement;

19. Considers Gender Action Plans within the proposal and evaluation stage of European Framework Programmes to be an essential part of the overall gender mainstreaming strategy and gender equality policy of the European Union/Commission; finds, therefore, that they should remain an integral part of European research funding;

20. Calls on the Commission for mid-term evaluation of the gender mainstreaming tools in the FP7;

21. Instructs its President to forward this resolution to the Council, the Commission, the European Economic and Social Committee, and the Committee of the Regions, and to the governments and parliaments of the Member States.

EXPLANATORY STATEMENT

The report seeks to identify social, cultural and other kind of barriers that account for the under-representation of women in science. It will briefly introduce the context for the situation today, but the main focus of the report will be to look forward to point to possible solutions and best practices for solving the situation. The background for the report is the current European situation, where women are greatly underrepresented in the field of science.

Statistics tells us that more women than men engage in taking a higher education, yet when it comes to choosing the research career, women are still outnumbered by men. The huge increase in participation of women in higher education has neither led to a corresponding change in the ratio of women to men in particular fields of study or professions – that is, a change in horizontal gender segregation – nor has it eliminated the gender-specific wage gap.

Why should we be concerned with gender segregation in science? There are two main reasons. First, certain fields of science are of higher status than others; underrepresentation of women in higher status fields (such as physics) means that, in aggregate, women scientists have lower status than men scientists. Second, we may face a shortage of scientific personnel in demanding fields. If talent for doing very demanding scientific work is unrelated to sex, the pool for these fields would be much larger with women fully participating in science.

Women researchers are still a minority in the government and higher education sectors, with both sectors having an EU average of 35% women. In all countries these sectors nevertheless have higher proportions of women researchers than the business enterprise sector with an EU average of 18% women according to latest data, but there are large cross-country variations. The countries with the fewest women in business research are Germany (11.8%), Austria (10.4%) and Netherlands (8.7%) whereas Latvia, Bulgaria and Romania all have over 40% women. The situation is improving very slowly. Women researchers only have higher growth rates than men in less than half of the countries, and for a few countries the percentage of women researchers has decreased.

The distribution of researchers by main fields of science shows different patterns for men and women. Among male researchers in the higher education sector, 54% work in natural science and engineering compared to 37% among women researchers. This distribution of researchers across the broad field of science of course reflects study choices made by men and women in higher education. In recent years various studies comparing countries and historical periods in light of horizontal gender segregation in higher education have been presented. They indicate that in the past twenty years the number of women in engineering has increased in most countries. This increase, however, is rather small and often lower than in alternate professions and fields of study. In other words: the increase in the number of women is occurring mostly in fields of study that already had a high percentage of females

A group of individual factors determining individual choices refers to gender stereotypes. Gender stereotypes are simplified but often deep-rooted perceptions of male and female characteristics. They support the continuity of specific gender roles and occupational gender segregation. Some approaches assume that gender stereotypes are formed during the

socialisation process whereas others suggest a lifelong process of production and reproduction of gender roles. Typical male characteristics – according to gender stereotypes – include, among others, their interest in technical issues, analytical competences, talent for craftsmanship, career focus and professional ambition, ability to assert themselves, dominance, selfishness, and willingness to "impression management". On the other hand, typical stereotypes of female characteristics include beliefs that they are child-friendly, have an interest in family, value harmony, and are empathetic, emotional, and altruistic. Engineering, obviously, is associated with male rather than female stereotypes – hence professions in engineering are considered to be typically male in nature and tend not to be a woman's first choice.

Gender stereotypes are not only important to the choices men and women make regarding their fields of study, they can also influence the decision making process associated with job allocation or research funding. Hiring criteria with male gender stereotypes lead to a preference for hiring men whereas hiring criteria with female gender stereotypes lead to a preference for hiring women.

Family background, as well as inclusion and exclusion mechanisms among peer groups, are also factors at play on the interpersonal level. If a young girl plays with computers and technical toys during her childhood, she might be regarded as an outsider by her female friends. In this situation support and encouragement from the family turns out to be an important social resource. Thus, female students in engineering and other branches of science often have at least one parent with a profession in one of these disciplines. This also points to the importance of having a female role model working in a male-centred profession or field of study.

Despite the expanding access for women to higher education and the growing proportion of female graduates in engineering and other branches of technical sciences, horizontal gender segregation has declined surprisingly little in most countries. The existence of a "glass ceiling" or "sticky floor" for women trying to progress to senior positions is well documented and affects all occupational sectors, even those which are dominated by women. The absence of women in leadership positions is more acute in science and technology occupations than in other fields. At the highest positions in academia women make up 15% (2003) of full professors and equivalent and this is an increase of two percentage points compared to 1999. Data on the share of women on scientific boards show large difference between countries. The Nordic counties show levels close to 50%, but in a majority of countries parity has not been reached and the percentage is below 10% for several of the new member states.

The international trend in discussing gender gap and hierarchy at research institutions points to a "pipeline" structure from PhD student to professor. Most researchers start as PhD students, proceed as post-docs, researchers or assistant professors, and are then promoted to associate professor with some ultimately becoming full professors, as seen in Figure 3.1. If the share of women differs from one level to the next, it is assumed that the pipeline "leaks", i.e. female researchers leave the pipeline because they are not promoted.

As scientists advance in their professional career, they are more likely to be promoted to the higher categories. The more years spent, the higher the probability of being promoted. However, promotion seems to be slower for women than for men: inter-gender differences are

statistically significant.

The later entrance of women into science cannot by itself explain the low presence of women in the upper categories at CSIC, since for a similar length of scientific career, women show slower promotion than men. Data suggest that differences in productivity might contribute to explaining the lower promotion of women in some areas (materials science, biology/biomedicine, physics), but this is not the case in others. Differences in personal characteristics, social factors and access to resources have been arguments to explain differences in productivity and gender inequality in science.

Organizational and institutional factors of gender segregation include inequality mechanisms operating at the level of establishments such as firms, research institutes, or research funding institutions. Important institutional mechanisms affecting gender segregation are the recruitment processes, the promotion practices, the decision making and evaluation processes, and the presence of gendered workplace cultures.

Recruiting and hiring processes are still rarely studied, mainly due to difficulties in accessing the relevant institutional data. Gender segregation in recruitment and hiring processes play out in a number of consecutive stages: the way how potential applicants are informed and attracted to positions, then the interview, the receipt of a job offer, and the quality of the received offer, i.e. the starting salary and benefits offered. Each of these stages may be influenced by differential treatment of men and women, and hiring decisions can be affected by gender stereotypes or by same gender preferences. The role that promotion and evaluation practices play in generating gender segregation is even less documented than that of recruitment practices. As regards the funding success rates, there is no statistically significant difference, still as a rule men fare slightly better than women, and considerable gaps occur in particular fields in some counties. Instead, the very low number of applications submitted by women in, for example, engineering, is a much more limiting factor. Finally, to give an example of gendered workplace cultures: “To be taken as an engineer is to look like an engineer, talk like an engineer, and act as an engineer. In most workplaces this means looking, talking, and acting male”[1], — and that still holds true.

The results demand a number of recommendations to enhance the rate of women in science and technology throughout their careers, among others:

– intensification of activities to promote female scientific careers.
– assurance of implementing gender mainstreaming in the EU and national programmes.
– development of scientific career opportunities for female and male researchers across the academic and non-academic research field.
– installation of a cross-disciplinary human resource development programme for research centres.
– provision of advanced programmes for leading scientific positions, for instance: interdisciplinary and intercultural communication, gender competence, management skills in science and coaching/supervising, mentoring competence, etc.

[1] Robinson, J.G. and J.S. McIlwee (1991), “Men, Women, and the Culture of Engineering”, The Sociological Quarterly, 32: 406.