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Directorate-General for Research
Directorate L – Science, economy and society
Unit L.4 – Scientific culture and gender issues

E-mail: Vera.fehnle@ec.europa.eu

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MAPPING THE MAZE:
GETTING MORE WOMEN TO THE TOP IN RESEARCH

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Scientific culture and gender issues

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Foreword

Since the 1990s, an analysis of senior university staff reveals a serious dichotomy in career outcomes for men and women, insofar as men are three times more likely than women to reach the top level positions in research.

On scientific boards women are under-represented in almost all European countries. The scarcity of women in senior positions in such bodies inevitably means that their opinions are less likely to be voiced in policy and decision-making processes, which may lead to biased decision-making and priority setting in scientific research.

The European Union has set itself the goal to become a knowledge-based society. In a truly knowledge-based society traditions, including traditional gender roles, need to be challenged. To not fully use the potential of all qualified people will affect quantity and especially quality of scientific research.

The aims of the expert group on **W**omen **I**n **R**esearch **De**cision **M**aking (WIRDEM) have been to identify and review positive actions and gender equality measures at institutional and national level to promote women into senior positions in public research. The WIRDEM report has been produced during the 2007 European Year of Equal Opportunities for All, an initiative leading the way to a bolder strategy to establish definitely the fight against discrimination and to promote equality between women and men at EU level. It contributes successfully to the key activities of this Year, promoting rights, representation, recognition and respect.

This report examines and describes in detail nomination procedures, obstacles, facts and funding limitations that women need to overcome in their academic careers. It reviews the procedures for evaluating and promoting research personnel to senior positions and identifies examples of good practice at national and institutional levels.

Based on this analysis, the report proposes recommendations to facilitate the design of a framework for better targeted actions at European level, and highlights the problem of poor awareness and visibility.

It clearly determines that transparent and fair evaluation and promotion procedures alone are not sufficient to improve gender balance in research decision-making; a change of culture is required. The experts therefore also make suggestions, as to how the prevailing scientific culture could change to become more inclusive.

I am convinced that a good gender balance in scientific research at decision-making level is one of the key elements that will contribute to improving the European Research Area.

I welcome therefore this independent report as an important contribution to the debate on women in research decision-making.

José Manuel Silva Rodríguez
Director-General for Research

WIRDEM working group

Chair

Maya Widmer	Swiss National Science Foundation, Switzerland

Rapporteur

Tiia Raudma	Ministry of Education and Research, Estonia

Members

Susanne Baer	Humboldt University, Germany
Rosie Beales	Research Councils UK, United Kingdom
Alexandra Bitusikova	Matej Bel University of Banska Bystrica, Slovakia and European University Association, Belgium
Andrew Collins	University of Oslo, Norway
Suzanne de Cheveigné	CNRS, France
Capitolina Diaz	Ministry of Education and Science, Spain
Danica Fink-Hafner	University of Ljubljana, Slovenia
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Anne Kahru	National Institute of Chemical Physics and Biophysics, Estonia
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Ana M. Lobo	New University of Lisbon, Portugal
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Juha Sihvola	University of Helsinki, Finland
Maria Stratigaki	Panteion University, Greece

Scientific Officer European Commission

Ekatherina Charvalos

Left to Right, Front Row: Danica Fink-Hafner, Alexandra Bitusikova, Suzanne de Cheveigné, Capitolina Diaz, Eugenia Kovacs, Ana M. Lobo
Second Row: Maria Stratigaki, Rosie Beales, Maya Widmer, Tiia Raudma, Anne Kahru
Back Row: Susanne Baer, Andrew Collins, Barbara Hartung, Carl Jacobsson, Marie-Paule Mingeot-Leclercq, Juha Sihvola

Executive Summary

Why are there so few women in decision-making positions in research and why is this a problem? Only 15% of full professors in European universities are women, and women are under-represented on decision-making scientific boards in almost all European countries. Such a situation must inevitably mean that the individual and collective opinions of women are less likely to be voiced in policy and decision-making processes, which may lead to biased decision-making on topics of future research development. If women scientists are not visible and not seen to be succeeding in their careers, they cannot serve as role models to attract and retain young women in scientific professions.
This report has looked at the facts and figures, listed the existing problems and the arguments for change, and examined a number of possible successful measures aimed at advancing the position of women in research – thereby contributing to equality and quality, and has concluded that **what is needed is a change:**

from inertia to awareness and commitment

We need a sincere commitment, particularly among leaders in science, to the goal of equality – for the benefit of quality. There is widespread ignorance and denial of the problem of gender inequality in science. Therefore, the national governments need encouragement from the EU to address the inequality issue in research, to support concrete measures with sufficient resources, and to assist in raising awareness amongst decision-makers, as well as the public, so that gender stereotyping can be resisted.

from imbalance to balance

Women are under-represented in practically all decision-making bodies, and at the professor / Grade A level in general, and have less access to decision-making positions than men. Therefore, a) reasonable gender balance (e.g. 40:60) should be made mandatory in decision-making bodies, b) the working environment in research should be updated to improve the current work-life balance for the benefit of both women and men, c) the gender balance should be closely monitored (by the EU as well as national governments) and any imbalance must be justified.

from opacity to transparency

Funding, promotion and nomination procedures lack transparency, and this lack tends to disadvantage women, particularly in top positions in science. Therefore, transparent procedures should be implemented by the scientific community, and the criteria, success rates and evaluation reports must be made public.

from inequality to quality

Equality is part of quality in science. Therefore, inequality must be addressed by taking measures to systematically introduce the gender perspective in human resource development and in future research. This includes training the decision-makers, which often includes peers, to avoid gender bias, and eradicating gender bias both in research, as well as in recruitment and promotion procedures. There can be no quality without equality.

from ignorance to knowledge

The existing data on gender imbalances must be consistently updated, assessed, put to use and made public. The existence of complete data would make it possible to calculate the cost of losing women in science.

finally, from complacency to urgency

European science is falling behind, the potential of our women in research is under-utilised, young people are staying away from science. The European Research Area needs women and the young. So we must act now.

Introduction

"Gender equality in science is not simply a question of fairness. To strengthen research… total human capital must be utilised. A better gender balance will mean that the universities, colleges and research institutes will secure the best talents among both sexes, as well as reflecting population diversity… Improved gender balance in the academic staff will have positive effects on recruitment of female students and research fellows."[1]

Since the 1990s, the majority of university graduates in Europe have been women, but an analysis of senior university staff reveals a serious dichotomy in career outcomes for men and women, where men are three times more likely than women to reach the most senior levels. Although there has been a slight increase for women in the top grades of university staff in recent years, the average percentage (15%, 2004, EU-25) of women in senior academic positions in the Member States is considerably lower than the overall percentage for all women in all academic positions (36%). Analysis by field of science reveals that even in the fields where the proportion of women is quite high (humanities, social sciences, biology), there is still an under-representation of women in senior academic positions.

The scarcity of women in senior positions, and as a result in bodies such as scientific boards, inevitably means that their individual and collective opinions are less likely to be voiced in policy and decision-making processes, which may lead to biased decision-making on topics of future research development. The data on the composition by gender of scientific boards show that women are under-represented in almost all European countries. If women scientists are not visible and not seen to be succeeding in their careers, they cannot serve as role models to attract and retain young women in scientific professions.

Keeping in mind the 18.04.05 Council Conclusions aiming to "increase significantly the number of women in leading positions, with a 25% target in the public sector" including women as full professors, together with the stated principle in the EU Treaty "to eliminate inequalities, and to promote equality, between men and women", it is apparent that the situation in research decision-making needs to be examined and addressed. In particular, existing approaches to gender equality in research need to be critically assessed, moving beyond ideology and mere rhetoric to rationally decide on actually how to change the situation.

EU Roadmap for Equality

"The participation of women in science and technology can contribute to increasing innovation, quality and competitiveness of scientific and industrial research and needs to be promoted. In order to reach the target of 25% women in leading positions in public sector research, policies should be implemented and progress monitored. Further networking and availability of EU data are essential."
European Commission's Roadmap for Equality Between Women and Men, 2006-2010;
http://ec.europa.eu/employment_social/news/2006/mar/com06092_roadmap_en.pdf

The fewer than expected numbers of women rising to decision-making positions indicates an under-use of qualified human capital, which cannot help but affect the goal of excellence in science. In addition, there is the need to be competitive in an increasingly globalised world, so European states must strengthen their position in the global research community. For this, the research potential must be maximized and full use must be made of Europe's human resource. This human resource argument for increasing the proportion of women in decision-making positions is also supported by the human rights arguments of social justice and fairness. In today's world, it should be concluded that this can only be done with an eye on gender, and more precisely: with respect both to gender equality in the community of scientists and to the gender dimensions of research.

'Such a waste of talents'

"...this raises the question of how the scientific system actually promotes men and women to senior positions. Almost every scientist you ask will tell you scientific excellence is the only aspect that counts. But... if that were true, how is it possible that only 15% of all full professors are women?... Such a waste of talents is one of the main challenges to address in order to boost European competitiveness and innovation. ...When it comes to recruitment and promotion, more light needs to shed over factors such as "same gender preference", networking, family background, peer group inclusion and exclusion, interview designs and interpretation... none of these factors are related to scientific excellence, but they have all been shown to influence the choice of candidates."

Zoran Stančič, Deputy Director General, European Commission. Gender Issues in Research – Innovation through gender equality: Conference 18-19 April 2007, Berlin.

'Fix the administration'

"...programs aimed at increasing the numbers of women in science generally attempt to 'fix the women'... to make them more competitive. ...But this is not enough ... you also have to fix the administration."

Londa Schiebinger. Gender Issues in Research – Innovation through gender equality: Conference 18-19 April 2007, Berlin.

In October 2006, the European Commission established a group of independent experts, known as the WIRDEM (**W**omen **i**n **R**esearch **De**cision-**M**aking) Expert Group. This Expert Group, whose members (14 women and 3 men) are senior scientists from various disciplines, representing not specific countries but universities, research institutes, funding agencies and administrations. The experts initially reported on the situation specifically in their country of origin (Belgium, Estonia, Finland, France, Germany, Greece, Norway, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom). Since the bases for the report are these 15 country-specific overviews, this report cannot claim to cover the whole of Europe. However, the commonalities found did provide a basis for the development of the report with the help of the wider knowledge of the experts on research in general. For abridged versions of the country-specific overviews, see the Annex.

The WIRDEM Expert Group had been tasked with the following:

- To review procedures for evaluating and promoting research personnel and to identify examples of good practice at national and institutional levels.
- To identify and review positive actions and gender equality measures in place to promote women into senior positions in public research at institutional (including universities, research institutions and research councils) or national level.
- To identify which measures have proven successful and which are not, and the reasons for this, and to determine whether transparent and fair evaluation and promotion procedures alone are sufficient to improve gender balance in research-decision-making positions.
- To produce a report of in-depth best practice examples (case studies), including recommendations to facilitate the design of a framework for better targeted actions at European level.

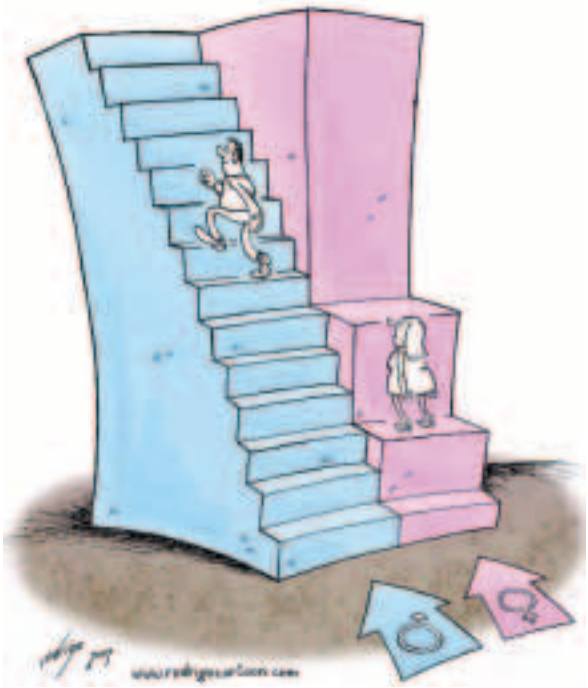
In carrying out its mandate the WIRDEM expert group was able to use as its starting point the reports prepared by previous expert groups and working groups convened by the Commission. These include 'Science policies in the European Union – Promoting excellence through mainstreaming gender equality' (Osborn, 2000) prepared by the ETAN Expert Group, set up by the Commission in 1998, as well as 'National policies on women and science in Europe' (European Commission, 2002) prepared by the Helsinki Group on Women and Science, established by the Commission in 1999, and the most recent report by the Enwise Expert Group on women and science in the post-communist countries, 'Waste of talents: turning private struggles into a public issue. Women and Science in the Enwise countries' (European Commission, 2003). The European Commission 2006 publication 'She Figures 2006: Women and Science Statistics and Indicators'[2], reflects the valuable work done by the statistical correspondents of the Helsinki Group, and has been the main source of official data for the WIRDEM report.

In the continued striving for a more gender-balanced society, new orientations have emerged. The approach has been changing: from women's rights (and the still valid arguments of human rights, democracy and social justice) to human resources and integration (also involving men), from policy definition to policy assessment, and with a greater emphasis on the reconciliation of professional and private life for men and women. In addition, the economic benefits of an increased involvement of women in science must be taken into account.

This report attempts to present a summary of the situation in the field of research decision-making, to identify problem areas ('making the invisible visible') and to recommend changes. Since research in Europe is carried out in institutions of higher education, public and private research institutions, membership organisations such as some Academies of Science, non-governmental non-profit organisations and commercial enterprises, this report cannot cover all institutions and confines itself to covering the public sector, including universities, where a large part of research is carried out. Conclusions, however, may be drawn for the other sectors as well.

In Chapter 1, we provide an overview of the structures, regulations and realities regarding gender in research. In Chapter 2, we focus on the present situation, looking at the available data on women and men in leading positions in research, as well as observing the gendered nature of the culture of research. The problems are listed and arguments are presented for change. Chapter 3 describes the good practices and measures that have either already been implemented, or could be implemented, in addressing the problems described in Chapter 2, thereby moving research towards increased gender equality. The report ends with conclusions and recommendations in Chapter 4.

The report is addressed not only to those who are already experts in the field but in particular to the many researchers, women and men, who do not believe that there is a gender issue in science. The report is intended for the European Commission, policy makers, assessment bodies, hiring committees, university administrations, funding agencies and the research community at large.



Courtesy of AMONET

Research Decision-Making: a different perspective

Although European countries vary greatly in their organisation of research, the allocation of funding for research, the structures and rules of the decision-making bodies, the procedures for higher level appointments, and the priority placed on gender balance, some generalisation is needed to gain a picture of the existing situation. Looking at research decision-making, and the role of women in this, the Expert Group suggest a grouping based on some common features that became apparent on analysis of the country-specific overviews. This grouping provides a broad picture of policy strategies in Europe and is thereby generally informative, but due to a lack of more precise comparative data it will not be used to structure the whole report.

1. Countries with good policy and good results, where there is a direct government to research link, and gender equity is considered a priority. This results in government-declared targets of 40:60 gender parity on research decision-making boards, which are generally achieved. Appointment procedures also take gender equity into consideration, but there is still a clear shortage of women in higher decision-making positions. In these countries there are good child care systems and taxation rules that do not penalise double-income families, which could explain the larger share of women in the research workforce. For example, the Scandinavian countries tend to belong to this group.

2. Countries with good policy but weak results, where there may be extensive and comprehensive gender equality legislation, even in research, but where the implementation is still weak and the results consequently modest. There is an obvious lack of gender equity on decision-making boards, and in appointments to higher positions. In these countries, there is only a limited availability of child care, and the taxation rules often discourage double-income families, encouraging even well-educated women to remain outside the labour market. Examples are the German-speaking countries (Germany, Austria and Switzerland) and the UK, but France and Slovenia could also be included although the taxation rules and availability of child care are somewhat more favourable to working women.

3. Countries with recently-introduced good policy, and strong family support, which compensates to a degree for the restricted availability of child care, and where the situation of women researchers is somewhat better than the European average. Some countries, such as Spain, have recently introduced measures similar to the Scandinavian countries as regards gender parity on decision-making boards, but it is too early to tell the results of the implementation. Spain's taxation system is similar to the Scandinavian ones in that it does not penalise double-income families. The Mediterranean countries tend to belong to this group.

4. Countries with weak policy and weak commitment, but where there is a relatively good child care provision and a high proportion of women in the labour force, like the Scandinavian countries, but results like the German-speaking countries (almost exclusively male decision-making boards and male-dominated high positions, and no genuine commitment to gender equity). There is very low gender awareness, even amongst women, and gender equity does not exist as an issue. Although their statistics tend to show a higher proportion of women in top positions, post-communist countries could still be included in this group (except perhaps for Slovenia).

Decisions on research are taken on several levels. Most important are decisions on jobs and on research funding, hence positions as university rectors and

funding body chairs are positions of power. Significant power is also wielded by full professors since they are the ones hiring and promoting researchers, carrying out peer review for jobs and funding, and they have the advantage of reputational capital. The power of the state in research matters varies from country to country, depending on the level of autonomy in the universities and research institutions. This chapter provides an overview of the background issues affecting the participation of women in research decision-making.

1.1 Who decides the research funding?

Most European states have a mix of research funding ranging from direct state allocations to competitive grants and rewards, with different structures for the grant-awarding bodies – either specific bodies for each of the main fields of research, or an umbrella organisation, where the processes of strategic planning, policy development and awarding of grants may be sub-divided in order to deploy appropriate expertise. Therefore, this report also examines appointments to councils or boards that allocate research funding, and touches upon peer-review processes which have a particular role in this context.

Generally, decision-making power in research depends on the status attributed to it, which in turn depends on gender. For example, a Slovenian pilot study[3] demonstrated that female academic staff get broader access to leading positions when these positions become less rewarding in terms of the honour, and of the symbolic and real political power of these roles.

Women can be disadvantaged in funding decisions because of family obligations or role stereotyping. For example, in Estonia, target-funded research projects are the main source of salaries for researchers. Up until 2007, parental leave was not taken into account in decisions (the decision-making Science Competence Council consists of 9 men and no women), with the main criterion being peer-reviewed papers published within a certain timeframe. Women staying home with children cannot publish and therefore do not 'qualify' – meaning that there is no money to pay their salaries. With the recent positive changes, however, both parental leave and military service are now taken into account.

The origin of research funds can also be different for women and men. In Belgium, for example, the observation has been made that women generally prefer to compete for funds from universities, but men are more active in negotiating contracts with industry.

Fairness in funding is a fundamental element in allowing women (and men) to play their part in research. Thus, to achieve bias-free decision-making, the procedures according to which people are nominated or elected into positions are crucial. Yet, as we shall see, despite the existence of formal gender-related regulations, women are still drastically under-represented in research decision-making positions.

Gender socialisation

A Spanish study in 2003 found that gender socialisation influences the perception of women about their careers. They do not easily admit that they have had difficulties related to gender discrimination in their academic career, and they stress either their own merits to explain their promotion, if it happened, or their own decisions and preferences (usually family-related) to explain why they did not reach higher positions. Interestingly enough, they frequently asserted that once they gained a tenured position, they did not 'feel like' climbing up the hierarchy or that they lacked 'ambition' to fight for a decision-making post. However, the authors explain how gender-related obstacles emerge further on in the interviews: the extra effort related to family responsibilities and difficulties in combining these with a career in research and teaching, or going abroad for research. The failure of other women is a source of discouragement for the rest. All these elements hinder the development of women's careers and, thus, their access to decision-making posts.
Pérez Sedeño, Eulalia, coordinadora (2003) La situación de las mujeres en el sistema educativo de ciencia y tecnología en España y su contexto internacional,
http://www.ifs.csic.es/mujeres/documentos.htm
(11 May 2007).

1.2 Are there equality regulations governing the research system?

Although specific research-related regulations exist, as well as regulations on employment relations in the research area (universities, research institutions), there are fewer instances of regulations targeting non-discrimination and gender equality in research. In particular, existing legislation rarely extends to top-level appointments in academia or positions on research councils. This is especially relevant for the post-communist countries (except for Slovenia) whose experience in gender equity as an issue is still relatively recent.

Sometimes, equality regulations exempt research. For example, in France there is a 2001 law on professional equality, requiring the balanced composition of decision-making bodies and selection committees in the civil service. This law, however, exempted the fields of higher education and research. A recommendation was made to remove this exemption but this has not yet occurred.

In other cases, regulations apply but are not implemented consistently. In Germany, all federal and state university laws explicitly address gender equality, including rules to appoint a minimum number of women on university boards, and all public employment is subject to federal and state equal opportunity laws. However, the implementation to date has not yet resulted in sustainable change, particularly in funding bodies, and especially if they are formed through elections or peer proposal.

Although the existence of regulations themselves is an important part of the picture, it is context and commitment that determine their effectiveness. In the Scandinavian systems, for example, universities and research councils are obliged to promote gender equity in research, and this has increased women's share on committees, in Finland, for example, to 43%. In Norway, 40/60 representation (i.e. a minimum of 40% for each sex) on boards for state enterprises and institutions (including universities) has been a legal requirement since 2004. The law was extended to all privately-owned public limited companies in 2006. The inclusion of large state enterprises in this regulation has contributed to public awareness of the gender equity issue and may play a part in increasing acceptance of such principles. Greece does have a regulation prescribing that all nominated public committees (including research councils) should include at least 1/3 women, or men, but the weak enforcement of the law means that this regulation is not respected, due to the large number of committees and the low priority of the issue.

A good example has been set by the European Commission with its decision to have in the medium term at least 40% of members of each sex in all expert groups and committees. This has led to a strong increase in the participation of women on evaluator panels for research proposals submitted to the Framework Programmes (see also *Gender balance on decision-making bodies*)[4].

1.3 How fair are the nomination or appointment procedures?

The most relevant factor for equality in research decision-making is the appointment procedure to full professorship in a university, to a senior position in a research institution, or to membership of a funding body. In all such instances, rules exist but informality and lack of transparency, as well as the rejection of gender equality as a valid and integrated goal in research policies (even though gender equity and scientific excellence can and do go hand in hand), and the lack of knowledge about gender issues, all

Importance of inclusive and transparent networking

This report confirms the importance of formal and informal networks as tools for integration in science and research as well as for the promotion of scientific careers. It, however, argues that such networks need to be inclusive and transparent. Against this background, the report critically questions the powerful influence of established formal and informal old-boy networks, which often lead to opaque decision-making and the exclusion of women. At the same time and for the same reasons, the report advocates the promotion, strengthening and funding of institutions and formal and informal women networks which question and combat exclusion and lack of transparency.

Informal selection procedures favour men

"There are prejudices about women among those who co-opt, promote or have the key to promotion. The bodies which control this are mostly male and, even if they are not totally conscious of it, they see an academic woman first as a woman and secondly as a colleague... It seems that this system (informal selection procedure for promotion – Ed) favours men over women, because obstacles appear when others, mostly men, judge suitability and deny women their entrance to higher categories".

Study on the situation of women researchers, commissioned by the Spanish Foundation for Science and Technology, 2005.

Women working harder for the same position: US and Slovenian experience

A study at MIT on women faculty "demonstrated how marginalization has frustrated, even thwarted, women's career paths. Marginalization is quantified by inequities in resources, access to leadership roles and exclusion from high-level decision-making processes. Some differences in compensation were noted, as well as low representation in many departments, and greater difficulty for women in balancing family and work responsibilities".

http://web.mit.edu/newsoffice/2002/genderstudy-0320.html

A Slovenian study showed that female managers often feel that they have to work much harder to achieve the same position as their male colleagues, but their male colleagues usually do not notice this. The same can be said for female academics.

Kanjuo-Mrčela, Aleksandra (1996) Ženska v menedžmentu, Ljubljana: Enotnost.

Decision-making in corporate strategy

A recent book review in *The Economist* on corporate strategy comments that the topic is "man's territory. Like golf, religion and the working breakfast, it seems set on excluding women from decision-making. ...Strategy today still assumes that corporate decision-makers are like generals on a battlefield fighting in a sequential world... In reality, though, strategy is now a world more familiar to working mothers, where the inhabitants juggle many issues at once and rarely face clear-cut either/or situations..."

The Economist, July 14th 2007, 'Be firm, be flexible', reviewing The Strategy Paradox: Why Committing to Success Leads to Failure (and What to Do About It). By Michael E. Raynor. Currency, and Unstoppable: Finding Hidden Assets to Renew the Core and Fuel Profitable Growth. By Chris Zook. Harvard Business School Press.

UK ASSET Survey 2003: SET (science, engineering, technology) professors

The survey received 471 professor respondents (10% were women). 55% of women professors (75% of the men) agreed that their senior colleagues were supportive. 55% of the women (77% of the men) felt socially integrated within their department. 75% of the women (84% of the men) felt they had the opportunity to serve on important committees. 58% of the women (74% of the men) felt their administrative contribution was valued. The findings suggest that even when women make it to the top, many still feel they are less valued than their male colleagues and that women in general are disadvantaged in terms of salary, promotion and access to career development.

http://www.embo.org/gender/athena_assets_presentation.pdf

pose difficult problems. This is valid in both selection and election procedures, including headhunting (talent-searching) activities, for leadership positions, for peer review and for funding or science policy bodies. Informality, peer networking and closed-shop deals dominate, resulting in a lack of transparency and a preference for sameness, i.e. maleness, in recruiting.

For example, in Germany full professors are well-paid civil servants with a lifelong contract and high status. Competition for such positions is naturally fierce, and the appointment procedures themselves are important in determining the potential success of female candidates. Despite the existence of detailed equality regulations, both prohibiting discrimination and calling for positive measures, these can easily be met with resistance as long as they are perceived as external to scientific causes of quality and excellence, or as being 'unfair' to men. This results in non-compliance, either due to ignorance of the regulation or by way of evasion, which is possible because the decision-making process is often carried out in an informal manner, or by activating old-boy networks[5]. (See Box on *Importance of inclusive and transparent networking*).

In research, networking is important but is still a predominantly male realm. Due to persistent stereotypes and associated practices, it is still more difficult for women to enter influential lobbies, informal in many cases, which constitute an important element of support for access to decision-making posts. The impact of networking can also be seen in the pay-gap: although status and salaries can be similar for both sexes, when it comes to extra activities (lectures, being members of boards for PhD theses, advisory committees, etc), it is very often men calling upon their male colleagues.

In addition, the criteria for selecting excellent researchers may be tainted. Scientific reputation, which is important in appointments and assessments of quality, is determined by a researcher's peers. In many such processes, 'fitting in' is a more important criterion in decision-making than actual performance[6]. Rather, and quite contrary to the common call for objectivity and excellence, personality traits are treated as indicators of performance. In science, such traits tend to be the willingness to be present at all times and to collaborate informally and after regular working hours, which conflicts with active parenthood in a context of few child care options. Another such trait is getting along well with others and being similar to them socially ('when the chemistry is right'), which is why sex and social or class background can be decisive.

Biological clocks

A recent study of promotion processes to Grade A positions in the French CNRS showed the attraction for evaluators of 'meteor-like careers'. One of them is quoted as explaining "In theory, age is not an argument, we try and concentrate on the scientific aspects of the work but, in practice, the profiles of young people who have rapidly published good quality articles are selected as future directors of large laboratories. It's true that when we run out of scientific arguments, we tend at the end, in this [disciplinary] section to be more impressed by people who have moved fast."

Marry, Catherine (2005) Enquête sur les promotions CR-DR dans une section des sciences de la vie du CNRS, Report to the Mission for the place of women in CNRS, Unpublished.

Regarding appointment and nomination procedures, there are factors that may interact with gender, resulting in a disadvantage for women and non-traditional men. For example, age is an important indirect factor in competition for jobs in research. Women who have spent time raising children or who have not moved quickly during their career may be considered 'too old' for promotion (see Box on *Biological Clocks*). Finally, access to higher posts of the hierarchy takes a lot of time, effort and support for anyone, but women face gender-related obstacles that make their progress up the career ladder even more burdensome. These are based on the traditional gendered division of labour where women are the active parents and men are the breadwinners, or are associated with certain images and understandings: that the image of research and the image of power are both male. Therefore, efforts need to be made to achieve a better work-life balance, which also includes addressing time-management issues in the way that working in research is organised.

1.4 Are both research and power male? The image of science, scientists and decision-making

The image of science and scientists seems to be predominantly male, just as the image of power and decision-making tends to be a male picture. Relevant images and traditions still pertain to the person of the scientist as a man (see Box on *Who's the Scientist*), and to research issues and activities, as well as exerting power, as masculine. Put differently, gender is a constant player in the world of science and power. This is particularly relevant because of a dominant understanding that science is neutral, objective, impersonal, bias-free, where most believe that 'gender is a difference that doesn't make a difference'[7]. As a result, the role played by gender is not acknowledged, and this role primarily works to the detriment of women and non-traditional men, and furthers the inequalities in research, particularly in decision-making.

The question of why women do not generally fare well in research decision-making today is often met with very specific assumptions about women and men. Such assumptions turn laws and regulations into mere text, commitment into simple rhetoric and measures into window-dressing.

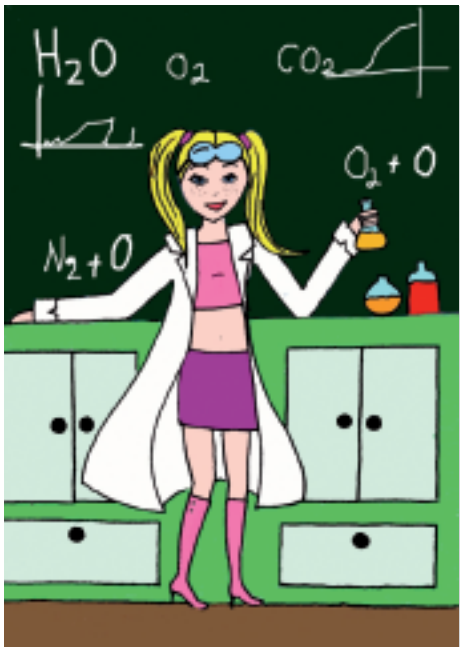
Who's the Scientist?
Seventh graders describe scientists before and after a visit to Fermilab: http://ed.fnal.gov/projects/scientists/amy.html

For example, even if women do partake in the image of being scientists, it is still a common gender stereotype to see women as talented teachers (communication, soft skills, an open ear for students…), and men in research (hard thinkers, analytical, more objective…). This image is reflected in the 'gender-biased division' of labour in academia with female staff concentrated in the teaching and lower-ranked administration areas, and the males in research: "Women teach, men think".

In Germany, for example, research is generally seen as the priority while teaching is a burden, which is why directors at Max Planck institutes or other research-only institutions profit from higher reputational capital than regular academics. Needless to say that in the political debate, teaching positions are seen as less valuable and cheaper than research positions, and that in quality assessment procedures, excellence in teaching will fare worse than excellence in research, with all its gender implications. At some universities in Belgium, all academic staff are evaluated annually, for both their teaching and research activities. If a woman has a good evaluation for teaching, due to her capacity to interact well with students, she is likely to be promoted up the teaching, rather than up the research ladder. A recent survey carried out by the University of Oslo showed that women researchers there produce about half as many scientific publications as do the men. This in part may reflect a tendency for women to be in areas of research where the pressure to publish is less; another suggestion is that women are not as good as men in concentrating on their own careers, but get side-tracked into teaching and administration.

In addition, there is also a gendered notion of science as a profession. The image in society of a professor, a scientist, is often seen as a person without a private life, including obligations of care in a family. According to this image, scientists "bond with research" instead of with human beings (married to his job).

Maleness as the norm is a complex phenomenon. For example, a study shows there seems to be a limit to the share of women researchers that is acceptable in a research group at any one time, resulting in a 'revolving-door' effect: if a field already has 25% women, additional women are then only allowed to enter if others leave[8]. There is also the threshold of relevance. This is necessary for the diversity of research teams, where the productive effects of gender-mixed teams in science occur only if women are not just a singular exception or 'token', but cross the threshold of relevance. The recommended level for this threshold is 40%, which is considerably higher than mere 'tokenism'[9].



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Academic fields are stereotypically and empirically quite heavily gendered, with most fields characterized as male, and some less 'scientific' fields like pedagogy or languages, as female, and with men dominating the fields that are perceived as being exciting, fast-moving or 'relevant'. This also contributes to devaluing the contribution of women to research – i.e. the more 'scientific' the field, the more power and resources are invested in the position, and, therefore, the more attractive it is to men (or exclusive of women). Nevertheless, even in female-dominated fields, there is generally a shortage of women at the top: in the French CNRS, for example, two of the most female-dominated fields, biology and social anthropology, are among the ones with the fewest women at the top of the hierarchy.

In addition, there are sexist images and metaphors in the culture of science. They are sometimes used bluntly, but mostly quite innocently, that is, without the sensitivity or competence to assess their discriminatory effects. The stark cases are hard to prove because people will refrain from talking about them in mixed public forums, because men fear criticism and women fear stigma or retaliation. However, research indicates that "there is high evidence for the existence of exclusion mechanisms and open or subtle discrimination of women in science and in universities"[10]. In addition, research on male elites indicates that sexist images, 'jokes' etc. are an important part of male bonding, and the same would apply to male-only areas in science[11].

Taking women seriously, not just in the world of research, may also not always be the norm. In some countries, such as Germany, Switzerland and the post-communist countries, complaints about sexual harassment (say in the form of sexualizing comments and 'jokes' directed at women) are treated as unnecessary disturbances rather than a violation of rights. For example, U.S. guest professors to Germany have been amazed at the lack of sensitivity of male professors regarding the issue. In such cultures, these incidents will mostly be treated as an excessive reaction by feminist ideologues, rather than raise awareness about problematic traditions in research or the violation of the basic rules of fairness and respect – as rights enshrined in law.

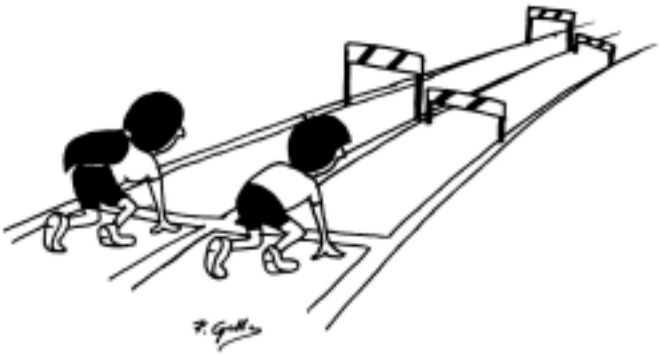
Furthermore, often based on a lack of knowledge, it is widespread to attach negative connotations to feminist research and gender studies generally. Here the assumption of women doing women's work seems to produce a very difficult mix. In this context, women's

Experience of male scientist (German) acting as equality officer

"I have been treated like a woman. I was put under massive emotional pressure. I was treated with patronizing indulgence, as if my mental capacities and knowledge were not quite sufficient to grasp the intellectual heights of the male mind. My statements were ignored, but if they were too unsettling, it was later claimed that I had never made them. I was, however, spared having my contributions to discussions 'stolen' – i.e. a statement by a woman will often be quickly ascribed to a man, and the more intelligent the statement was the more likely this would be." He describes a feeling of 'shame' witnessing the systematic devaluation of women's achievements and of sexist slander. "The spectrum ranged from subtle pinpricks in the choice of words and in puns to the spreading of denunciatory rumours in the university Senate..."
Siegele, Ulrich (1998) in: Diemer, Susanne/ Kirsch-Auwärter, Edit/ Philipps, Sigrid (eds.), Gleichstellung und Institution: Schule und Hochschule im Reformprozess. Eine Festschrift für Doris Knab, Tübingen.

representatives, specifically those who are not professors and thus potential peers, are devalued and stereotyped quite frequently, using female attributions like 'hysterical', 'overly sensitive', 'overstating the point' or 'quarrelsome', which results in defining them as external to the system, and keeping them out of decision-making processes. As a result, there is a tendency in the more old fashioned cultures to defend the right to discriminate in the area of research, and to criticize equality efforts as 'brainwashing' and 'American political correctness'.

The world of science imagines itself as non-bureaucratic, living on inspiration and ideas, and associating freely in academia. Measures to establish gender equality in science are confronted with this specific emphasis on informality. Yet the more informally organisations operate, the more likely they are to discriminate on the basis of sex. Thus, specific challenges derive from the images and traditions which govern the field.



Peter Galle © GeM Koordinationsstelle, Wien

1.5 Does language restrict research to males?

One issue which also influences the image of women and men in research is the language used to describe research. Questions have been raised as to the relevance of this issue, but this report reflects it as an indicator of resistance to a culture of acceptance and equality.

Making sure the female sex is included in research language is much more difficult in German or Spanish with their gendered nouns than it is in English, for example. A similar problem exists with other continental European languages. The continued use of the pronoun 'he' when referring in English to all scientists, male and female, cannot assist in the attempts to include women in the image of research. (An exception to the existence of a gendered pronoun is the Finno-Ugric group of languages, including Estonian, Finnish and Hungarian, where the pronoun is gender-neutral. In Estonian, the word for he/she is 'tema'.) Although there are several regulations in Germany that proscribe the use of gender differentiated language, thus prohibiting the use of the male denominator commonly used in German to include women and men (in Switzerland, there are also federal guidelines on how to avoid only male forms in the French language as well), language with its symbolic power regarding male-only cultures is changing rather slowly, and much official text, despite regulations on the issue, still refers exclusively to men.

Language use

Letter to Slovakian woman researcher from the Chairwoman of the selection committee for the position of rector: "Dear Dr ... va (female form), you have been nominated (male form) for the position of rector (male form)..."

In Slovakian, with female and male grammar forms (as in all Slavonic languages), the use of the male language is dominant in research. The pronoun 'he' is almost always used when referring to a researcher in all institutional or national official documents or speeches. There is no debate or even awareness, and even women scientists often use the male form when talking about themselves. A similar situation exists in Greece. In Slovenia, the pair of words (M/F) is used at the start of legal/political documents, and it stated that 'thereafter' only the male is used to denote both sexes, resulting in the symbolic masculinity remaining.

Therefore, the use of adequately gendered language should be acknowledged as one symbolic and therefore powerful effort towards equality in science, and should be encouraged more strongly.

Facts and Figures: a gendered world and why it needs to change

2.1 The situation today

All available data show an under-representation of women in leading positions in research. The statistics available on the presence of men and women in research have improved considerably over recent years due to the influence and activities of the European Commission, and the resultant changes in Eurostat (Statistical Office of the European Communities) procedures. Thanks to the efforts of the Helsinki Group on Women and Science set up by the European Commission, and the Helsinki Group's statistical correspondents, there are now more statistics and indicators available on women in research. The European Commission's She Figures 2006 publication[12] provided the data for this report.

However, the availability of data varies in detail. It is now much easier to find data on the proportions of men and women holding various higher positions in academia and research. But finding detailed information on funding (particularly male-female breakdown) or on peer-review is still problematic since the organisation of statistics in this area tends to be country-specific – i.e. not officially requested by Eurostat. Information on the male-female representation on research decision-making boards (and funding data) is collected directly by the European Commission, but is not uniform and is not provided by all countries (see She Figures 2006).

Various country cases illustrate the challenges. In Germany, sex-disaggregated data are collected on academic positions and disciplines, as well as on the appointment procedures for professorships. There are also data regarding the development of scientific careers in universities as well as in some research institutions that show a higher proportion of women researchers than men dropping out of the research system over time (see the 'Scissors diagram'). This phenomenon is also described as the 'leaky pipeline'. Data also exist concerning leading positions in universities and in research institutions. Yet, in general, it is difficult to get actual data regarding heads of faculties and departments in part because of the annual change in many such positions. There are less available data on the various boards that allocate research funding.

In Spain, sex-disaggregated data are available on all research projects financed by the Ministry of Education and Science, including the number of female researcher applicants and their success rate, but such data are not available on research financed by other ministries (e.g. Industry, Defence). Sex-disaggregated data are also available in Spain on academic positions, by discipline, and on top positions in universities and public research institutions[13].

Availability of data is also seen as quite good in Scandinavia, whereas it has been deemed unsatisfactory in Greece, and generally insufficient for in-depth study in most of the older EU member states (e.g. according to She Figures 2006, data are unavailable from the UK on the proportion of female researchers, and France cannot provide gendered funding success rates). The post-communist countries are also relatively badly-provided with data, except for Slovenia.

In order to continue studies on women in research – or, more broadly, on equality and fairness in research – the statistics collected would need to be improved since some very basic data are still unavailable. Data on the gender situation in private research, including industrial research, are still limited (this area, however, is outside the mandate of this report). Data on gender-balance in funding is hard to come by, as well as on pay-gaps between male and female researchers of equivalent level (however, a recent EU study does make a start in this area –

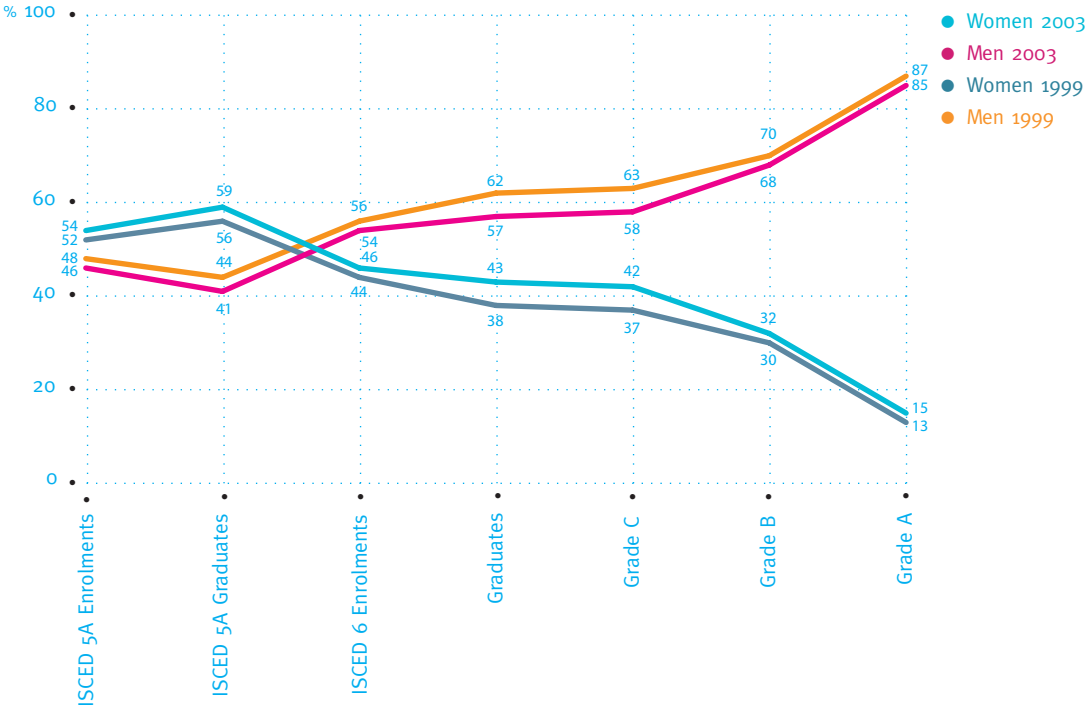
see page 21), on gender breakdowns of funding per research institution, appointment procedures to funding committees and the evaluation of research funding applications. Detailed data on success rates can help to identify the levels of discrimination more clearly. The UK Research Councils, for example, do publish such data in their Annual Reports[14], as did the European Research Council with its data on Stage 1 of the evaluation for starting grants, presented in 2007[15]. However, if such data do show gender gaps, more detailed examination will be needed.

In addition, the German expert organisation CEWS (Centre of Excellence for Women in Science[16]) has indicated the need for research, for example, on the lower promotion opportunities for women in female-dominated departments (carried out in 2007[17]), the low numbers of children among female academics and on the relevance of female role models for gender equality of women in leading positions in science. Another area of interest could be a study examining the proposition that countries that do not pay their professors particularly well have higher proportions of women professors.

Clearly, sex is not the only factor that can lead to discrimination: it intersects with other factors such as class, ethnicity and religion, sexual orientation, age or disability. Such data are almost non-existent, although it would be important to find out exactly which women and which men encounter which problems, in order to target measures more efficiently, and obtain the benefits of diversity.

All available data show an under-representation of women in leading positions in research, and the associated problems could be summarised as follows:

Figure 2.1:
"Scissors diagram" – Proportions of men and women in a typical academic career, students and academic staff EU-25, 1999-2003



Source: Eurostat Education data, DG Research

Problem 1: women are less likely to be promoted to top positions

There are proportionally more women holding the position just below full professor than there are full professors (or Grade A positions), but moving that one extra step seems to be problematic. It could be said, therefore, that the 'glass ceiling' (see Box and Figure 2.2. on *Glass Ceiling Index*) in academia exists between the level of associate professor and full professor.

Women students are in the majority in higher education, but for registered students at PhD level, the male/female proportions are reversed, and thereafter women's representation continues to decline, with the greatest divergence at the top grade. This is graphically illustrated by the 'scissors' diagram showing the way in which the gender gap changes throughout the stages of an academic career (see the Figure in 2.1).

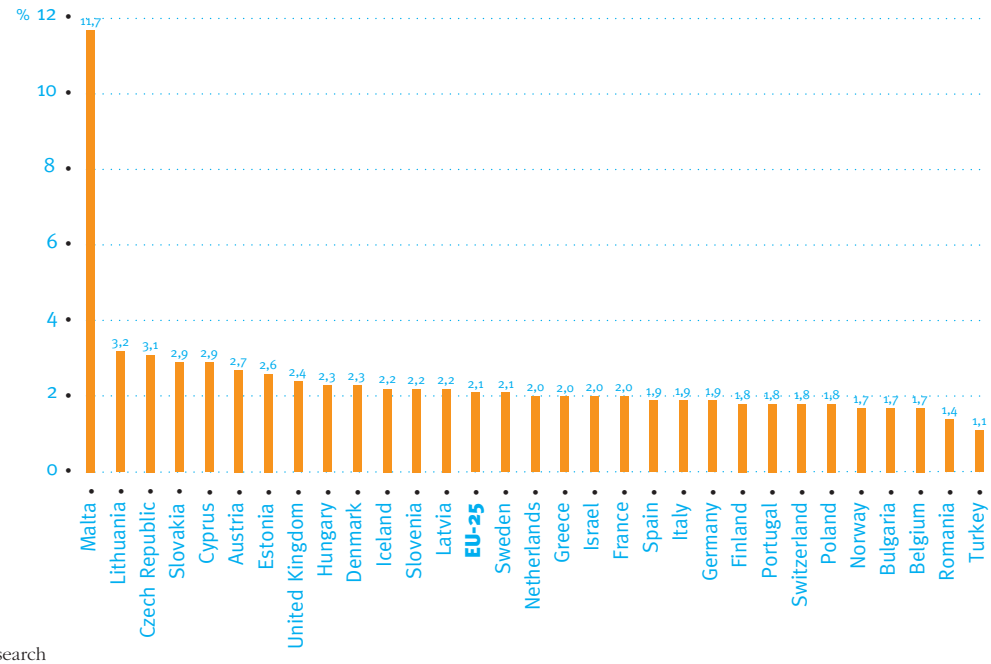
Therefore, the relatively high proportions of women at the PhD level have not translated into more equitable proportions at the top level. Analyses have demonstrated[18] that the lack of women in higher decision-making positions is not a problem that will be resolved over time. The consistently higher numbers of qualified women in humanities have not brought about gender-balance at the top level.

The EU average for the proportion of women in top academic positions is 15%, with Romania on 29%, Portugal and Finland on 21%, but the most common range for countries is 10-15% (see table 2.1. on *Proportion of female academic staff in grade A positions*). The higher proportions in some post-communist EU countries may be explained with a reference to the low salary levels among academics and the low esteem of academic occupations.

The position of heads of universities (rectors) is also generally important in European research decision-making. However, there are no official EU-wide data available. Nevertheless, some examples can be found – ranging from Sweden with a relatively high proportion of women as rectors (39%) to the more usual 5-10% for the rest of Europe. Despite the fact that the proportion of women undergraduates has been consistently high in Europe for some time, and that the proportion of women amongst new PhDs has also been on the increase, the proportion of women in the top level as professors remains stubbornly low. (See Box on Swedish Experience)

To sum up, it can be clearly seen that women are much less likely to be promoted to the top positions in research, and that this is indeed a problem that needs to be addressed.

Figure 2.2:
Glass Ceiling Index, 2004



Source: WiS database, DG Research

Table 2.1: Proportion of female academic staff in Grade A positions, 2004

	Grade A	Grade B	Grade C	Grade D	Total
EU-25	**15,3**	**32,2**	**42,0**	**43,3**	**36,4**
Austria	9,5	16,2	35,6	37,9	29,7
Belgium	9,0	20,7	33,1	46,6	32,7
Bulgaria	18,0	34,9	–	52,4	43,8
Cyprus	10,2	17,2	37,5	33,5	31,0
Czech Republic	10,3	22,1	40,2	48,8	34,0
Denmark	10,9	24,4	37,6	42,7	31,8
Estonia	17,2	37,1	56,6	66,6	49,2
Finland	21,2	46,6	52,9	42,8	40,9
France	16,1	38,7	–	39,3	32,9
Germany	9,2	16,1	25,9	35,6	29,2
Greece	11,3	22,7	31,9	39,4	29,0
Hungary	15,4	30,9	46,0	36,7	36,3
Iceland	15,1	29,9	53,0	–	33,8
Israel	10,6	21,6	33,6	44,7	24,6
Italy	16,4	31,4	43,8	–	31,2
Latvia	26,5	37,0	65,0	–	57,7
Lithuania	12,1	37,4	49,5	59,9	49,1
Malta	2,3	31,7	14,2	25,0	26,6
Netherlands	9,4	14,2	27,0	39,4	31,4
Norway	15,7	28,2	45,5	48,8	37,6
Poland	19,5	27,4	41,0	–	34,9
Portugal	20,9	34,4	43,4	50,4	41,8
Romania	29,1	49,1	–	55,2	42,9
Slovenia	12,9	25,8	39,3	47,9	31,4
Slovakia	13,5	31,5	48,5	54,3	41,1
Spain	17,6	36,1	52,2	50,6	42,1
Sweden	16,1	38,6	40,0	50,0	42,5
Switzerland	16,5	23,3	33,8	41,3	30,8
Turkey	25,5	27,4	40,5	41,6	35,7
United Kingdom	15,9	31,2	46,1	46,1	41,2

Source: WiS database, DG Research

Glass Ceiling Index

The Glass Ceiling Index (GCI), as recorded in She Figures 2006, is an indicator that measures the relative chance for women compared to men of reaching a top position, The GCI is the proportion of females in the top grades (A+B+C) divided by the proportion of females in grade A. A GCI of one says that there is no difference between men and women, and the higher the value the thicker the glass ceiling. The EU25 average is 2.1, with Romania on 1.4 and Norway on 1.7 (thinner glass ceiling), Spain on 2.5 and Estonia on 2.6 (thick glass ceiling).

Swedish experience

A study carried out on 5000 people who received their PhD in 1980-85 showed that it was twice as likely for a man to become a professor within 18 years of the PhD than for a woman. The conclusion: a higher number of women with PhDs does not necessarily mean a high number of women professors.

Swedish National Agency for Higher Education

Problem 2: low proportion of women on research decision-making boards

According to She Figures 2006, the proportion of women on scientific boards is above 40% for only Norway, Finland and Sweden. In the UK and Denmark the proportion is approximately 30%, with France on 27%. Among other countries in Europe, the percentages range from 7% (Cyprus) to approximately 20% (see Figure on Proportion of women on scientific boards).

The percentages drop, however, when one looks at only the boards where the major decisions in research are made. In many countries, these boards operate without any female representation at all (e.g. Estonia, which currently has no women on its two most influential research policy decision-making boards, and has only one woman in its 57-member Academy of Sciences).

'Gate-keepers' on research councils

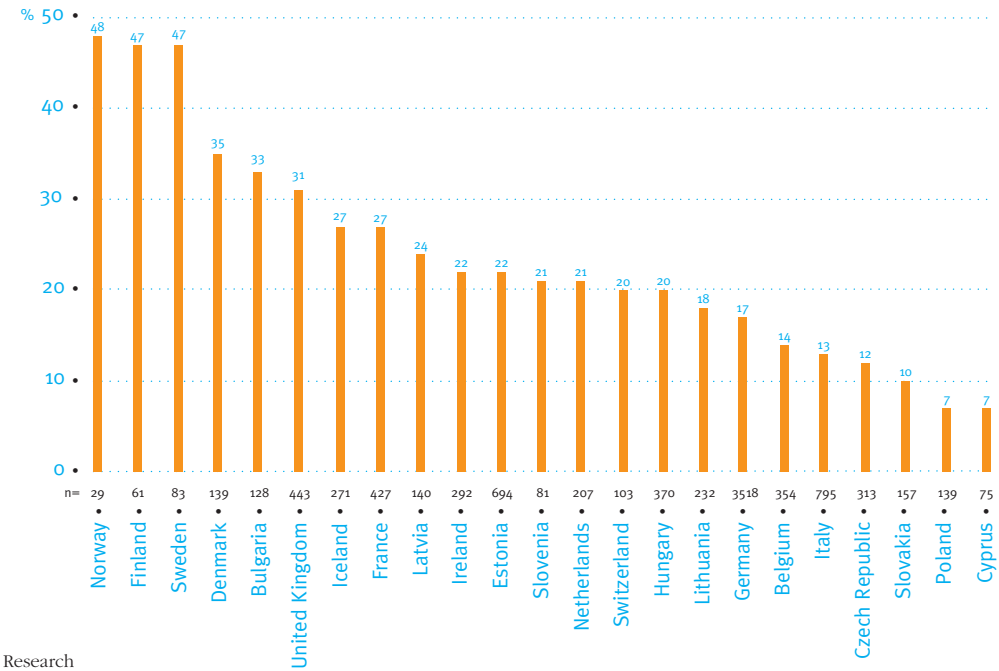
How women fare in the research application process also depends on the members of research councils – the 'gate-keepers' who are usually senior academics. But senior academics are usually male. It is essential to include women in the gate-keeping procedure, and councils need to have strategies for widening the pool of reviewers.
NORFACE gender equality workshop, Reykjavik, 2005. Address by Professor Barbara Bagilhole

Where are all the women?

Sixty percent of medical students are female, so why is it that 88% of professors in UK medical schools are men? New research ("Women in the UK academic medicine workforce", published in the Journal of Medical Education) blames a lack of role models and workforce practices.
http://bulletin.sciencebusiness.net/ebulletins/showissue.php3?page=/548/2589/9011

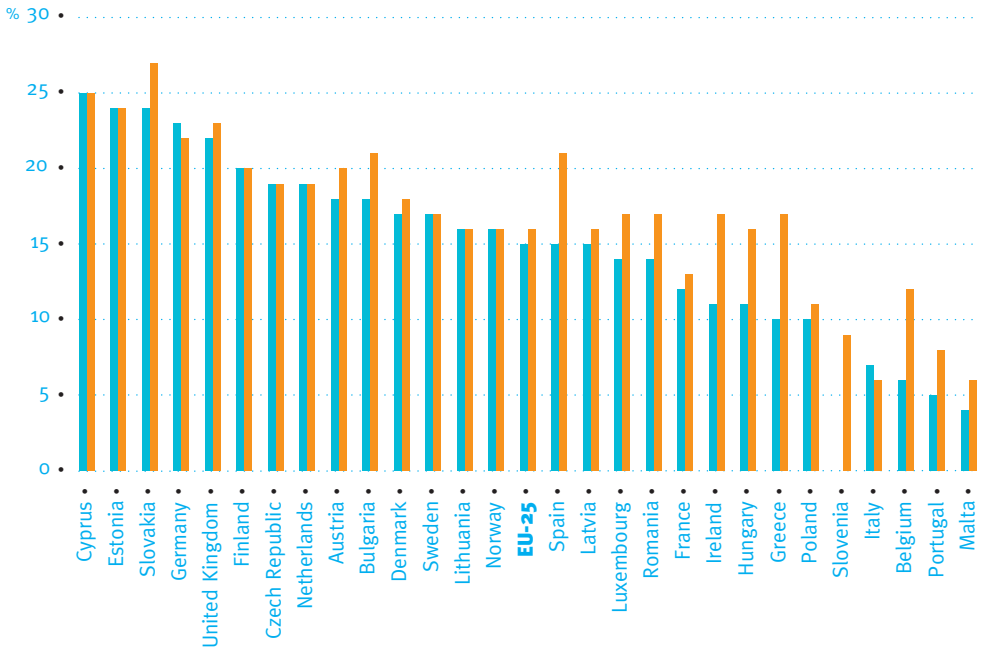
Figure 2.3: Proportion of women on scientific boards, 2004

n = total number of board members



Source: WiS database, DG Research

Figure 2.4: Gender Pay-Gap covering the whole economy, 2002 and 2004



Gender Pay Gap = the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees.

Source: Eurostat Economy and finance statistics

Problem 3: women researchers paid less than men on the same level (gender pay-gap)

Although there is very little specific data readily available on the gender pay-gap in the research field, a recent study published by the European Commission on the remuneration of researchers in public and private commercial sectors in the EU-25 and associated countries also includes information on male-female differences in researcher remuneration (pay-gap). The male-female difference in pay, in this particular study, ranges from about 10% in Iceland, 11% in Denmark to 47% in Estonia and 36% in Portugal[19].

There is also Eurostat pay-gap data available for the whole economy, where the country trends are similar to the range of pay-gaps seen in the above study on researcher salaries (see Figure on Gender pay-gap).

Country studies show that Slovenia has a gender pay-gap of 12% in research in the highest positions. Estonia, with its general pay gap of 24%, provides no official data on pay-gaps in universities but examination of the information available on the website of one of Estonia's major universities showed a pay gap of up to 20%. In contrast, Sweden has a very small pay-gap in the university sector.

Therefore, the existence of a clear gender pay gap is to be counted as a problem for women in research.

'Mind the gap' – pay discrimination between male and female scientists

The Economist recently wrote in its Science and Technology section about the study conducted by Sara Connolly of the University of East Anglia, analysing the results of a survey of over 7 000 scientists. She found that the average pay gap between male and female academics working in science, engineering and technology is around 1 500 GBP a year. Men are also likely to earn more within any given grade of the hierarchy. Male professors, for example, earn over 4 000 GBP a year more than female ones. Explicable differences (seniority, experience and age) amounted to 77% of the overall pay gap between the sexes. "This still left a substantial 23% pay gap, which Dr Connolly attributes to discrimination." The Economist, September 9th 2006, "Mind the gap."

Problem 4: the more money spent on R&D the fewer women?

Despite the high numbers of women researchers in the post-communist countries, the very top positions are still very much dominated by men. The Enwise report introduced the concept of the Honey Pot Indicator, defined as the measure of the relationship between concentrations of women and men, and Research & Development (R&D) expenditure. The conclusion, based on the Enwise countries studied, was that the highest proportion of women is 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.

In addition, according to the She Figures 2006, countries with low levels of R&D expenditure per capita researcher, e.g. the post-communist countries (except Slovenia) and Greece, have the highest proportion of women in research. In the case of Greece, this could be explained by the relatively low status of research jobs and the high prevalence of state-owned research institutions (as the public sector is traditionally a woman-friendly sector). Similarly, countries with the highest R&D per capita researcher, i.e. Luxembourg, Netherlands, Switzerland, have the lowest proportion of female researchers (18% for Luxembourg, 17% for the Netherlands, 21% for Switzerland – with the EU average being 29%).

To sum up, there seems to be a problem regarding the particular lack of women in well-funded areas of research.

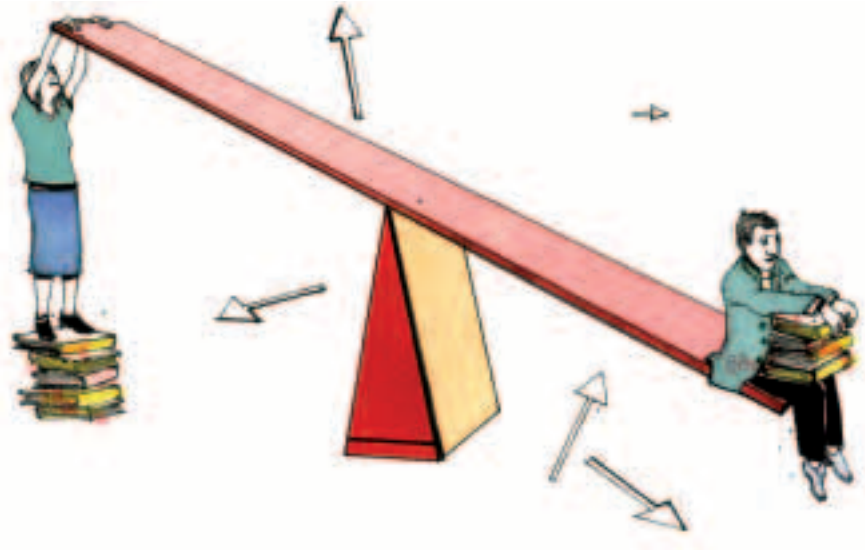
Problem 5: 'There is no problem'– a lack of awareness and commitment

Although there are gaps in the data available on women in research, there is sufficient to clearly indicate a lack of gender balance. This imbalance, and its consequent problems, is little-known, and the lack of discussion on the topic means that there is low awareness – even amongst the research community itself, not to mention the public. In many countries, this specific lack of awareness is compounded by a general low level of awareness on gender issues, even amongst women.

This lack of awareness could also be counteracted by clearly-stated top-level commitment to gender equality, starting at the EU level. Recommendations by the European Commission on achieving gender balance do have an influence on national policies.

Indeed, the Swedish experience shows that top-level commitment is vital in achieving gender equality in research. Commitment needs to be expressed at national level and visible governmental bodies must be seen to reflect gender balance. This top-level commitment must also be followed by measures in universities and research institutions, and the results must be regularly monitored and acted upon (based on the systematic collection of statistics and feedback from measures).

To summarise, while there are still areas where more data are required, the currently available facts and figures clearly show the existence of numerous problems resulting in the much lower than expected proportion of women in research decision-making positions. These problems already convey a clear call for change.



No problems in Portugal?

At a national level, the women's issue is slowly entering the political vocabulary but realistic leadership commitment to equality in general, and to equality in science decision-making in particular, is still absent. The proportion of women amongst the top grade of university staff, although only 21%, is high compared to the EU average of 15%, which means that the political leadership uses the opportunity to claim that Portugal has no problems.

Not a problem for one out of two French women scientists

In a survey carried out in 2007, CNRS researchers and high-level engineers were asked whether the fact of being a woman was an advantage, a handicap or neither, for a career in public research. 2% of women and 8% of men thought it was an advantage, 47% of women and 19% of men thought it was a handicap, 51% of women and 72% of men thought it was neither.

Daniel Boy (2007), Enquête sur la responsabilité sociale du scientifique,
http://www.cnrs.fr/colloques/sciences-societe/quoideneuf.htm

2.2. Arguments for change

The data show that there is still a grave underrepresentation of women in research – particularly in top positions. Time alone will not mend this problem. There are structural barriers, embedded in regulations, which have been created by the still predominantly-male hierarchies, and there are social assumptions concerning the role of men and women that hinder the utilisation of potential.

Gender discrimination in research has a long tradition, and lasting effects: thus there are even more reasons to seriously pursue change. In many countries, women's movements fought for equal rights in the 1970s, and for institutional presence (women's representatives or equal opportunity offices) and regulations including affirmative action in the 1980s, while the 1990s was the time to move to gender mainstreaming and women in politics, from people to issues, thus introducing women's and gender studies. There were, however, variations to this development pattern in some European countries, and the communist states had their own special situation (see Box on Gender-awareness problem among women).

Today, at the beginning of the 21st century, the goal has become to insert gender into the mainstream of research. Despite the fact that the equality of men and women is a right and an obligation in all European constitutions, and although there are national laws and regulations in effect, success has been limited.

Policy objectives regarding the consideration of gender in research – and even more so the arguments to support them – have changed over time. These policy objectives target personnel, resources and content, and there has been a shift from formal equality to equality of opportunity or equality in numbers, to gender balance and equity.

There are a number of reasons that argue in favour of having more women in research decision-making positions. These could be grouped into three major categories: ethical/human rights arguments, utilitarian arguments and common good arguments. The ethical arguments of social justice and human rights say that it is only fair that women should be able to reach these positions, and the utilitarian arguments concern quality (modern research will be better if led by more women) and efficiency (not employing these women to the best of their capacities is a waste of the training invested in them). Finally, the common good argument reminds us that both women and men are taxpayers, contributing to the funding of research.

Human rights arguments

The arguments of **social justice and fairness** say that all people, men and women should have equal opportunities and suffer no discrimination. Such arguments are deeply anchored in the democratic tradition. What is more, improving fairness for women, improves fairness for all.

For instance, having **inclusive and transparent** promotion processes in the research world means that women and men are granted access to formal **networks** in the research world in a way that exclusion and opaque decision-making by old-boy networks could be counteracted.

Gender-awareness problem among women

Lack of gender awareness seems to be a particular problem in post-communist countries where many women are quite satisfied with men dominating leadership positions, be it in business, research or politics. A recent series of interviews with top Romanian women researchers demonstrated that most do not see the problem – hardly any of the women interviewed admitted to experiencing discrimination. Some typical comments from Slovakian researchers: "Problems of gender equality are marginal when compared to other, more serious problems in science." "Serious and successful researchers don't waste time talking about non-issues such as gender (in)equality in science. There just isn't a problem."

Lack of gender awareness in Estonia

A Ministry of Social Affairs survey (October 2006) found a general public lack of gender awareness: only 63% of women (45% of men) believe that women and men should have equal pay; 48% of women (68% of men) say that they have no problem with the higher-paid jobs being dominated by men; half the women (32% of men) agree with the statement that men are better suited for management positions.

In addition, a recent (yet unpublished) study on Estonian women researchers in science and technology shows that they blame themselves and not the system for the lack of women in decision-making positions. Most respondents to the survey stated that they did not really want the management jobs since they preferred doing research rather than administrative work and having to deal with finding research funding.
BASNET (Baltic States Network "Women in Sciences and High Technology") Project Survey, 2007.

Avoiding the issue in Belgium

Universities in Belgium are increasingly concerned about their international rankings. This ranking is mainly determined by the numbers of publications, numbers of patents, post-doctoral fellows, etc, but not by gender equality. This is therefore a minor issue for the universities and perhaps an excuse for avoiding responsibility as regards gender equality in research.

Utilitarian arguments concerning quality

Diversity increases creativity. Research activities rely heavily on creativity. Diverse research teams from diverse origins are in general more open to new ideas, procedures and experiments, and thus more innovative. This requires the presence of both women and men from different walks of life. Such an advantage has long been recognised by research departments in multinational companies who actively develop programmes to hire and retain women (as well as ethnic minorities) throughout their careers[20].

Diversity increases quality. The more diverse the background and experiences of the researchers, the less likely it is that research is biased, or that products target only part of the market. The closer to reality the research is, the better it can produce products that people actually need and use. This means drawing on the complete pool of human capital, and accepting that the life experience of women is also necessary for understanding the world. Gender bias lowers the quality of research, traditionally excluding women and gender from consideration. Traditional research could be enhanced by removing the bias and considering aspects that are otherwise ignored.

Having gender balance in research **brings science closer to society** by reflecting the actual composition of society. Thus science can be more relevant to society's needs. In addition, gender equality in research means targeting areas and themes otherwise easily neglected – since they may be better known to women than to men.

Utilitarian arguments concerning efficiency

Optimisation of human resources. Not including more women is a waste of human resources. There is a disproportionately low rate of participation in research for women compared to the number of undergraduate and graduate students. Having considerably fewer women in decision-making than among PhD holders/students is a waste of a considerable investment in their training.

Gender equity improves efficiency. This ties in with a new orientation of universities towards business strategies. Just as the economic world has started to ask for more qualified personnel as 'human capital",

and to become concerned about the lack of qualified men, thus turning to women and migrants, some countries have started to consider the recruitment of highly qualified female researchers as a prime policy objective, particularly in male dominated fields like engineering, and even going beyond national borders. This is attractive because economic concerns are prevalent in the world of science, and it highlights the potential of women – where the situation of women dropping out of research is viewed as an efficiency problem.

Gender equity increases international competitiveness. Universities and research institutions with very low percentages of female professors could lose out in international competition for partnerships with other countries that have a greater participation of women researchers, and thus a larger pool of talent, and have thereby benefited from the quality increase brought about by greater diversity.

Common good argument

Since research is driven by **common needs**, and financed by public funds that are provided by taxpayers – women and men, it would demonstrate commitment to a socially-balanced community if gender equality in research decision-making were ensured – i.e. it would be for the common good. In addition, the economic benefits to society of an increased involvement of women in science cannot be ignored: birth rates are higher in countries with higher gender equity in the labour market (see also Box on *Womenomics* in 3.4).

To summarise: if the arguments about human rights, social justice and fairness are not sufficient to justify improvements in women's position as decision-makers, it can also be argued that more women as decision-makers contribute to the mobilisation of all possible capabilities for ensuring the quality and efficiency of research itself. More women in key positions are needed to recognise relevant research topics and themes, to develop new and innovative methodologies and to challenge the current disciplinary and methodological understandings. Women's experiences are urgently needed to structure and clarify the goals of research. Hence, if we have more women as decision-makers, we will have better and more efficient research, and a more effective use of the human potential.

Diversity example from industry

Nissan Motor in Japan has seen the benefits of diversity and increased its recruiting and promoting of women. "To meet the diverse needs in the global market, you need to have diversity in the composition of your employees. A homogeneous group can only come up with something homogeneous." International Herald Tribune, June 2-3, 2007, "Japan Inc. embraces diversity"

Does gender matter? Diversity leads to quality

Commentator Ben A. Barres from Stanford University asks what could be done to ensure women achieve their full potential and suggests a number of actions including: 1) enhancing leadership diversity in academic and scientific institutions. Diversity provides a substantially broader point of view, with more sensitivity and respect for different perspectives, which is invaluable to any organization. More female leadership is vital in lessening the hostile working environment that young women scientists often encounter, 2) diverse faculty role models are important so job searches must be open and fair in order to recruit top women scientists – search committees should not always be chaired by men, and the committee itself should be highly diverse. *Nature, 13 July 2006, Does gender matter? Ben A. Barres*

Media comment on the lack of women in decision-making

On 22 June 2007, SME, the major Slovak daily, published an article titled "Lack of women in decision-making positions at universities".

"The extremely low representation of women at Slovak universities is a problem. It is a problem because it is yet another important area of public life besides politics where the voice of women is missing. This voice has the ability to ask questions, express opinions and make decisions that men often do not even think of. The world today brings many diverse challenges. Resolving these needs a lot of people thinking in diverse ways. It is bad if women are not part of this process. Society is impoverished, it does not use its full potential, and in the end both women and men suffer. It is for men to realise this. And it is for women to aspire to higher positions, to push their visions forward. If they don't, things will still keep working. But things could work so much better."

Lucas Fila, SME daily, 22 June 2007, Lack of women in decision-making positions at universities.

http://www.sme.sk/clanok_tlac.asp?cl=3360369

US report says women burdened by bias in the sciences

An expert panel convened by the National Academy of Sciences concluded in its report "Beyond Bias and Barriers" that American women in science and engineering are hindered by bias and "outmoded institutional structures" in academia. The panel said that in an era of global competition, the US could not afford "such under-use of precious human capital". The report recommended that universities alter procedures for hiring and evaluation, change typical timetables for tenure and promotion, and provide more support for working parents. The real problems for women, says the report, are unconscious but pervasive bias, arbitrary and subjective evaluation processes, and a working environment in which "anyone lacking the work and family support traditionally provided by a 'wife' is at a serious disadvantage."

http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=11741

See also: International Herald Tribune, September 19, 2006, "U.S. women burdened by bias, not inability, in the sciences".

Potential for Change: good practice and measures

There are many possible measures, and existing good practices, to address the lack of gender balance in research decision-making. This report groups these measures – starting with those in the field of research funding, since funding is fundamental to good research. If a researcher gets fair access to research funding (e.g. through successful grant applications), she will have the opportunity to carry out her research rapidly and efficiently, and she will be able to publish better and more – in other words, she will be in a position to be promoted. This is why it is important that women have fair access to such funding, and why information on women's participation in applications for funding, and on their success rates, is also important. This report has already referred to the lack of comprehensive statistics in this field (see Chapter 2), and this lack is reflected in the data provided in Annex 4.1 of She Figures 2006, where the numbers of male and female applicants and beneficiaries of research funding are presented. In some countries, such as France, there are no data available at all. The existing data, however, clearly demonstrate that there is an equality issue regarding how research funding is allocated.

The second group of measures presented in this chapter cover the area of appointments/promotions in research jobs. If the first group of measures put a woman in a position to be promoted in her scientific career (since she had been successful in obtaining funds for her research), this second group of measures should work to put her in a better position in gaining promotions to decision-making posts. The proposed measures include existing good practice in ensuring gender parity on boards, transparency in appointment procedures and results, setting gender parity targets and improving work-life balance.

The third group of measures look at how gender equity could be integrated into quality management for institutions, and become mainstream policy rather than a separate issue. Continuing with the example of our woman researcher who has first received the funding, then been promoted to a decision-making post, we then integrate the good practice that brought her to this level into the everyday operation of the institution, resulting in enhanced overall research quality.

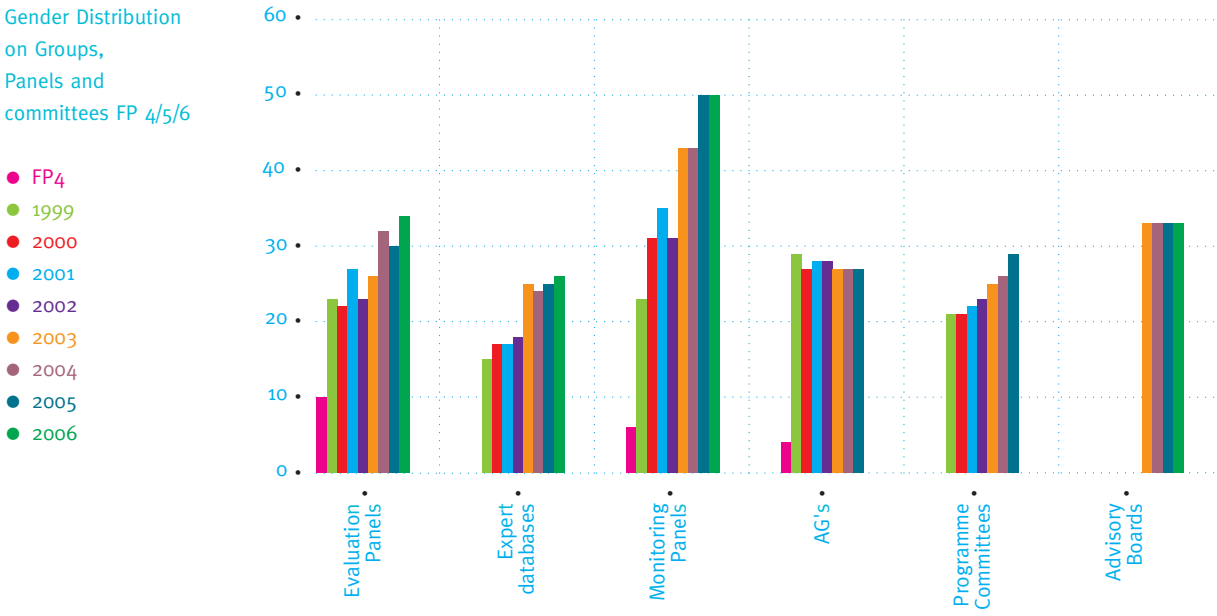
The fourth group of measures deal with issues of policy. It is clear that the steps needed for each of these groups of measures cannot be taken unless there is leadership support for the principle of gender balance, a belief in its benefits for research, and a commitment to change the current situation.

3.1 Follow the money: Measures to promote gender equality in decision-making for funding research

Gender balance on decision-making bodies

Equality in decision-making starts with having a gender balance on the bodies that decide on research funding. At the very least, having male-only committees risks replicating stereotypes and bias, both regarding applicants and issues in research. Therefore, measures are needed to have both women and men fairly represented on decision-making bodies.

Gender Distribution on Groups, Panels and committees FP 4/5/6



Source: DG Research

Here the EU itself sets an example by committing to place at least 40% women in its research evaluation commissions, and this measure has certainly been successful in increasing the numbers of women researchers in these commissions (see Figure on *Gender Distribution on Groups...* and *End Note 4*). The EU Charter for Researchers[21] supports this goal of aiming 'for a representative gender balance'. A number of countries, including Norway, Sweden and Finland, have also set 40% targets (as regards the under-represented sex) for their research councils.

Special programmes for women in funding

To target equality in funding, there have been several strategies to allocate money for research with a consideration of gender equality: to establish extra funds for women researchers, to allocate bonus points to projects with a good gender balance, to establish economic incentives, or sanctions, within research institutions.

In Germany, with the aim of providing equal opportunities to pursue a career, governments and some scientific organisations have set up special programmes or provided separate funds for women researchers since the end of the 1980s. This was not only a shift from equal presence to equal opportunities, but also a way to avoid direct competition between men and women. However, such extra funding also created another reason to stigmatize women in research as those who are successful due to biology rather than quality. In addition, such funding left old-boy networks untouched, and mostly established parallel structures. The last programme (2001-2006), which was financed at the federal and state levels, and comprised 30 million EUR, was aimed at enhancing gender research, the participation of women in leading positions, and in technical studies, and did result in a broad set of successful measures[22].

In Spain, five points out of 100 are given to projects directed by a woman or with a higher than average representation of women in the project team. Only projects that have passed the quality threshold may benefit from this measure. There have been protests, however, claiming that it could compromise scientific quality.

In Greece, research projects to be funded by the state in 2001 received a bonus of 5% on the evaluation scale for each woman researcher on a research team. This was applied to all fields of research, not only those where women were underrepresented. Thus traditionally 'female' research fields acquired an advantage over 'male' ones, provoking reactions from the research community and resulting in the

measure being discontinued. The measure could have been successful if the bonus (as is the case with all positive measures favouring women) was applied only to research fields where women are under-represented. More generally, withdrawal of the measure could have been avoided if the design of the measure had integrated both the positive action rationale and a stricter monitoring system.

3.2. Getting women to the top: Measures to promote gender equality in decision-making for appointments

Equality in decision-making also depends on getting into the pool of candidates from which decision-makers are selected. Generally, measures to promote gender equality in decision-making for appointments may differ in that some target employment positions, as for full professors, and others target representative positions, as on boards. Many measures are similar to those which target funding decisions.

Transparent procedures

Open, transparent procedures work to lessen the influence of informal old-boy networks that often exclude women. Measures are needed to ensure that procedures are fair, to gain the best in the field without bias. Standardised procedures and clear-cut qualification criteria are central in ensuring quality, and they also enhance the chances for women in appointment procedures[23]. Such criteria should be well thought out and could include activities in which women may tend to invest more, such as teaching. Transparency also enables the procedures to be evaluated more readily.

Other measures include widely-published job advertisements, which encourage women to apply (no male-only language), and the monitoring of gendered data on applications (including publishing the final results of hiring procedures as well the call for the application, and providing information on the gender balance on each selection round). More generally, it should be possible to review and evaluate selection procedures after the fact.

Benefit of targeted financing in Greece

In 2003 the Ministry of Education in Greece and the European Social Fund co-funded gender research. A total of 4.5 million EUR was spent on 37 research projects presented by teams of Greek universities. Thanks to the measure, the amount allocated per gender research project was double the amount allocated to all other research areas. The policy measure enhanced research on gender issues as well supported women researchers (almost all the project leaders were women). Without the targeted funding by the Ministry, the research proposals would certainly have been scuttled by the male-biased evaluation system, which would have considered gender research non-significant and/or non-scientific. This allocation of targeted funding for gender research has had the indirect effect of upgrading women researchers in the university hierarchy, at a time when new evaluation schemes for university staff were to have been introduced under the recent legal reform of higher education.

Generally, in selection decisions, a short list of suitable candidates is prepared, ranking them according to academic or professional qualifications. However, such a short list could be presented, without the ranking of candidates, to a further selection committee who would be free to apply other criteria (such as the need to correct the gender balance).

Proactive searches **(headhunting)** for excellent researchers have become increasingly common since there is now intense global competition for talent. Women's networks are resourceful cooperation partners here since they have targeted databases and active contacts within the scientific community that can be used to enlarge the pool of qualified applicants.

Another suggested measure is to set up a search committee with the aim of specifically looking for qualified female candidates for a senior position **(equality-oriented search)**. It is recognised that women tend not to be so thoroughly 'networked' as men and so are more difficult to trace. In Norway, at NTNU in Trondheim, search committees have been used very successfully to identify qualified women. Additionally, job advertisements can be designed to encourage women to apply.

UK appointment procedures

The UK Office of the Commissioner for Public Appointments is an independent body to set standards and regulate the recruitment process for appointments in public bodies, in order to ensure that appointments are made on merit after fair and open competition, and also to encourage equal opportunity and diversity. Progress against diversity targets are published, as well as information on initiatives to encourage greater diversity in public appointments.

Gender Equality officers and units

In Germany, equal opportunity officers were made mandatory for universities in the 1990s. These officers were to represent women's interests in institutions and contribute to the transparency of decision-making. The policy objective is mainly the presence of the issue of gender equality in research, rather than gender research itself. In Spain, a recent amendment to the Universities Act obliges all universities to set up Gender Equality units by 2008. The same amendment requires regular reporting on the advancement of gender equality at each university

US Good Practice: Train the hirers to avoid gender bias

The ADVANCE Program, promoting diversity and excellence at the University of Michigan, has set up the STRIDE Committee "to provide information and advice about practices that will maximize the likelihood that diverse, well-qualified candidates for faculty positions will be identified, and, if selected for offers, recruited, retained, and promoted at the University of Michigan. The committee leads workshops for faculty and administrators involved in hiring."
Source: http://sitemaker.umich.edu/advance/stride

The mere presence of a woman on a selection board does not ensure gender competence. **Gender expertise**, or at least gender awareness, **on selection boards** would help to ensure the quality of decisions.

The presence of **gender equality officers** can help to monitor the transparency and fairness of the appointment and selection procedures. But these gender equality officers should be sufficiently independent of the institution for which they monitor appointment procedures, and they should regularly and publicly report on the selection processes.

Targets and quotas

Measures to be taken to promote gender equality in decision-making for appointment may include both targets and quotas. Both measures set goals to be reached, over a certain time period, but not achieving targets results in no sanctions. Quotas, on the other hand, due to their stricter nature, can produce radical change over a short period. Experiences in research hiring, however, show that targets are generally better accepted than quotas. Systems of reserved quotas for women are nearly unanimously rejected on the grounds that women would be judged according to their sex, not according to their scientific abilities or intellectual value. (This claim could be countered by the suggestion that in reality there are currently 'reserved quotas' for men.) There is also an argument, however, saying that in the case of scientific job decisions, such as hiring and promotion, targets are an alternative to quotas, whereas in partially political decisions, such as nomination to decision-making boards, committees, etc, quotas could be applied.

In Norway, if two candidates are equally qualified, the less represented sex can be favoured, as is stated in the job advertisement. It is recognised that there is often a bias (conscious or unconscious) among departmental staff who might tend to promote one of their own colleagues (or one of their own sex). Therefore it is required to have an external representative (from another faculty) on the selection committee.

In Finland, it has been accepted as a general principle that preference should be given to the under-represented sex, if the applicants are equally competent or if the difference between their competences is slight.

In Sweden, the concept of quotas is not popular but that of goals and follow-up is quite acceptable. Since the higher education institutions rely on public funding, political pressure in the form of goals and policy can be effective, even given the autonomy of the institution.

Gender parity targets on selection boards can help to increase the number of women selected for positions. For example, in Spain, there has been a 40:60 ratio requirement since 2005 for selection boards in public employment, and the largest public research body (CSIC) also has compulsory sex parity on its selection and promotion boards. This has resulted in an increase in the number of women selected for positions, particularly for the highest position of research professor.

Hiring incentives

An example of incentives being used to encourage the hiring of more female professors is provided by Switzerland[24]. An incentive programme was started in 2000, and every year the responsible federal institution publishes a ranking on the results. The universities were not obliged to use the extra funding for gender issues but they generally did (e.g. for financing gender equity offices). Despite the generally positive results, the level of funding is rather modest to work as an effective incentive, and the appointment committees for professorships often are not aware of the Programme's existence.

In the University of Oslo, about 350 000 € per year is available (as matched funding) to support at the departmental level projects involving existing female staff (e.g. paying travel costs, expanding research activities, paying for support staff). This pot of money also supports the mentor programme, as well as meetings for school leavers to encourage more female students to apply to faculties such as engineering and mathematics where women are seriously under-represented. An 'incentive model' has been introduced, by which funds are redistributed and awarded to institutes that have increased their senior female staff, but the money is limited and the scheme is not well publicised. In fact, in 2006 not all the budget was allocated, as institutes were not able to maintain the increases from year to year. A Ministry of Education committee is evaluating the incentive scheme and may recommend it to all universities in Norway.

A Finnish example of gender-based targeted funding is also provided by the Minna Canth Academy Professorship in Women Studies and Gender Research at the Academy of Finland, and other equivalent positions in various universities.

Successful use of targets in the recruitment of women professors in Sweden

In Sweden, the proportion of women among new professors was 7% in 1985-92 and 12% in 1993-95. The goals set for each university added up to a national goal of 19% for the period 1997-1999. The proportion of women among new professors for all universities together was 21% in this period as well as in the next period for which goals were set – i.e. 2001-2004. Although a number of factors could have influenced this outcome, the goals set by the government are generally seen as having played a major role.

Problems with the word 'quota'

The idea of quotas is generally unpopular. This is particularly the case with post-communist societies. Informal interviews with researchers carried out in Slovakia and Estonia – both men and women – showed that the respondents think that quotas could be counter-productive (as they were in the communist past). "I do not like quotas... There used to be quotas everywhere – starting with school... enrolment quotas, e.g. for children from working class families... Quotas are very dangerous because they discriminate against women, men or whomever."

Sedova, T. (ed.)2003. Zeny a veda v SAV. (Women and Science at Slovak Academy of Sciences.) Bratislava: Veda SAV. There is no problem having a 1/3 general quota for women in expert bodies in Slovenia (except for technical sciences where there is a quota of 1/5), but there is no wide acceptance of a quota for women in academic positions.

Mentoring and empowerment

To empower women to reach positions in decision-making in research, mentoring is an interesting measure to select. However, without changes to selection committees and in organisations, there will be no real change in the situation. It is not enough to fix the women, if we do not also fix the institution, and work together with men, as American scholar Londa Schiebinger puts it. Thus, mentoring is but one available measure, which also needs to be wisely tuned to reach its objective. The recent setting up of the European Network of Mentoring Programmes (eument-net) for women in academia and research promises to provide a platform for high standard mentoring programmes[25].

Good practice in networking from Africa

The Forum for African Women Educationalists (FAWE) brings together high level female education policy makers including Ministers and Deputy Ministers of Education, Vice Chancellors and Deputy Vice Chancellors. It immediately invites any new appointee to join the organisation – the invitations are always accepted – and has been very successful in building an active and efficient working network.
Source: *www.fawe.org*

Slovakian leading woman researcher on work-life balance

"The work-life balance is the biggest challenge for me. When I work, I feel guilty that I am not with my family. When I am with my family, I feel guilty that I am not working."
Sedova 2003

Parental leave amendment in Iceland reduced pay-gap

Since 2000, parental leave in Iceland has been set at 3 months for the mother, 3 months for the father, and 3 months to be shared as the parents wish. A specific aim of this policy was to reduce the pay difference between men and women. Over the period of 4 years after the law came into force, the pay-gap narrowed by 6%.

In Oslo, two programmes have been carried out. One-to-one links are set up between PhD students/post-docs and professors (male or female) to discuss career opportunities and to try to overcome some of the difficulties that face young scientists seeking to advance on a career track. The schemes are voluntary. About 25 mentor-pairs have been set up so far. Evaluation by those taking part has been positive: the programmes are seen as being very helpful. Individual faculties, such as Law and Medicine, have had their own mentor programmes as well, again with considerable success.

In Germany, career advice is provided to women at early and intermediate stages in their research career, as well as leadership training for potential promotions (e.g. the European programme "Encouragement to Advance", administered by CEWS[26]).

In Greece, a DVD was recently produced depicting the lives of five woman researchers. The aim was to increase the visibility of women in research, to create a positive image of women working in male-dominated fields, and for the five women featured on the DVD to act as role models for aspiring woman scientists.

Women's networks have been established in Europe to assist in transforming the 'private struggles' of women researchers into 'public issues'. The interdisciplinary nature of some of these networks also brings gender researchers into contact with 'hard' science specialists, which benefits both parties.

Work-life balance

To get women into decision-making bodies in research, but also to let men be active parents, more attention needs to be paid to work-life-balance. This should not be limited to measures for child care only, but more broadly to the quality of work in research, and specifically to time management policies in science. Measures are needed to target time arrangements that discriminate against active parents, as in the organization of meetings. More flexible timeframes for research may help to solve some problems here, for both women and men, and for all kinds of private life obligations, such as caring for aged parents.

In Slovenia, there is a measure freezing the contracted period for young researchers when they take parental leave. There is also a freezing of the 'habilitation' period during maternal leave. Finland, Sweden and Norway also extend research appointments by taking into account the duration of parental leave, and male researchers, in particular, are encouraged to use all their parental leave. One of Belgium's main universities in the French community can now benefit from a new measure: Individual Academic Project (PAI), which means that researchers can now modify their objectives (e.g. research vs. teaching) in accordance with their family situation. For example, this measure would permit a woman researcher's career to evolve with the age of her children: from working more from home at the start to spending more time in the laboratory later on.

However, it needs to be taken into account that family care obligations can lead to gendered age discrimination, with women being penalised for taking time off to raise a family. Taking into account the 'academic age' instead of the biological age can

mitigate this effect. This measure would also benefit men who wish to take paternal leave.

Other measures need to target the assumptions held about men and women and their availability and commitment to science. In Germany it became a concern in academic institutions that a lack of work-life-balance may also hinder men from being recruited into research if dual careers are discouraged. Some institutions pay attention to work-life balance because a lack of women in science means not only an efficiency deficit but also an excellence deficit, losing the potential for innovation from the best talents – independently of their sex, who will leave research institutions and switch over to industry or the public service. Measures, however, tend to be used to target the mothers, completely ignoring the fathers, and more practical measures like childcare, adequate time policies – including the scheduling of meetings and leadership expectations – are rarely implemented.

3.3 Good research practices to benefit women – and men: Measures to promote gender equality as part of quality management

Quality management can concern quality of decisions (regarding procedures, appointments) as well as quality at the institutional level. If gender equality is acknowledged as a quality in itself, and as a factor promoting quality in research and teaching, then quality management should promote (and include) gender equality.

General principles to ensure quality are transparency, clarity and accessibility – in the selection of candidates for a position, in the funding of projects, as well as in the regular publication of criteria and procedures, and results such as success rates or application rates (see Box on Swiss good practice). Regular review of evaluation procedures is also important (see Box on Swedish peer review studies). Such principles are favourable for both women and men.
Examples of measures in the area of quality management are target agreements, equality plans with quantifiable goals and indicators for success and output-oriented funding decisions for institutions (such as recruitment goals, as used in Sweden).

Study on work-life balance in Europe

Although France has historically offered extensive childcare support to working mothers, it has significantly higher levels of work-life conflict than in Finland and Norway, which have similar extensive childcare support. A recent study reveals that the domestic division of labour is relatively traditional in France, and that this is associated with higher levels of work-life conflict.
Source: http://asj.sagepub.com/cgi/content/abstract/49/4/379

Better childcare and maternal leave: do they encourage or discourage women in following academic careers?

Two contrasting views:
1. Generous policies in terms of maternal leave and support (as in Norway) encourage women to stay in a research career track. It is quite common to interrupt a PhD course to have a baby or two, and a quick return to work is made possible by the excellent childcare facilities that are available.
However, there is an alternative view, that this policy is too 'soft'.

2. A generous maternal leave policy means that many women make a break in their research career in their 20s, and this (a) makes it hard for them to resume that career, since the field will have moved on without them and they will have a lot of re-learning to do; (b) provides an opportunity for women, during maternity leave, to consider other kinds of career, outside academia. As a result, many never return to the world of research and teaching.

Americans tend to present the latter argument: in the USA, maternal leave and job guarantees are very limited, the workplace is more competitive, and women are not so distracted by the pressures of the family (perhaps because they are less likely to have a family at all). They do not drift away from research. As a consequence, there is a better gender balance (see Box on Better gender balance for professors in the US, at the end of 3.4).

In Finland most universities and some funding institutions have established formal equality plans amongst their quality management measures. Unfortunately these do not generally include quantifiable goals or clear indicators for success.

Gender bias in peer review: Swedish studies

The **Wennerås and Wold** study concerning awards of post-doctoral fellowships of biomedicine found that women researchers had to publish twice as much in order to receive the same score as men. Also, men and women who were not known by any committee member had to publish twice as much in order to receive the same score as those who were known by at least one committee member. Unknown women thus suffered from a double handicap.
Wennerås, C. & Wold, A. (1997). Nepotism and Sexism in Peer-Review'. Nature 387 (22 May) 341-43.

A recent study by the Swedish Research Council showed mostly equal success rates for women and men, but higher success rates for men than for women in the case of fellowships for postdocs abroad and for most of the grant types in the field of medicine.
Gustafsson, G., Jacobsson, C. & Glynn, C. (2007). A question of balance. Nature, 449 (17 October) 944. Jacobsson, C. Glynn, C. & Lundberg, E. (2007). Equality between men and women in Swedish research funding? – An analysis of the Swedish Research Council's first years (2003-2005). Report from the Swedish Research Council.

Swiss good practice

The annual reports of the Swiss National Science Foundation use sex-disaggregated data for submitted/accepted proposals, success rates, etc.
http://www.snf.ch/SiteCollectionDocuments/por_fac_sta_jb06_d.pdf

Meta-analysis of gender equality: Women less successful in applying for research funds

A meta-analysis of 21 studies carried out by Zurich researchers (Bornmann et al) showed that among grant applicants men have statistically greater odds of receiving grants than women by about 7%.
Source: Bornmann, Lutz (2007). Bias cut. Nature 445 (I February) 566.
http://arxiv.org/ftp/math/papers/0701/0701537.pdf
see also http://www.ethlife.ethz.ch/articles/news/genderbias.html

Good Practice in UK for women in SET

The Athena Project has established The Athena SWAN Charter which is a recognition scheme for UK universities and their science, engineering and technology (SET) departments. It aims to assist the recruitment, retention and progression of women in SET. The award winners have produced case studies.
(Source: http://www.athenaproject.org.uk/casestudies.htm)
The UK Resource Centre for Women in SET has developed a unique tool to analyse workplace culture. It is a questionnaire designed to assess the factors identified to be important in gender equality. The attributes assessed are both the 'hard' tangible and the 'soft', more intangible factors that contribute to the underlying, often unspoken, workplace cultures.
http://www.setwomenresource.org.uk/advice_services/employers/expertise_services/organisational_culture

It is most important that the leadership of an organisation is positive regarding gender equality – both in word and deed. A passive, or even worse, passively negative leader can ruin almost any well-meant gender equality measure. In addition, the staff of an institution need to be sensitised regarding the issue of gender equality. Regular training, especially for persons responsible for appointment or funding decisions, can help reach this goal.

As the avoidance of gender bias is part of the quality of research, and gender studies and research centres are important in identifying, and increasing awareness about gender bias, gender studies and centres are therefore an integral part of quality management.

3.4 Changing policy: Measures to promote gender equality in setting policy

There are several possible measures to actively address equality as a policy goal in science. These include official declarations on gender equality as an integrated part of research, made by important players in the scientific community, with especially good results if stated by influential men. Here, the European Commission itself is a good example, where its recommendations trickle down into institutions and influence decisions. European Union

member states are also positively influenced by policy decisions made at the European level.

To gain acceptance and commitment, gender equality has to be understood as an integral part of excellence in research. This has been the core idea of the strategy of gender mainstreaming, gender budgeting and gender assessments. First and foremost, it has to be pursued by committed leaders in science, be they in formal leadership positions or highly regarded peers exerting power. Good policy in research means considering the effect of gender on efficiency and scientific excellence.

Networks of women scientists have been identified as key players in the research policy process, not only for being instrumental in the empowerment of women scientists, but also in the efforts to increase the number of women scientists in top positions, and to make the voice of women scientists heard in the policy debate on a national, regional and international level.[27] The European Platform of Women Scientists EPWS was established in November 2005 as an umbrella organisation of networks of women scientists and networks promoting women scientists, and it currently represents over 10 000 women scientists from all disciplines across Europe[28].

Depending on the institutional structure of science policies in the various countries, Women and Science units in the ministries responsible for research may also play a role. In Spain, for example, the Women and Science Unit in the Ministry of Education and Science aims at identifying the obstacles and biases preventing women academics and researchers from reaching the positions that correspond to their ability and worth. The activities include implementing measures that promote women in science, gender studies in universities, gender awareness and the gender perspective in research.

Gender budgeting in Norway

In Norway, government ministries have a statutory requirement to carry out a gender-budgeting exercise. The University of Oslo has adopted this policy, and a working group was set up to look at the distribution of funds (between male and female staff) within selected faculties. The main task will be to evaluate, from an equal opportunities point of view, the plans and budgets of the university, with the aim of initiating corrective action where necessary to ensure a fair and effective use of resources. The committee, led by the vice-rector, includes members with expertise in equal opportunities, personnel management, finance, planning, and faculty leadership.

Gender impact assessment in Spain

New legislation has been introduced on applying gender equality in all aspects of life, thereby affecting higher education institutions and establishing the need to assess gender impact periodically for all plans of special economic, social, cultural or artistic relevance.

Promoting scientific excellence through good policy

The German Fraunhofer institutes, funded by the federal government's BMBF, established the project 'Discover Gender' in which researchers can quickly test whether they should consider gender in their work. Findings about voice recognition software, which had been designed for men only and thus limited its market potential severely, serve as good examples for gender policies in science. It has shown the importance of paying attention to these aspects at an early stage of projects and product planning, to avoid cost increase in later stages. However, such examples tend to be limited to applied sciences, which allow researchers in the humanities as well as in basic research in the natural sciences, or in medicine, to reject the relevance of gender to their work.

Equal Opportunities Offensive

In 2006, an alliance of seven top scientific organisations in Germany (Science Council, German Research Foundation, Max Planck Society, et al) launched the 'Equal Opportunities Offensive', committing themselves to considerably increase the participation of women in research, especially in the institutions, to monitor progress and to evaluate the results.
http://www.wissenschaftsrat.de/texte/chgleich_all.pdf

Norwegian Committee for Mainstreaming Women in Science

In February 2007, the Committee published a Green Paper on Women in Research with recommendations for further gender equality work in the research sector and summarises the recent developments in gender balance and gender equality work in academia. It views the EU Recommendation on a Charter and Code of Conduct for Researchers and the ERA-MORE web portal and network of mobility centres as positive for the recruitment of women researchers. It also suggests that the Ministry of Education and Research offer economic rewards to institutions that hire women as associate professors and professors.

Recommendations for Research Councils from the NORFACE Report on Best Practice in Promotion of Gender

- Research councils need to have equal opportunities policies, practices and action plans. If not they will tend to rely on tried and tested methods that enhance the status quo.
- New council members should be trained in issues relating to gender (such as peculiarities of women's career tracks, possible measures to increase gender equality).
- Research councils should increase transparency by monitoring at every stage in the evaluation process.
- Women should be included in all gate-keeping positions. This can more easily be achieved by relying on comprehensive databanks for women scientists.
- The membership of boards and review panels should change frequently as new scientists are required for the review process.

NORFACE, Contract No ERA-CT-2003-510205, Deliverable 3.3, 24.3.2006, Report on Best Practice in Promotion of Gender

When Research Works for Women: Australian Study

A 2005 study undertaken by Monash University investigated those factors that support or impede women's research productivity. Interviews with top female researchers at the university produced a number of positive factors including having effective mentors and supervisors in the early stages of their careers, flexibility in the workplace, family friendly work units, and moderate involvement in administrative duties.
http://www.adm.monash.edu.au/sss/equity-diversity/wlas/when-research-works.html

Better gender balance for professors in the US

According to the American Association of University Professors Faculty Gender Equity Indicators 2006 report, women made up 24 percent of full professors at all institutions nationwide in 2005-2006. But they only comprise 19 percent of full professors at doctoral universities. Tenured female faculty at baccalaureate and master's degree institutions averaged 29 percent and 28 percent of the total faculty, respectively.
AAUP: Women Professors Lag in Tenure, Salary. Banerji, Shilpa. Diverse: Issues in Higher Education, 11/16/2006, Vol. 23 Issue 20, p27-27. The article provides information on the report, AAUP Faculty Gender Equity Indicators 2006, from the American Association of University Professors.

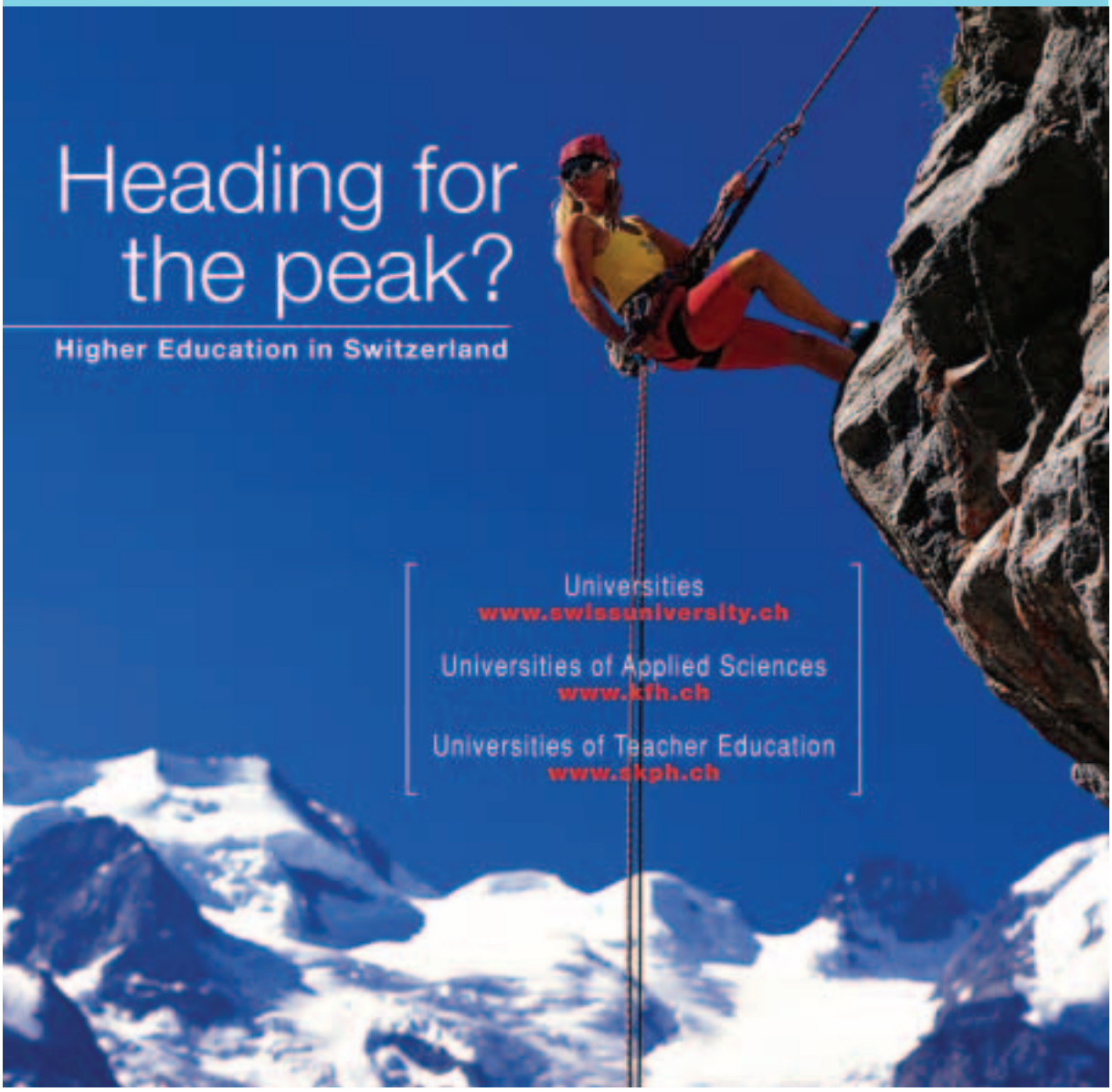
'Womenomics'

A recent article in the Finance and economics section of The Economist stated that "if more women were in paid work, the world could be much richer". The observation was made that "where the gap between male and female employment rates is small, women tend to have more babies. The reason seems to be that in countries where taxes on second earners are high or affordable child care is hard to find, women must often choose between children and work … Where second earners are not penalised by taxes or where child care is cheap (or subsidised), they can have both."
The Economist, April 21st 2007, "Economics focus, Womenomics revisited".

Are things changing for the better?

Good News 1
Woman as new head of European Science Foundation
The European Science Foundation recently named University of Helsinki's Marja Makarow as its Chief Executive, making her the first woman to take the top post in the science organisation's 33-year history.
http://www.helsinki.fi/en/index/uutiset/P_358.html

Good News 2
First female rector in 152 years
Pharmacy Professor Heidi Wunderli-Allenspach was recently elected, as the first woman, to be rector of the Swiss Federal Institute of Technology. She is only the second female rector of a Swiss university.
http://www.sl.ethz.ch/people/wunderli



Swiss house Singapore, European Higher Education Fair 2007.

Conclusions and Recommendations

This report has looked at the facts and figures, listed the existing problems and the arguments for change, and examined a number of possible measures aimed at advancing the position of women in research – thereby contributing to equality and quality in the field. The conclusions drawn from the above findings, as well as the resulting recommendations, are summarised here under five headings.

From inertia to awareness and commitment

Commitment to the promotion of women must be anchored at the topmost political and institutional level. Failing that, all suggestions for changes at the national level will tend to be ignored, or result in enormous delays in their implementation. Here the European Commission's role is of paramount importance, given the fact that it has the attention of national governments and their agencies.

What we need is less ideology, a clear acknowledgment of where we are, and a sincere and manifest commitment, particularly among leaders in science, to the goal of equality - for the benefit of quality. There is widespread ignorance and denial of the problem of gender inequality in science, which is resulting in extremely slow change.

Therefore,

- national governments, as well as research institutions and the science community deserve, and will profit from, clear messages and **stronger commitment from the EU**. This should include flagging discrimination where it occurs, in order to end the belief that gender is the difference that makes no difference;

- the EU needs to encourage, following the consensus recorded in EU documents and strategies, the good design of national and organisational policies that are **supported with adequate resources**, and are properly implemented, monitored and constantly improved;

- the national governments need to make sure that **high-level commitments to equality** are known in the scientific community and that they are implemented;

- the EU, national governments, funding bodies, research institutions and universities, including each department, should demand, develop, implement and monitor **action plans** to advance gender equality in research, including concrete measures to support women in research as well as research on gender;

- there should be **training of new leaders**, including committee or board members, on the gender aspects of their work. It cannot be taken for granted that people already know all they need to know, and can effectively resist pervasive gender stereotypes.

And, in order to enhance the **visibility of women in science**, so that they would be regarded as candidates for top positions:

- the EU as well as the national governments should **fund networks**, and support programmes to **increase public awareness** of the gender issue, e.g. through advertising campaigns, compilation of informative materials, providing the media with special training on gender and science;

- having high-profile prizes and especially women winning prizes, having visible gender balance at conferences.

From imbalance to balance

Women are under-represented in practically all decision-making bodies, and at the professor/Grade A level in general, and have less access to decision-making positions than men. More balanced decision-making is important in the assessment of quality of work, including peer-review, hiring and appointment decisions, and selection procedures for leadership, as well as in funding decisions. Therefore, the scientific community, and regulators and policy-makers should

- make reasonable **gender balance** (30% or 40%, perhaps progressive over time, and reflecting the pool of qualified people) **mandatory in decision-making** settings, such as committees, boards (especially high-profile bodies), defining clear quantifiable targets for all levels of a career in science, to enlarge the pool of qualified women and men for top positions in science;

- take measures to enable both men and women in research to pursue a scientific career with an adequate **work-life balance**, by providing sufficient child care facilities and assessing, and eventually changing, time-policies and time-cultures in scientific organisations, tackling negative images of working mothers and promoting active fatherhood, which would allow science to move away from the image of a scientist without family responsibilities and needs;

- monitor the balance: in particular, the **EU should systematically collect data on member states as well as on its own programmes**, including the European Research Council, regarding the progress made in reaching the goals set for gender balance in science, and should require actors to justify imbalances and suggest appropriate measures.

From opacity to transparency

Funding, promotion and nomination procedures lack transparency, and this lack tends to disadvantage women, particularly in nominations to top positions in science, as well as scientists who do not fit the dominant image of 'the scientist'. Therefore, the scientific community should:

- commit itself to establish and implement **standardised, transparent procedures** with clear quality criteria **in selection and appointment processes** and quality assessment, in order to avoid any bias or subtle discrimination;

- since publicity is part of transparency, **publicly advertise positions**, and use external representation to combat gender imbalance; in selection committees, publicise criteria, success rates, evaluation reports, etc;

- intensify **dialogue between men and women** about bias in the scientific system and promoting an anti-discrimination culture.

From inequality to quality

This report points out that equality is part of quality in science. Therefore, the scientific community should:

- take measures to systematically **introduce the gender perspective** in human resource development and in future research. It is important because a gender perspective would bring out the subtle and hidden mechanisms that prevent women from developing academic careers on equal terms and would facilitate deeper changes in the structure and organisation of the academic structures, much needed for the development of women's careers;

- **train decision-makers**, which often includes peers, to avoid gender bias;

- understand the interconnectedness of gender studies and gender equality in the scientific world, to systematically **eradicate gender bias both in research as well as in recruitment, appointment and promotion** procedures, since quality, innovation and excellence are enriched by different views of diverse staff, and the quality of research depends upon the inclusion of gender aspects (excellence: no quality without equality).

From ignorance to knowledge

We already have clear data on the imbalances regarding gender in the world of science but this data must be consistently updated, assessed and put to use. However, additional knowledge is needed on the impact of measures, using qualitative data as well as quantifiable and verifiable indicators. Therefore, the scientific community should:

- collect adequate **sex-disaggregated statistics** on gender imbalance in science, on all applications and allocations of research grants, research projects, including success rates, and positions, as well as resources for research; these should be regularly provided and they should be made public;
- ensure that the **data are comparable across the EU**;
- calculate the **cost of losing women** in science;
- **support research** on gender bias in science, e.g. evaluation of evaluation procedures, committee and conference practices, family structures;
- systematically **evaluate gender policies**, making any data showing the existence of discriminatory practices readily available to the public and widely disseminated;
- at the highest level in research policy, be it the **EU or the member state or a board**, constantly **monitor the gender balance**, and declare that non-balance must be justified; the measures implemented need to be monitored (with a list of the countries);
- recommend that all **institutions provide information** on positions, age, gender balance, income (on their websites). Such information could also be added to the criteria for international evaluations.

And finally, from complacency to urgency

There is a clear risk that European science is falling behind. The potential of our women in research is under-utilised, young people are staying away from science. The European Research Area needs women and the young. So we must act now.

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    http://www.ruendal.de/aim/pdfs/Meuser.pdf
12. http://ec.europa.eu/research/science-society/women/wssi/publications_en.html
13. A publication with sex-disaggregated data (2005-2006) on academic and leading positions is expected by the end of 2007.
14. See EPSRC Annual Report, p.49
    http://www.epsrc.ac.uk/CMSWeb/Downloads/Publications/Corporate/AnnualReportAccounts0607.pdf
    and page 4 of the BBSRC Annual Report: http://www.bbsrc.ac.uk/about/pub/policy/bbsrc_annual_06_07.pdf
15. http://erc.europa.eu/pdf/erc-scc-press-release-2007-10-01_en.pdf
    http://erc.europa.eu/pdf/erc-stg-statistics-stage1-20071001_en.pdf
16. www.cews.org
17. CEWS-Sonderauswertung: Retrospektive Verlaufsanalyse von Karriereverläufen in den Geisteswissenschaften (for BLK).
18. Empfehlungen zur Chancengleichheit von Wissenschaftlerinnen und Wissenschaftlern. Wissenschaftsrat 2007, p. 13/14.
    http://www.wissenschaftsrat.de/texte/8036-07.pdf
19. http://ec.europa.eu/eracareers/pdf/final_report.pdf,Table 13 – the average weighted total yearly salary of researchers in EU25 and Associated Countries, per gender and country (2006, all currencies in terms of PPS, N=6110), p.49.
20. European Commission (2006): Women in Science and Technology - the Business Perspective. EUR 22065 EN. p.19-25.
21. http://ec.europa.eu/eracareers/pdf/am509774CEE_EN_E4.pdf
22. See CEWS, HWP portal.
23. CEWS (2006), *Kurzexpertise zum Themenfeld Frauen in Wissenschaft und Forschung, Bonn, p. 14.*
24. http://www.cus.ch/wEnglisch/beitraege/chancengleichheit/index.php Universities utilise Module 1 of the Federal Programme for Gender Equality at Universities (that also includes mentoring and childcare modules).
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Annex

Country-specific overviews

Note: These informative overviews have been compiled by the members of the WIRDEM working group to reflect their countries of origin, and as such should not be seen as official national reports.

BELGIUM French Community

There are two ways to reach an academic position in Belgium (French Community): the FNRS *[Fonds National de la Recherche Scientifique]* (research) pathway or the academic pathway. The highest position through the FNRS pathway is Research Director, and in the academic pathway the top position is 'professeur ordinaire'. To gain an academic position, both research and teaching are required. The criteria are excellence in research and an appropriate Curriculum Vitae and the decision is made by committee. Research is funded from various sources, including European Funds, Federal State *(Pole d'Attraction Interuniversitaire* – PAI), Regions (Walloon, Brussels-Capital and Flemish Regions), Universities (Concerted Research Actions), funds for scientific research (FNRS) and industries.

Although the proportion of women amongst PhD holders is around 55% (this percentage is higher in Belgium as compared to the situation in Europe), the proportion of women in the top professorships in Belgium is similar to that in Europe – i.e. around 15%. As regards the decision-making boards, the representation of women ranges from 29% to 7% on research councils and FNRS commissions. The success rate for funding applications is approximately the same for women as for men.

The culture of research includes a male model of practice, characterized by full-time devotion, and exclusive identification with science. Men, especially among the 45-50-year-old leaders, consider their activity far removed from the concerns of everyday life. Society sees the care of children and home-life organization as the role of women. The consequence is that women do not have enough time to apply for top positions, do research, write publications in journals with high impact value, acquire funding and manage their research team – since it is all on top of their family duties. This situation in research is accepted without any real reflection, perhaps due to the thinking that men and women have equal possibilities for working in research since this type of work is by definition 'neutral'. There is also a fear surrounding gender studies, which are viewed as 'non-scientific studies'. Fortunately, the situation is evolving and the gap will probably be less marked with the new generations.

In science, men's and women's research interests do not overlap completely. Thus if we have an inequality between men and women we lose in terms of variety. The type of research activity preferred by women is also different than that of men. Women generally prefer laboratories belonging to academic excellence networks whereas men are more present in socio-economic oriented laboratories. The field of research chosen can also tend to be different. Although there are many women interested in a pure formal theory, on average, women seem more interested in 'soft' fields. At a glance, compared to men, the activities of women are characterized by a

greater sensitivity to a disinterested quest for truth, involvement in the concerns of everyday life, and see research work ultimately as a collective activity. It is therefore necessary to promote the openness and completeness of the scientific endeavour. The issue is not merely fairness towards women but a responsibility of our society to give everyone the means to reach this objective.

In Belgium, there have been a number of positive actions including the creation of the position of a Minister "chargé de la politique d'égalité des chances entre hommes et femmes" since 1992; creation of "Institut pour l'égalité des femmes et des hommes en 2002". This is a step towards equality *(www.iefh.fgov.be)* and the missions are clearly defined. A multi-disciplinary journal called Sextant has been published by the Groupe interdisciplinaire d'Etudes sur les Femmes of the Université Libre de Bruxelles since 1993. Sextant aims to diffuse the results of academic research in women and gender studies in Belgium and elsewhere *(http://calenda.revues.org/nouvelle6443.html)*. One of Belgium's major universities from the French community (*Université Catholique de Louvain*) has introduced programmes that include gender courses *(http://www.ucl.ac.be/etudes/2006/cours/en/demo3450.html)*, and encourages an environment where both men and women can evolve their career by moving between research, teaching and administration. An additional positive action is the creation of the Sophia network *(www.sophia.be)*, which sets up links between researchers who work in university and other centres, and links the women's movement with the scientific and academic spheres, also providing general information about women and gender in Belgium.

Compiled by Marie-Paule Mingeot-Leclercq

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ESTONIA

The Ministry of Education and Research is responsible for the organization of Estonian research and education policy. Although Estonia has fully adopted the European Union acquis under the research chapter, the European Charter for Researchers that is recommended to all member states has not been implemented as regards gender equality in the research decision making bodies. Namely, the Charter (section concerning gender balance states: *"Employers and/or funders should aim for a representative gender balance at all levels of staff, including at the supervisory and managerial level. This should be achieved on the basis of an equal opportunity policy at recruitment and at the subsequent career stages without, however, taking precedence over quality and competence criteria.* ***To ensure equal treatment, selection and evaluation committees should have an adequate gender balance".*** This Charter has even been translated into Estonian but no undersigning organisation from Estonia is reported by the EC researcher's mobility portal (in contrast to, for example, Lithuania), and, as mentioned above, it has not been implemented in the research decision making bodies, where there is a dramatic under-representation of women.

Institutions advising the Ministry of Education in research and educational issues include the Estonian Academy of Sciences (amongst 57 full members there is only 1 woman, Professor Ene Ergma) and the Research Competency Council (TKN), with 9 men and no women. The Council of the Estonian Science Foundation (ETF), which supports research projects through the allocation of grants, contains 6 men and 1 woman. In addition, the Research and Development Council (TAN) (12 members, all men) advises the Government on strategic issues in the field of research and development, thereby directing the systematic development of the national Research&Development and Innovation system. Currently, 75% of Estonian research funding is distributed by the Ministry of Education and Research via the Research Competency Council (TKN) and 25% by Estonian Science Foundation.

Thus, as of October 2007, the four most influential decision making bodies concerning the funding of Estonian research and science were composed of almost 100% men.

The Estonian Research and Development and Innovation Strategy for 2007-2013, titled "KNOWLEDGE-BASED ESTONIA", is a document of 49 pages. However, a search of the document for the words 'gender' or 'equality' gave no results. A search for the keyword "woman" yielded 2 hits:
1) …The proportion of women researchers is 43.1%, which in the European Union is bigger only in Latvia, Lithuania and Portugal (p.17), and 2) "Women and men will be ensured equal opportunities in their research careers (Measure 1. Development of human capital; p. 25). The first statement on the high percentage of women researchers is rather a reflection of the relatively low salaries of (female) scientists in Estonia, and in several other post-communist countries (see this report). The latter statement on ensuring equal opportunities is an empty one since no quantitative steps are foreseen. Thus, in this strategy there are no serious efforts planned regarding gender equality issues.

As mentioned above, the proportion of women researchers in Estonia is 43.1%. However, the report of the Science Competence Council on targeted funding projects (2003-2006) shows that although there is a relatively equal number of women and men as members of the projects, project leaders are mainly men (79%). This tendency is continuing as among 34 new funded projects (starting in 2007) there were 30 men and 4 women among the project leaders.

Statistical analysis of the Faculty of Biology and Geography at the University of Tartu (a research area that should theoretically contain equally men and women researchers, as opposed to physics (traditionally more males) or language or educational sciences (traditionally more females) showed the clear under-representation of women in the top positions. In 2006, this Faculty had about 300 academic personnel (46% women), including 145 with PhD or equivalent (31% women). However, all 24 Chairs of this Faculty were held by men. In 2005 and 2006, a total of 36 PhD degrees were defended in this faculty: 20 women and 16 men. Given that these young post-docs would like to continue their research career in this Faculty, then, for young male post-docs, there is a high probability of ending up as senior research scientist, followed by a good probability of becoming a full professor. However, for the young female post-docs, it is more probable that they will work as research scientists (on the

same salary level with MSc level scientists) or at even lower-paid positions.

When comparing this gender pyramid with the salary rules and average salaries of academic personnel at the University of Tartu in 2006, a direct correlation can be observed: the lower the salary, the more women. Moreover, there was a discrepancy even on the same qualification level: women full professors got 11% less compared to male full professors, female docents or senior research scientists 9% less, female lecturers or research scientists 3% less because the minimum official salary set by the institution could be increased to a certain extent by the head of the institution/unit. This is quite common for all such institutions in Estonia.

The origin of this gender unequality and potential solutions for restoring gender equality may be found in the analysis of the decision-making and advisory structures. The election rules, the criteria for the selection of Board members and the procedures of the funding organs must be transparent, strictly followed and should be available on the websites (including the number of women/men who applied). If gender balance in decision making bodies is not achievable (for example, there are no qualified men or women in the specific area), it must be justified.

Since the Estonian Research and Development and Innovation Strategy for the years 2007-2013 essentially does not consider gender equality issues, and women are strongly under-represented, or do not exist at all, on the current Boards that take the crucial decisions on science funding, it seems that considerable European Commission pressure is needed to introduce gender equality to the scientific world in Estonia.

To end on a positive note, there are some winds of change, such as taking into account parental leave (and military service) in the evaluation of the eligibility of applicants for Estonian Science Foundation grants since 2006, and targeted research funding grants since 2007.

Compiled by Anne Kahru

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FINLAND

The role of women in Finnish universities and the academic community in general can be considered to be relatively strong, compared with other European countries. The share of female professors in universities has risen considerably: it was 22% in 2005 – the highest among the non-post-communist EU countries. The even higher proportions of women in Romania, Latvia, and Turkey may be explained with a reference to the low salary levels among academics and the low esteem of academic occupations.

In the research funding agencies, effective measures have been taken to promote women's academic careers. This can also be seen from the figures. The percentage of female members in Research Councils at the Academy of Finland is 47 (2006, cf 48 in Norway, 47 in Sweden, 35 in Denmark, and figures between 7 and 33 in other EU countries). The high number can be explained with the reference to the quota principle introduced with an amendment to the Finnish Act on Equality between Women and Men in 1995. Gender quotas have since been applied in all government committees, advisory boards, working groups and other corresponding bodies for preparation, planning, and decision-making as well as municipal bodies, excluding municipal councils elected in elections. The gender quotas (40/60) have increased the women's share in committees to 43 per cent.

The situation is, however, far from satisfactory, even in Finland. The glass ceiling phenomenon is easy to recognize. The proportion of women among the lower academic teaching positions is around fifty, and the same goes with the number of female PhD graduates (49% in 2003). There is of course more pressure to increase the number of women in higher academic decision making positions when more and more women enter the academic job market. However, it is generally recognized that the natural development is not sufficient, but positive measures are needed to support women's academic careers.

The appointment procedures of professors in Finland are relatively complicated but also transparent. External referees are invited to assess the candidates and their names and reports are public documents. Many universities have established (gender) equality plans, which are supposed to be applied in appointment procedures.

The Academy of Finland was the first major academic institution in Finland to establish a formal equality plan in 2002. The main principles through which gender equality is promoted are: Research Councils are required to make every effort that the underrepresented gender occupies at least 40% of research positions, but not at the cost of scholarly quality; it is explicitly required that preference be given to the underrepresented gender when the applicants are equally competent. Concrete measures in the Equality Plan include encouraging women to apply, an extension of the funding period and/or additional funding corresponding to parental leave, grants raised by 20% for researchers working abroad and having under-age children, with the principle that acceptable absences due to family life should not have a negative impact on the granting of funding, and a strong recommendation that RCs should appoint equal numbers of women and men to serve as peers to evaluate applications.

In Finland it is generally believed that equality measures should promote the reconciliation of work and family life and thereby be advantageous for both women and men. It has been argued, however, that generous maternal leave policies work against the target of increasing the proportion of women in senior academic positions, since they encourage women to drop out of and not to stay in the academic community. It should be noted that male researchers are also encouraged to take advantage of parental leave. The situation might, however, be changing with the younger generation.

It is a widely shared view in Finland that academic gender equality is primarily an issue of morality and justice. Equal access for both genders to the key positions in academic decision-making greatly promotes the flourishing of intellectual capabilities of both men and women, and it is a crucial element in social justice that each and every citizen has a genuine opportunity to a flourishing life that consists in the free development of her or his capabilities. This perspective of fairness should be taken into account in the organization of both family and working life. A hierarchic division of

functions in academic institutions according to gender roles is plainly unjust. It can also be argued that more women as decision-makers indirectly improve the quality of men's life and the development of their capabilities.

Compiled by Juha Sihvola

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FRANCE

Generally speaking, there is a (slow) movement towards more gender equality in France, that is perhaps most visible in politics. The situation of working women in France is reasonably favourable, with good child-care and relatively high activity rates for women. Around 2000, there was strong support for equality in research with the creation of a number of specific support structures. In 2007, however, the enthusiasm has weakened and the movement has slowed down.

The French public research system employs nearly 93 600 researchers (equivalent full time), 32% of whom are women. This includes universities, mainly public, and research organisations. Permanent researchers and teachers are civil servants and are recruited by competition ('concours'). By law, this procedure must be totally confidential, which is an **obstacle to transparency and accountability**.

In the university, to reach Grade A positions, one must pass a 'Habilitation', then have it recognized by a national selection committee and finally be selected by a local committee. Elections are taking place to renew the national committee in 2007; no mention is made of gender balance in the decree organizing this. In the main research organisation, CNRS, candidates to Grade A level are selected by a selection committee whose advice is generally followed by the Director of the organisation. The committee has 40 main disciplinary sections: three of their presidents are women. A law on professional equality between women and men forbids any discrimination and requires a balanced composition of selection committees in the civil service. However, in the decree of application, **higher education and research are exempted** from having to balance their committees. The new law on research passed in 2006 calls for "a balanced representation of men and women" in all committees. It also created a new agency centralising most funding. Directorial positions within it are not well balanced, though a woman is at the head. So far, it does not publish gendered success rates.

The glass ceiling index in France is 2.0 (EU-25 average 2.1). The situation in the research organisations is more favourable to women than in the universities. Women laboratory directors are 2 to 3 times less numerous than in the researcher population in their field. Data on decision-making bodies is not easily available, but they include 24% women. There has been a regular increase on evaluation committees, but administrative and policy structures stagnate since 1999. The proportion of women presidents of evaluation committees has gone from 6% in 1984-88 to 15% in 1999-2002 and has not progressed since. There are 10 women University presidents out of 87.

The gender pay gap, for the whole French economy, is 12% (EU-25 average 15%). In public research, salaries are fixed on an official scale. There are no pay gaps between men and women *if* they are in the same position with the same seniority. But if women get to positions later than men on average, their salaries will be lower.

Some basic French data is missing from *She Figures 2006*, i.e. the proportions of women per field of science, the distribution of R&D personnel. Pay gaps need more analysis but the most serious point is the lack of funding success data.

The **conscience of a gender problem** is clearly missing in France. Researchers, men and women, commonly say they are not aware of any discrimination. Official reports do not take up the question. A Senate report on human resources management in research organisations did not mention gender, nor did a National Assembly report preparing for the new law. A Cour des Comptes report on life sciences discusses the problems of young researchers but does not mention the fact that this is one of the disciplines where the glass ceiling is the most oppressive.

CNRS's Mission for the Place of Women is an example of good practice. It has financed high quality research on the history of women in the CNRS, on career problems, on evaluation processes to understand the mechanisms that handicap women (and men). A new structure which fights all types of discrimination, in all areas, appears to be promising.

Compiled by Suzanne de Cheveigné

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GERMANY

The higher education (HE) system is dominated by public universities and universities of applied sciences, and they depend primarily on public funding. Both are governed by federal and state law and by internal regulations, and govern themselves through committees and a professional presidency or rectorate.

As to research bodies, 4 publicly funded grand 'societies' oversee 65,000 staff and a 6 bn € budget. The German Research Foundation (DFG) administers 1.4 bn € of primarily public research funds. In 2005, the influential advisory Science Council (WR) and the DFG set up an excellence competition for large lump sums (total 1.9 bn €) for research clusters and structural modifications in universities.

The Federal Ministry for Education and Research is in charge of research policies and funding, while the states pass HE regulations, including HE equality laws. These require women's or equal opportunities representatives on university and department levels and allow for equal opportunities target plans, which are binding instruments to prescribe detailed measures, define quantitative goals, and install an incentive and sanction system.

Professors are lifelong civil servants with pensions upon retirement (age 65 at present), earning € 4,723 per month in top positions (W3) and € 3,405 in junior positions (W1), with additions based on job offers from other institutions. Additional incentive bonus payments may also impact on the pension.

Since 1989, the Federal Statistical Office and, particularly, the Bund-Länder Commission for Educational Planning and Research Promotion (BLK, a body of federal and state governments) have collected sex disaggregated data on the representation of women in different stages of academic careers and at each step of appointment procedures for professorships. Data is missing on equal pay for work of equal value, especially with regard to primes and extra equipment for professors, and on gendered success rates regarding grants. However, all available data show clear signs of vertical and horizontal gender segregation, particularly an under-representation of women in leading positions in science.

Since 2000, the federal government officially embraces gender mainstreaming, yet activities are rather limited. In research, gender equality has been defined to serve excellence, both in content or methodology, and in staff, as full use of potentials, tying in with a recent orientation of universities towards business strategies. Equal opportunities form part of special development programmes for HE and research. The 2001-06 programme provided € 30 mill p.a. for measures to qualify women for professorships, support gender research and motivate women for natural sciences and engineering.

The alliance of top scientific bodies has embraced the issue in an "Offensive towards Equal Opportunities" in 2006. WR and BLK recommendations are important material for equal opportunities officers, yet of limited influence in the scientific community. The WR's 1998 recommendations on equal opportunities for women in science and research, reinforced in 2007, were perceived as groundbreaking, also for research institutions, yet peers often remain unaffected. There is a university ranking based on gender justice criteria (CEWS, 2005) which could help to bind actors to their commitments.

Policy discussions often focus on work-life balance. Audit awards provide incentives for family-friendly work conditions, and in quality assessments relating productivity to age, the DFG has started to consider 'academic age' instead of the actual age of applicants, discounting child care periods with regard to age limits, and dropping all age limits for research grants. Quotas have been successful in some instances but remain contested; men still dominate upper positions in science.

Quality management (QM) as such is desired, but not a standard. Attempts include the use of incentives, such as the presence of women in the academy as an indicator of quality, in university budgeting rules and in contractual governance, i.e. contracts between the state and universities or between different university bodies.

Compiled by Barbara Hartung and Susanne Baer

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GREECE

The *General Secretariat for Research and Technology* (GSRT) supervises the 19 national Research Centres. The Minister nominates the members of the National Research and Technology Council (currently composed of 63 men and 2 women), which designs national policies, evaluates candidates for top positions in research centres and appoints peer reviewers. The *Ministry of Education* funds research in Universities and Technological Education Institutions through open calls for proposals. From 2000-2006 there were 1406 research projects co-funded by the European Social Fund (ESF).

The heads and staff of universities and research institutes are elected by their peers after public calls. Males dominate in higher levels and they tend to reproduce this domination. Cultural aspects are also important, thus preventing women of equal qualification from advancing in professional research careers and sustaining gender stereotypes such as that the top level "hard" science and technology positions are for men while women are more fit for life sciences. This in turn reinforces gendered dichotomies. From the scarce data on women in research decision-making it is concluded (19 universities) that in 2003-2004 there were 14% women among professors, 26% among associate professors, 32% among assistant professors and 39% among lecturers (Thefylis project). In the period 1994-1999, there were 514 women leaders for 5,103 research projects co-funded by ESF. The GSRT is currently collecting more data on women scientists by field of science and in top positions in research institutes and universities, as well on Masters in gender studies.

There are no positive measures for achieving equality in research and technology except for the regulation prescribing that all nominated public committees should include representation of at least 1/3 women, or men; however the enforcement of this regulation is almost nonexistent. The following policy initiatives could be mentioned:

1. The **PERIKTIONI network of women scientists** created at the initiative of two female civil servants in the GSRT as a result of EU activities on 'Women in Science'. The network was part of a project that also included a production of audiovisual material on women researchers (one 16-minute DVD creating a positive image of women working in male dominated jobs), a photo exhibition on the image of researchers in Greece since 1920 and further studies on this issue. Within the dynamism created by PERIKTIONI a *National Association of University Women* was founded and the already existing *Greek Women's Engineering Association (EDEM)* was further mobilised. As a direct impact there is pressure to include in the coming Law on Research the need for gender balance in research decision-making bodies. EU funding was crucial for launching and implementing the project as only minimal administrative infrastructures had been allocated to the project (i.e. no specific unit or post has been established for gender equality in research). There is therefore no guarantee that when EU funding runs out (2008) the activities of Periktioni project will continue.

2. The Ministry of Education allocated a ring-fenced budget for **research on gender related topics**. A total amount of 4.475.000 Euros was spent on 37 research projects in Greek universities. Almost all the project leaders were women. This made it possible to launch research on gender issues that until then had been regarded as 'secondary' priorities, if indeed they were seen as scientific at all. Thematic areas such as gender and migration, women in research and other gender-related areas became for the first time research topics. This allocation of specific funding for gender research has had the indirect effect of upgrading women researchers in the universities, at a time when evaluation schemes are being introduced under the recent legal reform of higher education.

Measures that should be taken urgently in Greece are: (a) The evaluation process for publicly funded research projects should include positive action measures in favour of women, like extra bonuses for women researchers, the encouragement of women to apply for funding and to participate in peer review panels, research committees, etc. (b) GSRT must develop a comprehensive action plan for gender equality in research and technology through legislation, positive action, gender mainstreaming and other gender equality policy tools, incentives for research on gender, etc. Evaluation and selection mechanisms should become more meritocratic and less "political". Academic and research institutions should also introduce similar action plans.

Compiled by Maria Stratigaki

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NORWAY

There is an acute awareness that, although for 20 years there have been roughly equal numbers of women and men gaining degrees in Norway, and in spite of the steps taken to encourage the advancement of highly qualified women, still they are not playing a commensurate role in decision-making in the universities.

A report on women in science by the Research Council of Norway recommended the setting up of a committee to promote sexual equality in this area. Accordingly, the Norwegian Ministry of Education and Research founded the *Committee for Mainstreaming – Women in Science* in 2004. It is clearly recognised that inequality of the sexes in research is an important issue and that steps need to be taken to rectify the situation.

Research in Norway is carried out in publicly funded universities and colleges, which still receive a majority of research funding through their core budget, but also in state research institutions and private research institutions. The main national funding body is the Norwegian Research Council (Norges forskningsråd, NFR), which channels one-third of the money allocated by the government to research.

Research Council funding applications are judged by anonymous peer review. It is possible that an 'old boy network' tends to operate, and decisions on funding are made not just on grounds of scientific merit; but statistics for receipt of national grants suggest that women are not disadvantaged. Research on this is inconclusive. It is true, however, that women tend to be in areas of research which are less well funded, for instance within the humanities and social sciences, rather than in technical research fields where men dominate.

In 2006, the ratio of women was lowest among professors (16%) and highest among lecturers at colleges of higher education, of whom two-thirds are women. 40% of those awarded PhDs in 2005 were women – but the proportion varied between 18% and 60%, depending on faculty. It is official government policy that all state enterprises should have 40% female representation on their boards. The University of Oslo currently meets that requirement.

The University of Oslo has produced statistics comparing salaries of men and women in equivalent positions. Differences seem to be negligible. The current project on gender budgeting is looking more closely into the possible existence of a 'gender pay gap', and investigating whether men and women fare equally well in local pay negotiations.

The world's first gender-balanced university? Several years ago, the University of Oslo, perhaps rashly, set out its aim of becoming the world's first gender-balanced university by 2011. 'Gender balance' meant, in fact, not balance of numbers, but a thorough awareness of gender issues within the day-to-day running of the university, and an integration of gender-fair policies into every faculty's strategic thinking and planning.

Headhunting, or calling for female candidates for a post: the aim is specifically to look for qualified female candidates for a senior position. It is recognised that women tend not to be so thoroughly 'networked' as men and so are more difficult to trace. At NTNU in Trondheim, search committees have been used very successfully to 'find' qualified women.

The **appointment process** in the Norwegian university system can be tortuous and slow, but is apparently fair and transparent. The department leader advises the faculty concerning membership of the appointment committee; this consists of 3 people, at least one of whom should be female. They are chosen as experts (at least one from abroad) and do not have a close connection with the department. It is clearly stated in the job-advertisement that: 'If two or more of the applicants are considered to have equal qualifications a female applicant will have priority before a male.' The report from the committee is sent to the department and faculty (and is also seen by the candidates). Candidates at the top of the list are normally called for interview. Affirmative action of the radical variety (appointing a woman who is less well qualified than a male applicant for the job) is not allowed, but if two candidates are equally qualified, the less represented sex may be favoured.

Gender-budgeting; a committee has been set up at the University of Oslo to look at the distribution of funds (between male and female staff) within selected faculties. The main task is to evaluate, from

an equal opportunities point of view, the plans and budgets of the university, with the aim of initiating corrective action where necessary to ensure a fair and effective use of resources.

Economic incentives to Departments: About 350K€ (2.8 million kroner) per year is available (as matched funding) to support at the departmental level projects involving existing female staff at the University of Oslo (e.g. paying travel costs, expanding research activities, paying for support staff). This pot of money also supports the mentor programme, as well as meetings for school leavers to encourage more female students to apply to faculties such as engineering and mathematics where women are seriously under-represented.

Compiled by Andrew Collins with assistance from Anna Vibeke Lorentzen, University of Oslo

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PORTUGAL

Publicly funded research in Portugal is conducted primarily within universities by academics and their students, and the vast majority of research laboratories are also physically located within the university premises. State laboratories attached to different ministries (health, agriculture, industrial manufacture, construction, veterinary, fisheries, etc.) complement the structure. Very few research laboratories exist outside this system, but a growing number of industrial enterprises have initiated a steady effort in innovation that resulted in some form of applied research being conducted in their premises.

The responsible actors in the research system are in the first place the state political leaders, drawn largely from the academic elites. Seldom do we see industrial leaders involved in the research processes evaluation. Industry is often rather remote from the universities, though this situation appears also to be changing as industrial and economic development takes place. Resources are provided to the system essentially by governmental agencies.

From a cultural point of view it appears that the presence of women in positions of leadership is generally well accepted in the country, a clear exception being the political arena. Only during August 2006 was a *parity law of women's representation of 33%* approved by the Portuguese Parliament. In fact the existing statistics for Portugal point towards a sizable number of women in the topmost jobs in academia (ca. 21%). Women are also prominent in research positions in state institutes.

However the percentage of *ca.* 11% for women in the evaluation panels of research projects continues to be well below the percentage of women at the highest ranks of the university structures. More worrying is the fact that the number of *scientific panels with no women* at all amongst their members has steadily grown between 2000 and 2004 (the most recent year in the available statistics), from 58 to 70%. Since these are the committees that are primarily responsible, with the political agents, for *the distribution of research resources* in the country, the situation appears to be in need of attention.

The political agenda in scientific policies is still taking its first steps in Portugal as far as gender equality is concerned. At the national level, women's issues are slowly entering the political vocabulary, but a realistic leadership commitment to equality in general, and to equality in scientific decision making in particular, is still absent. By and large the situation is perceived as being acceptable from a women's point of view, when comparisons are made with other European Union member states.

The result is that leading science organisations, such as the most prominent scientific societies and the national Science Academy, very seldom address the issue of women representation. Local non-governmental organizations, such as AMONET – Portuguese Association of Women Scientists – with the mission, among other things, to draw attention to and propose corrective measures for the women scientists issue are a recent phenomena, the impact of which is still to be felt. Pan-European umbrella organizations such as the European Platform of European Scientists may provide a powerful voice for national women scientists' organizations, through networking and good practices.

Setting goals with quantifiable and verifiable indicators may give an objective scale against which progress can be measured. Comparison among countries is also useful and an incentive for the least 'advanced' to keep pace with the more 'advanced' ones. The EU statistics on this issue are of the greatest importance. Appraisal of gender equity should become systematic in all scientific evaluation schemes.

All committees, but most importantly, *committees that distribute resources for research, should have a ratio of female members (or the least represented sex) of no less than 40%.*

Compiled by Ana M. Lobo

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ROMANIA

The majority of research funding in Romania is distributed via project competitions organized by the National Agency for Scientific Research. A national Body of Evaluators is used for anonymous and objective evaluation of project applications. This system, apparently, leaves no room for gender discrimination.

The ***She Figures*** also reflects an optimistic view on women in Romanian science. 43% of the total researchers and 30% of category A researchers are female; the Glass Ceiling Index (2004) was the lowest (1.4) among European countries. These figures place Romania in the top European positions concerning women with seniority in academia. Let us, however, look closer at the details.

Romania is among the countries with the **lowest R&D expenditure** in PPS per capita researcher. The **proportion of men doubles when you switch from grade B to A.** (Grade A: 3076 Females, 7508 Men; Grade B: 82116 females, 8507 Men).The doubling of male compared to female professors may be related, among other reasons, to the doubling of the **professor's income** (compared to associate professor) introduced by law in 2004. As any payment difference for equal positions is excluded by law, the lower payment of women, as general, comes from the fact that fewer women occupy high, better paid positions.

Nevertheless all the women in decision making positions that were interviewd by the compiler of this overview (see Bibliography) declared that they experienced no gender bias in their career ascension. They think that fewer women are in decision-making positions due to lack of self confidence and the lack of interest in competing for positions. The direct consequence of this is also a larger number of male applicants for nationally and internationally funded projects since the scientific position of the applicant is a strong argument in project evaluation. Of the 49 state universities in Romania, only 2 have female Rectors and only 8 of the 49 Vice Rectors responsible for university scientific research are women.

The factors that shape the position of women in research decision making in Romania could include: the **cultural factor**, which results not only in subtle discrimination by professional colleagues, but very often the self-restriction of women themselves from occupying leading positions; **overloading** female researchers with family tasks as well as job responsibilities (time-consuming, less productive tasks, paperwork, many hours of teaching, routine part of research); **the lack of gender awareness** in most educated people and officials, research women included. Gender equality is not considered a priority at any level. An invisible factor is **network influence**; networks are generally dominated by men since they occupy most of the leading positions. *A recently introduced practice is to display on the university sites the Application Dossiers of the candidates contesting for a higher position, so that everybody can compare their professional scores. This measure may help to* ***counteract*** *the network influence.*

Suggested measures: creation of a gender database and monitoring system that is made available (most of the European Commission's reports concerning women in science lack gender disaggregated data from Romania since these do not exist). These data must be present in the annual reports to the EU and national funding institutions. The funding of universities/research institutes must be based, among other factors, on success in achieving gender balance in top decision making positions. Pressure from European bodies which monitor the country's progress in institutional reforms is necessary in order to carry out these measures.

A proper way to start a gender debate and to increase gender awareness would be to include in the national priority research programs, the funding of projects centered on gathering data concerning women's participation in decision making positions and to analyze these data from social and cultural points of view, also proposing solutions to improve the situation. Gathering data must be accompanied by educational measures to change the mentalities. The debate on this subject must include men.

Compiled by Eugenia Kovacs

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SLOVAKIA

The institutional structure of the Slovak research system is divided into four categories: the universities (mainly basic research), the Slovak Academy of Sciences (basic and applied research), governmental research institutes and private research institutes (branch and commercial research organisations). Distribution of most financial resources for public, mainly basic research is in hands of the Ministry of Education and is done on a competitive basis through three funding bodies: VEGA (grant agency for science), KEGA (Grant agency for culture and education) and the Slovak Research and Development Agency.

Peer review is the main mechanism in selecting projects for funding. Selection has clear rules and is transparent. However, a gender perspective is missing in the whole process.

Slovakia has adopted several laws that should guarantee equal opportunities for men and women (particularly the *Labour Code and the Anti-Discriminatory Law*), however, their enforcement has been inefficient and formal. Among about 70 women's organisations there are none devoted to the problem of women in research decision making. It has been addressed only vaguely by several individual women scientists who have been involved in EU activities (either Helsinki Group, ENWISE or some other EU FP projects). Institutional strategies, policies and regulations do not address the issue of gender equality in research.

To summarise: **lack of awareness**, underestimation or even total denial of the importance of the equality agenda in the research and funding system is the main problem that has a major impact on the under-representation of women in decision-making.

The university educational level among women in Slovakia has been rising since the end of the 1990s. In 2005, women formed 52.5% of all university graduates (in doctoral education women formed only 46.8%, but the number has been growing). The proportion of academic staff by grade in Slovakia in 2004 according to "She Figures 2006": Grade A: 13.5% (full professors and DrSc.), Grade B: 31.5% (associate professors),

Grade C: 48.5%, Grade D: 54.3%, with a Total of 41.1%. From surveys it seems that the glass ceiling appears in the category of associate professors – transition from associate professor to professor is a barrier difficult to overcome.

Official statistical data about the number of women in decision-making management positions are missing. According to unofficial data: 1 female rector (out of the rectors of 20 public universities, 3 state universities and 10 private universities), 10 female deans (out of the 93 deans of faculties – members of the Deans' Club), 2 women in the Presidium of the Slovak Academy of Sciences (out of 15 members).

The **key factors hindering equality** in research decision making are: gender stereotypes; the low awareness of gender equality concept, issues, problems and benefits among men and women; the absence of national and institutional strategies and policies aimed at equal opportunities in research and research decision making; work and family balance and choice and societal/cultural expectations.

The **key measures** that could be taken to reach equality in research:

By the EU: sustain pressure on national governments to address the issues of equal opportunities and gender balance in research and research decision making; allocate financial resources for programmes and projects aimed at exchange of experience and good practice in promoting women in decision making.

By national and state political leaders: introduce measures/ indicators for taking gender equality into account in evaluation and accreditation procedures; introduce collecting gender-sensitive statistical data at all levels of higher education and research institutions; incorporate gender equality measures into all national HE and research strategic policies and action plans, establish an independent national expert body (gender mainstreaming in research) that will develop new policies and will monitor the progress.

By academic leaders/elites: incorporate equal opportunities measures into institutional policies and strategies; collect gender sensitive statistical data, to monitor and analyse them regularly and take actions; introduce incentives (financial or other) for those departments/ faculties/ institutes that promote female staff and female leadership; establish equal opportunities committee that helps to develop policies and to search female candidates for leading positions.

By peers: promote creating support women networks; encourage debates on the importance of gender balance in each committee… and thus to raise awareness of the issue.

Compiled by Alexandra Bitusikova

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SLOVENIA

According to the available data on the EU-25, Slovenia is usually found somewhere in the 'transitional middle'.There is comprehensive gender equality legislation, but the implementation is not vigorous enough and the results consequently modest. The process of integration with the EU built on some previous (socialist system) gender equality policies and achievements – including also the establishment of special governmental bodies (such as 'Women in Science' within the Ministry of Higher Education, Science and Technology).

Among the most important limiting factors of gender equality policy implementation in the field of research decision-making in Slovenia are: the persisting traditional views of the social roles of females, the self-limitation of females, the lack of political will, insufficient coordination between ministries in implementing gender equality policy, the mass media's predominant support of traditional views. Previous evaluations of the role of women in the research field (e.g. *She Figures, Enwise report, Norface report*) revealed that in Slovenia there is still a gender-equality gap.

Although the numbers of female university staff have increased since the 1990s (e.g. at the University of Ljubljana, from 26% to 38% in 1999), as well as the proportion of female postgraduate students (female PhD holders increasing from a pre-2000 average of 26.9% to 42.9% in 2000-2004) this has not translated into more women at the top in research decision-making (e.g. 11.1% of full professors are women, and only 17.2% of council members at Slovenian universities and academies are women).

Slovenian issues: a significant amount of public investment into the education of females is being lost due to "unused" talents; women entering the labour market (de-domestication) follow the formula: 'traditional + new role' which leads to a "'Spartan' lifestyle", thus creating unfavourable social conditions for the creative work of female researchers also causing a loss of research success for research organizations; there is a gender pay gap (on average the gap in researchers' gross salaries is between 0.7% and 11.7%, the pay gap being the biggest in case of the highest academic title); in academic promotion, female researchers sense

double deprivation: generational- and gender-biased; as research awards tend to 'avoid' female researchers they create an impression of more- and less-valued research work, related to the gender of researchers, which does not support a creative climate; a lack of systematic, publicly available gender-sensitive data as well as a lack of transparency in promotion and appointment procedures makes it more difficult to reveal gender unequalities and create informed policy proposals.

Slovenian good examples: one-year maternity leave and the receipt of one's basic salary during maternity leave as well as the (somewhat shorter) possibility of paternal leave; 'freezing' the contracted period for young researchers in relation to the National Research Agency when they take maternity or paternal leave; rules on academic promotion which include the 'freezing' of one's 'habilitation period' during maternity leave; gender-sensitive laws, rules and job advertisements (clear indication of validity for both sexes).

Measures that need to be taken on the national level: linking the planned and actual spending on research (1.8% in 2006 whereas the Barcelona goal is 3% of GDP) with the needed gender-sensitive research policy measures; personal engagement that favours the implementation of adopted policies within individual ministries would be helpful as well as systematic horizontal coordination among policy sectors (ministries, responsible public officials); measures encouraging gender equality policy in micro-organisational environments (universities, research institutes).

EU-related Measures: putting pressure on national leaders by demanding monitoring and reporting to the European Commission (Eurostat and other); encouraging and supporting collaboration and gender equality policy-learning among national research councils; support for multi-level social networking and programmes involving female researchers; support for mass media projects for the conscientious promotion of gender equality policy and practice (in social life, in politics, in management and in science); promotion of gender equality through guidelines and suggestions regarding the criteria for monitoring and evaluation of organizational quality.

Compiled by Danica Fink-Hafner

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SPAIN

The Higher Education and Research system in Spain is a hierarchical structure with heavy influence of networking to guarantee the support of peers. The access of women to these informal networks is problematic for several reasons. Gender bias in selection procedures has been common but not recognised. This adds to the socialization of women, which does not encourage them to aspire to positions of power and makes them responsible for family life, thus undermining their chances to focus on their research career. Access to higher posts of the hierarchy takes a lot of time, effort and support for anyone, but women face gender-related obstacles that make their progress more burdensome.

The Spanish Higher Education and Research system is mostly public, although in the past decades a certain degree of decentralization has occurred and the regional governments have gained some competencies. The main actor at state level is the Ministry of Education and Science. Research in Spain is mostly promoted by the State and regional governments, with public universities as the main actors, but there are also other Public Research Bodies. The *Consejo Superior de Investigaciones Científicas – CSIC* (Spanish National Research Council) is the main public research institution. The top level for staff within the CSIC is research professor.

University professors are divided into those with a tenured position and those without. The highest degree within tenured positions is full professorship. The number of positions for full professorship is very limited. Access to decision making posts within a university is restricted to those with tenured contract.

Women enter research in the same or higher proportion as men in the lowest categories (graduate and postgraduate students, for example), where entrance is determined by competitive criteria (48% of PhDs are women), but represent less than 14% in the category of full professors in universities and less than 17% public research centres. Only 4% of university Vice-Chancellors are women.

Access to tenureship and thus decision making posts can also depend on networking, which is a male realm so women have more difficulties in

entering the influential lobbies, informal in many cases, which constitute an important element of support. The impact of networking can also be seen in the pay-gap: although status and salaries are similar for both sexes, when it comes to the extra activities (lectures, being members of boards, advisory committees, etc) it is usually men calling upon their male colleagues.

The Equality Act and the University Reform Act have been recently passed in Spain and these should influence and promote the role of women within higher education. The Unuiversity Reform Act introduces several measures and approaches equality from an integrated point of view. Specific measures include: Gender Equality Units must be created within the university structures in order to develop the principle of equality between women and men; reports on the application of the principle of gender equality in the University must be produced; boards for hiring and promotion procedures and for the scientific evaluation of quality in research must have a balanced representation of women and men.

The creation of the **Unidad de Mujeres y Ciencia – UMYC** (Women and Science Unit) in the Ministry of Education and Science underlines the political will to improve the situation of women in research. The UMYC aims at identifying the obstacles and the biases that prevent women academics and researchers from reaching the posts that correspond to their ability and worth. It is also in charge of promoting the development of public measures to improve the situation of women.

The **Gender Equality Plan** for the National Public Administration states that, in order to promote the equal access of women to public employment, **selection boards** must have parity (60/40). The Spanish National Research Council (CSIC), the largest public research body, has implemented compulsory sex parity in the selection and promotion boards, for the last two years. This measure plus an increase in the number of openings and the creation and influence of an Equity Commission have resulted in an increase of the number of women selected for the positions.

Research fellowships now allow one year of maternity leave to women who have had, adopted or fostered a child during that period. As regards predoctoral fellowships, the prestigious FPU (Fellowships for the Training of University Professors), awarded by the Ministry of Education and Science, offer more flexible conditions for women who have been taking care of children and take into account the compulsory 16 weeks of maternity leave.

Compiled by Capitolina Diaz

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SWEDEN

Sweden has 39 higher education institutions, including 15 universities and 17 university colleges. Direct state grants constitute only 46% of total research funding, with the remainder coming from research councils, other government agencies, private foundations and companies, and sources from abroad (including EU funding).

The most important actors in promoting women in decision making are the universities since they make the employment decisions. However, the universities are government agencies, and so must follow the rules and regulations laid down by the government. New regulations introduced in 1999 state that, if at all possible, both sexes must be represented among the experts who are asked to evaluate the candidates for an academic position. The share of women rectors is 39%. Among the 11 largest universities there are six male and five female rectors. Among the heads of the more important research funding bodies there are 12 men and 7 women.

The Swedish Research Council is the largest funding body for basic research in Sweden. In 2006 its elected boards had 40-50% women. The peer review groups, who evaluate the applications, consist of around 45% women, except the peer review groups in natural and technical sciences which consist of 25% women.

The general characteristics of the gender distribution at Swedish universities are the same as in many other countries. The share of women increases with time in all teacher categories, but the share of female professors is still low. The share of women among new PhDs has also increased over time and was 45% in 2005. It should be noted that in the medical field women are in the majority in all positions except for professors, where the share of women is only 17%.

A recent study of the more than 5000 persons that received their PhDs in Sweden during 1980-85 published by the National Agency for Higher Education showed that there was a higher share of men than of women that became professors within 18 years of attaining their PhD degrees. An encouraging finding is that the difference is smaller among those who received their PhDs toward the end of the study period.

Differences in salary are small between men and women in different teacher/researcher categories at Swedish higher education institutions (less than 1% in all categories except for associate professors, where the 3-6% difference could be explained by 'career-age' differences between men and women, i.e., the number of years that have passed since they achieved their PhD degrees.

In 1970 Sweden abolished joint taxation and replaced it with individual taxation. This policy decision has had a beneficial impact on gender equality but so have other political reforms such as in the social insurance system and improvements in the education, health and care sectors. Sweden considers gender equality issues to be an area of priority. Gender equality is no longer a woman's issue – it is a policy area affecting all citizens and it requires active efforts by both women and men. Equality between women and men must be considered in all decision-making. The 'Government declaration' is a fundamental document issued by each new government at the beginning of the term of office. Every year since 1994, the declaration states that a gender perspective shall be mainstreamed in all areas of policies and politics.

The mainstreaming concept was added during the 1990s but Sweden has also used the 'double strategies' concept, which means that both mainstreaming and special measures are used to make the gender equality work progress. From 1999 the Swedish Law of Higher Education states that the universities shall promote gender equity in their education and research. Similar regulations apply to the research councils and the innovation agency. A most important measure is the Government's very clear statements on gender equity in its regulations and demands for reporting, e.g. in the annual reports, directed to the universities and the funding agencies.

Recently, a study of all the applications that the Swedish Research Council received during the period 2003-2005, in total 17 500, was published. The study was carried out in a gender equity perspective. It was found that for the Swedish Research Council as a whole the **success rates** of men and women were equal, when consideration is taken for the differences in "career-age" and in subject field. However, in the field of medicine only half of the difference in success rates between women and men can be explained by the differences in career-age. The probability that the remaining difference is due to chance alone is 1%. It should be noted that the peer review groups in medicine at the Swedish Research Council consist of about 50% women and that the groups are informed of the council's gender equity policy.

For the new large Linnaeus grants (about €1 million annually over ten years) in 2006, the 202 female applicants had a lower success rate (15%) than the 748 male applicants (21%). The probability that this difference is due to chance alone is 12%. Also, the share of female applicants for Linnaeus grants was lower than for other types of grants. It should be noted that the applications were evaluated by international experts only.

Whether the above-mentioned differences in success rates depend solely on differences in the quality of the applications or if they are also a result of an unconscious bias on the part of the evaluators and decision-makers of both sexes is a subtle issue, which is not easily investigated. The Swedish Research Council's clearly-expressed ambition is, of course, to avoid all bias in the evaluation of applications for research funding.

As a consequence of this study, the council has adopted a sharper gender equity policy and has decided to make further follow up studies of the success rates of women and men. These studies can then be a basis for future actions to promote gender equity in the Swedish Research Council's funding decisions.

Compiled by Carl Jacobsson

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SWITZERLAND

The tertiary education system in Switzerland can be divided into two groups: the **ten cantonal universities** along with the **two federal institutes of technology** ('ETH') on the one hand, and the **seven universities of applied sciences** ('Fachhochschulen') on the other. The federal government is responsible for the federal institutes of technology (as well as their annex institutes) and for the universities of applied sciences in the fields of technology, economics and creative arts. The cantons in turn are responsible for their respective universities and some of the universities of applied sciences. There is currently no position at federal level with the mandate and the competence to promote gender equality at universities.

The **Swiss National Science Foundation (SNSF)** is Switzerland's leading provider of research funding. It is funded exclusively by federal sources. To be elected for the National Research Council, which determines the outcome of applications through a peer-review system, one has to belong to Switzerland's academic elite. The proportion of women on the Research Council at the end of 2006 was 20%, a noteworthy percentage given that the proportion of women holding professorships across Switzerland was 13% at the end of the same year. A rule of preference for women in future elections to the Council was formulated in 2003, and an equality commission was established in 2001 along with a position to oversee equality in research support.

Professors (Grade A) at Swiss universities command a very high social status. They are very well paid, in line with top positions in the federal government. Open professorial positions are publicly advertised. The requirements for a professorship involve the usual evidence of excellence in the relevant discipline (e.g., publications, mobility, etc.); as of a few years ago, social skills and teaching experience have been added as important factors. Networks are still very important, but they no longer hold the degree of influence they once had. Rectors and presidents are usually chosen from internal candidates, with external candidates facing much greater obstacles to appointment. The level of rectors and university presidents is traditionally an almost exclusively male field; in

summer 2007, however, a female rector took up office at ETH Zurich, the first woman at this position since its foundation in 1855. In the positions of vice-rectors, there are currently 2 women out of 32 positions, *i.e.* a percentage of 6%. This is all the more astonishing as Switzerland was one of the first European countries to open its universities to women in the second half of the 19th century.

The government defines its strategic planning on education, research and innovation policy, including equality measures, every four years in a **multiannual programme** ('ERT Message'). In recent years, equality measures have been drafted at various levels; regarding the extent to which they are really implemented, however, there is still ample room for improvement. Such measures have been established in part by regulations and in part through customary practice, i.e. also due to pressure from below.

A major project funded since 2000 from federal finances is the **Program for Gender Equality at Swiss Universities** (approx. 2.4 million EUR p.a.). This program has played a large role in supporting equal opportunity measures at universities. Next to mentoring (Module 2) and childcare (Module 3), both of which contribute indirectly to this goal, the federal program provides a measure that openly attempts to regulate the filling of professorships through an incentive system for the inclusion of women (Module 1).
A similar program exists for the universities of applied sciences, but it has received less funding (6.5 million euros for four years).

At the beginning of the 1980s, female academics from all disciplines had organized themselves into a group ('**Femwiss**') whose purpose was to act as a gender-watch system at the institutional as well as political level. They continue to keep up this pressure 'from below' while simultaneously using their positions to apply pressure mainly in the political arena. In the multiple-party system of Switzerland this is a necessary and ongoing task, with sometimes better and sometimes worse results.

Compiled by Maya Widmer

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UNITED KINGDOM

Teaching and research in universities in the UK remains a predominantly male profession. Nevertheless, there has been a year on year increase in the percentage of women employed in both the research-only and research and teaching categories. Women are strongly represented in the research-only category at a total of 37% but this is predominantly on fixed-term contracts. The proportion of women in academic posts has risen to 36 per cent over a 10-year period. The proportion of women professors has doubled over this time span – although from a low starting point – from 9 per cent to 19 per cent. The indications are that this upward trend will continue. The proportion of women on science-related advisory bodies and boards is also rising (from 12% in 1992 to 25% in 1999).

The Science and Society unit of the Department of Innovation, Universities and Skills has an aim of increasing involvement of women in science and its governance. This builds on the work of the Promoting SET for Women Unit, which was set up in 1994, following the 1993 Science White Paper, *Realising our Potential*, which noted that women "were the UK's biggest single most undervalued and therefore underused human resource". The Unit has acted as facilitator, developed policy based research and funded pilot projects as well as helping to support women in the science community infrastructure.

The UK Resource Centre for Women in Science, Engineering and Technology **(UKRC)** is the key organisation to deliver a substantial part of the Government's Strategy for Women in SET (2003). The Get SET Women database provides the media and other organisations with access to thousands of women, at various stages in their science, engineering and technology careers, who have registered their details and can be approached for promotional and work related opportunities. The UKRC is committed to producing a series of ten Good Practice Guides by May 2007, each focusing on a recognised gender-critical issue for SET employers.

The **ATHENA** project was launched in 1999. Its aims are the advancement and promotion of the careers of women in science, engineering and technology (SET) in higher education and research to achieve a significant increase in the number of

women recruited to top posts. An example of an Athena survey is: 'Getting On', which concluded that men were far more likely than women to be encouraged to apply for senior positions (men were also better positioned for promotion in terms of both their internal and external activities – fellowships, departmental and HEI positions and committee memberships).

A **Gender Equality Duty** has been introduced in the UK in April 2007. This requires public authorities, including higher education institutions, to promote gender equality and eliminate sex discrimination. The duty will shift the emphasis from retrospective individual action to tackle discrimination towards an anticipatory and proactive problem solving approach.

All UK HEIs produce a human resources strategy and implementation plan and use self assessment tools to monitor progress. The research councils have had a woman as chief executive and another has had a female chairman. There are now 19 universities with women as Vice Chancellors (~15%), and the Royal Society is reviewing its election procedures and being proactive in increasing the nominations of women. For example, the President has recently written to all Vice Chancellors asking for female nominees. The UK Research Councils provide data on applications and awards by gender on an annual basis and also the gender breakdown on panels and committees. Reviews of refereeing which include gender of reviewers and the applicants are also undertaken on an ad hoc basis.

The Research Councils in collaboration with the UKRC for Women in SET are working together to: analyse diversity data on research funding and raise issues; increase the number of women in research decision-making to support the government target of 40% on SET-related committees; promote good practice on gender inclusivity and equality and diversity in the guidance and advice provided to applicants and peer review for Research Council funding. They have also produced a selection of Frequently Asked Questions about research grants and funding, and commonly heard myths and confusions. The issues are particularly relevant to returners to SET research, but will also be useful for women seeking to enter the field or progress their career.

Compiled by Rosie Beales

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Since the 1990s, an analysis of senior university staff reveals that women are underrepresented on scientific decision–making boards in almost all European countries.
For this reason, the European Commission has invited an independent expert group, namely, the expert group on **W**omen **I**n **R**esearch **De**cision **M**aking (WIRDEM) to identify and review positive actions and gender equality measures at institutional and national level to promote women into senior positions in public research.
In the course of one year of fruitful research, the WIRDEM expert group produced the homonymous report which examines and describes in detail nomination procedures, obstacles, facts and funding limitations that women need to overcome in their academic careers. It reviews the procedures for evaluating and promoting research personnel to senior positions and identifies examples of good practice at national and institutional levels.
Based on this analysis, the report proposes recommendations to facilitate the design of a framework for better targeted actions at European level, and highlights the problem of poor awareness and visibility.
It clearly shows that transparent and fair evaluation and promotion procedures alone are not sufficient to improve gender balance in research decision-making; a change of culture is required. The experts therefore also make suggestions as to how the prevailing scientific culture could change to become more inclusive.

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