

**“Women and science”**

*Mobilising women to enrich European research*

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## SUMMARY

The European Union at the service of its citizens must, in line with its general principles, set itself objectives regarding equal opportunities for men and women in the field of scientific research. Women are currently under-represented in this field: the aim is therefore to encourage women to take part in European research. To achieve this, efforts will have to be made at European and Member State level. Accordingly, the Commission will encourage discussion and the sharing of experience among the Member States.

As part of its information policy, the Commission will also seek to ensure that women are informed about the schemes and programmes intended to increase their participation in scientific research.

The Commission undertakes to make significant efforts to increase women's participation in Community research programmes; the overall objective is to achieve for women at least a 40% representation, on average throughout the 5th Framework Programme, in Marie Curie scholarships, advisory groups and assessment panels.

A sector and a working group on "Women and science" has been set up within the Commission to coordinate action to promote women in European research.

## INTRODUCTION

More and more women are taking part in most areas of economic, social and political life, and their role in those spheres is developing. Nevertheless, they remain particularly under-represented in scientific research<sup>1</sup> and technological development.

This situation must be rectified in the interests of equal opportunities for men and women: this is essential to democracy and a political priority for the Union. A greater involvement of women in research would enrich European science, in terms of its methods, the subjects on which it focuses and the objectives assigned to scientific research. Failure to take advantage of this potential enrichment would harm Europe's interests.

In the Member States and in the scientific community as a whole, people are becoming increasingly aware of this situation. The European Parliament has shown great political interest in promoting women in research. At the conference on "Women and science" organised jointly by the Commission and the European Parliament in Brussels on 28 and 29 April 1998, scientists and political decision-makers gave a clear signal that further efforts must be made to increase the numbers of women involved in research in Europe.

The under-representation of women in research is the result of a large number of very varied factors. A better balance between men and women in an enriched world of scientific research can be achieved only as long-term action is taken by all the parties concerned. This implies a systematic, step-by-step approach.

Accordingly, the Commission undertakes to pursue two objectives:

- to stimulate discussion and the sharing of experience in this field among the Member States so that action can be taken as effectively as possible at all levels of power;
- to develop a coherent approach towards promoting women in research financed by the Union, with the aim of significantly increasing the number of women involved in research during the period of the Fifth Framework Programme. The Commission's aim is to achieve at least a 40% representation for women in Marie Curie scholarships, advisory groups and assessment/monitoring panels.

The purpose of this communication is to describe what action has been and will be taken by the Commission in the field of research and technological development to achieve these two objectives, presenting it against the more general background of European Union policy on equal opportunities, on the one hand, and the action taken in the Member States on the other hand.

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<sup>1</sup> Reference to science must be understood in its broadest sense, i.e. as covering all scientific disciplines which generate knowledge, whether the "exact" or "human" sciences.

## **1. GENERAL BACKGROUND**

### **1.1. The European Union's equal opportunities policy**

#### *1.1.1. The Treaty*

When the Community was set up, the concept of equal opportunities for men and women was limited to the principle of equal remuneration. Equality of opportunity is now enshrined in Articles 2 and 3 of the Treaty of Amsterdam as one of the European Union's objectives. The Treaty's new Article 13 will enable appropriate measures to be taken against discrimination, while Article 141 provides the specific legal basis for equality of treatment between men and women.

#### *1.1.2. Mainstreaming equal opportunities into the other policies*

Since 1996, the Commission's strategic approach to the question of equal opportunities between men and women has been to "mainstream" the issue, i.e. to integrate it into all major policy areas. Under this approach, set out in communication COM(96)67 final, action on equal opportunities can be made far more efficient while at the same time improving the quality of the policies which have been the subject of mainstreaming.

Equal opportunities for men and women became, for example, one of the four central pillars of the new employment strategy adopted at the Luxembourg Summit in December 1997 on the basis of Commission communication COM(97)497.

The policies on the Structural Funds and on development have also played a pioneering role in this field: the proposals for a Council Regulation on the Structural Funds (COM(98)131) include, among their objectives, the promotion of equality between men and women.

When launching the Fifth Framework Programme for research and technological development (1998-2002), the Commission decided to include the equal opportunities dimension by promoting the participation of women in European research. It had announced its intention to do so in its progress report on the follow-up of the communication: "Incorporating equal opportunities for women and men into all Community policies and activities" (COM(98)122 final).

## 1.2. The situation in the Member States

### 1.2.1. Women in research

Hardly any statistics are available in the 15 Member States on the numbers of women active within the scientific community - apart from the number of women obtaining scientific degrees. In the European Union as a whole, the average numbers of women following higher education courses in 1994-1995 were as follows:

Disciplines	% of women among students
Literature, applied arts, religion	65.6
Social sciences	49.5
Law	53.9
Natural sciences	44.4
Mathematics, computer science	27.6
Medicine	68.1
Engineering, architecture	18.7
Other	66.9

These averages conceal geographical differences. Both in mathematics/computer science and in engineering/architecture, women tend to be less under-represented in Italy, Portugal and Spain than in other European countries.<sup>2</sup>

In spite of this relatively encouraging situation in the South, girls are clearly not equally represented in all branches of study. Under the Community programmes for education (Socrates) and vocational training (Leonardo da Vinci), support can be provided for projects which encourage women to follow less traditional courses of study - involving, for example, the development of new teaching modules and materials, the production of suitable curricula for teacher training courses, the promotion of "mentoring" and schemes to make all those involved in education and vocational training (in particular parents and careers advisers) more aware of the options available. Particularly noteworthy are the Working Group on Women's Studies, the thematic networks set up by the Erasmus/Socrates programmes and the travelling exhibition on "The other half of science", which has visited a large number of schools in all the Member States.

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<sup>2</sup> "Key figures in education in the European Union", 1997 (Figure 14 - pp. 98-99; cf. Annex 2).

The statistics on what becomes of women scientists once they embark on their scientific career and move into the job market are, unfortunately, very inadequate.

However, the lack of women in research institutions is frequently lamented. In 1993, the Commission<sup>3</sup> and the European Parliament<sup>4</sup> organised seminars which confirmed that this is the situation in Europe. According to UNESCO's 1996 "World Science Report", the way women progress along the pathway of a scientific career is rather like the way water moves along a pipe with holes in it: simply pumping more women science graduates into the system will not lead to an even spread of women in scientific jobs. Having obtained their science degree, women frequently encounter obstacles in their career, and this results in women being seriously under-represented in scientific posts.

These obstacles are encountered throughout women's careers: some are specific to a scientific career while others arise from the more general situation of women on the job market. In general terms, four critical stages can be identified: (i) staying on the job market; (ii) staying in a scientific career; (iii) progressing in the scientific career; (iv) being appointed to positions of responsibility and power within the scientific community.

The statistics on what happens at these crucial stages are fragmentary, but reports of women's career experiences tend to agree. Those who remain in a scientific career find themselves discriminated against, being employed on a less secure footing and receiving lower grants than their male colleagues.<sup>5</sup> Very few of them get the top jobs, even in disciplines where the majority of graduates are women.<sup>6</sup> A study carried out in the United Kingdom shows that women science graduates leave the job market in greater numbers than their male colleagues<sup>7</sup> and that those who remain on the job market tend, more than men, to give up their scientific career and turn to teaching or other non-research jobs.<sup>8</sup>

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<sup>3</sup> Women in Science, International Workshop organised by the European Commission (15-16/2/1993).

<sup>4</sup> The under-representation of women in science and technology. How to improve the situation for women studying/working in S&T? Seminar organised by the STOA (Scientific and Technological Options Assessment) Committee of the European Parliament, November 1993.

<sup>5</sup> Wenneras Christine and Wold Agnès, *Sexism and nepotism in peer review*, Nature 387, 341-343, 1997. *Passion and prejudice in research*, Nature 390, 201-204, 1997. Mason Joan, *Gender dimensions in science*, Science and public policy, December 1997. Vestergaard E., and M. Taarnby. Forskning I forskningsmidler. Ansøgere til statens sundhedsvidenskabelige forskningsråd. Århus : Analyseinstitut for forskning, 1998.

<sup>6</sup> Osborn Mary, "Facts and figures show little room at the top for women in science in most EU countries", speech given at the conference on "Women and Science" organised by the European Commission, in cooperation with the European Parliament, in Brussels on 28 and 29 April 1998 (proceedings being prepared for publication).

<sup>7</sup> *The Rising Tide*, a report on Women in Science, Engineering and Technology, 1995.

<sup>8</sup> Glover, J. & Fielding, J., *Gender and SET project*, presented at the meeting of the "Science Alliance", London, March 1998.

To get a clearer and more accurate picture of the situation regarding women scientists and their careers, we need better indicators; only then can appropriate policies be drawn up and progress measured. The Commission will make a start on tackling this problem in cooperation with the Member States and the competent international organisations.

### *1.2.2. Policies implemented in the Member States<sup>9</sup>*

During the 1990s there has been a growing awareness in all Member States of the fact that women are under-represented in the scientific community and that something must be done about it. A number of different policies have been introduced.

#### *Positive action and quantitative objectives:*

In Germany, for the period 1996-2000, about DM 720 million (EURO 368 million) have been allocated to scholarships to enable women to acquire the necessary qualifications to be appointed as professors. In Denmark, the FREJA (Female Researchers in Joint Action) programme has a budget of DK 78 million (EURO 10.5 million) over four years for financing research projects conducted by highly qualified young women. In Sweden, 32 professorships, 73 research assistant positions and 120 post graduate studentships have been created for allocation to the under-represented sex while, in Finland, all government committees, advisory boards and other corresponding bodies, including the four national Research Councils, must by law comprise at least 40% women.

#### *Promotion of women at university and throughout the educational system*

In the Netherlands, the Government has made certain officials responsible for equal opportunities in universities and a public awareness campaign has been mounted in secondary schools to encourage girls to choose scientific courses. In Italy, the Ministry of University Education and Scientific Research has set up a "Working group on cultures of difference and studies on women at university" ("Gruppo di lavoro su culture delle differenze e studi delle donne nella istituzione universitaria"). In France, Ireland and Luxembourg, a number of different measures have been taken to encourage girls to take up a scientific career.

#### *Creating administrative structures*

In the United Kingdom, a Development Unit has been set up within the Department of Trade and Industry. It works in cooperation with the Department for Education and Employment and with the Research Councils. In Germany, a unit known as "Women in Education and Research" has been set up within the Federal Ministry of Education and Research. In Italy, an "Equal opportunities" commission was set up in 1998 at the National Research Centre (CNR).

#### *"Women's studies"*

In most Member States, women's studies and gender research have been growing in importance.

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<sup>9</sup> A more detailed description of the policies implemented is given in Annex 1.

### *1.2.3. The North American approach*

In 1981, the United States Congress adopted the Science and Technology Equal Opportunities Act/National Science Foundation Authorisation Act. Under this law, the Director of the National Science Foundation (NSF):

- must, every two years, send Congress and government officials a statistical report on the numbers of women and other minorities in employment and training in the science and engineering sectors. Every two years since 1982, the NSF has published a report entitled "Women and Minorities in Science and Engineering";
- must introduce programmes providing for anti-discriminatory measures in professional recruitment. The current programme for women is POWERE: Professional Opportunities for Women in Research and Education.

A "Women in Science and Engineering" Committee has been set up within the National Research Council.

In 1989, Canada's Council for Research in the Natural Sciences and Engineering (CRSNG) created a national chair for women in engineering sciences. In October 1996, the CRSNG granted CAD\$ 1.25 million (EURO 745 601) for five university professorships. At least half of this grant of CAD\$250 000 (EURO 149 120) per chair over five years comes from large private companies such as Alcan, IBM, Nortel and Pétro-Canada. The selected chairholders (three women engineers and two women scientists) took up their posts in 1997.

## **2. ACTION TAKEN BY THE COMMISSION**

The measures to be implemented by the Commission will have two objectives:

- to stimulate discussion and exchanges of experience in this field among the Member States;
- to develop a coherent approach towards promoting women in research financed by the Union with the aim of significantly increasing the number of women involved in research during the period of the Fifth Framework Programme of Community research, with the aim of achieving at least a 40% representation for women on various bodies while, of course, meeting the fundamental criterion of scientific excellence.

### **2.1. Discussion and sharing experience: a group of experts, a group of national civil servants and a network of women scientists**

As already mentioned, a very wide range of measures has been introduced at Member State level, matched only by the growing and widespread interest in the question of promoting women in research. Against this background, this seems a particularly good time to encourage a discussion on these different measures and to provide a forum in which ideas and experiences can be shared. This discussion and exchange of experiences will enable all those involved to make their own action more effective and thus to pursue

their own objective more intently. This, indeed, was one of the vigorous demands made by the many who attended the "Women and Science" conference organised by the Commission in April 1998, in cooperation with the European Parliament.

Accordingly, in November 1998 the Commission set up a *Group of experts*,<sup>10</sup> consisting of a dozen women scientists, whose remit is to identify the challenges which lie ahead for women's participation in European research policy. The group is to produce a final report by the end of October 1999, analysing the situation and the challenges arising from it and putting forward policy recommendations. The report will then be submitted and discussed by a *group of national civil servants* made up of representatives of all the Member States involved in promoting women in scientific research. It will thus be possible, in autumn 1999, to begin a dialogue among the Member States, leading to an exchange of experiences and a joint assessment of the situation and of the measures implemented in each of the Member States and at European level. One of the major common emphases will be on improving not only the indicators but also the assessment and monitoring process.

The Commission will also take the initiative of establishing links with Europe's existing *networks of women scientists*.<sup>11</sup> An initial meeting will be held during the first half of 1999 to look at the map of existing networks and to discuss what they would like to see happening, e.g. sharing experience, sending information and putting forward policy recommendations. The aim of this meeting will be to assess the needs of the existing networks with regard to the possible development of a Europe-wide structure to provide women scientists with the information they need in order to take part in the 5th Framework Programme and to give voice to their specific concerns. The existing networks will also be invited to contribute to conferences on particular subjects, where they will be able to highlight the contribution of women to scientific research.

## **2.2. A coherent approach within the Fifth Framework Programme**

The preamble to the Fifth Framework Programme (1998-2002) states that "*...the Community equal opportunities policy must be taken into account in implementing the Fifth Framework Programme and therefore participation of women in the field of RTD should be encouraged.*" This theme is taken up again in the Annex II to the framework programme, which sets out the broad outlines for Community action and its scientific and technological objectives and priorities, noting that "*particular account will be taken of the need to encourage the participation of women in the fields of research and technological development.*"

This promotion must take place at several levels: the aim must be to promote research *by, for* and *on* women.

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<sup>10</sup> Meeting under the auspices of the ETAN (European Technology Assessment Network).

<sup>11</sup> Such as WITEC (Women in Technology), WISE (Women's International Studies Europe), AWISE (Association for Women in Science and Engineering), WITS (Women in Technology and Science), AOIFE (Association of Institutions of Feminist Education and Research in Europe) and the European Women's Lobby.

The promotion of research **by** women means the promotion of women as research workers (2.2.1.a) and as involved in the various stages of the process of consultation and implementation for the 5th Framework Programme (2.2.1.b). Care should also be taken to ensure that the research funded by the Union meets the needs of its female as well as its male citizens. This is what is meant by promotion of research **for** women. This implies vigilance when drawing up the work programmes (2.2.2.a) and an in-depth analysis of how all the fields covered by research (2.2.2.b) affect women. Finally, "research **on** women" means the contribution which research can make to our knowledge of what it is to be a woman, and of gender and gender relationships and of the impact of these concepts on European society (2.2.3).

#### *2.2.1. Research by women*

**(a)** To ensure that research genuinely meets the needs of women, it is essential to have at least a 40% *participation of women* at all levels in *implementing and managing research programmes*.

- *Assemblies, European Research Forum and advisory groups:*

As the Commission announced in the explanatory memorandum to its proposals for specific programmes, presented on 10 June 1998, particular efforts have been made when setting up advisory groups to ensure that they are balanced from a gender point of view. On average, 27% of their members are women.

These groups were set up by the Commission using shortlists compiled on the basis of names put forward by the Member States, of an invitation to apply published in the Official Journal and, finally, of Commission staff's own knowledge of the field. Women accounted for 9% of the names put forward by the Member States and 13% of the applications submitted in response to the published invitation. The Commission's aim in putting together groups of which more than a quarter of the members are women was to get as close as possible to the minimum 40% figure and thus to indicate how important it is to have as balanced a composition as possible in these groups, in terms of gender, to ensure that the work they produce is of a high quality. It should be noted that more than 40% of the groups have a woman chair.

For the purposes of the forthcoming appointment of the members of the European Research Forum, the Commission will also aim to get as close as possible to the 40% figure for women and, at all events, to exceed 33%. This Forum is the successor to the "assemblies" set up under the 4th Framework Programme - the ESTA (European Science and Technology Assembly) and the IRDAC (Industrial Research and Development Advisory Committee), which contained only 6.7% and 0% women respectively.

- *Assessment and monitoring of the Framework Programme and the specific programmes:*

Pursuant to Article 5 of the Decision adopting the Framework Programme, the Commission annually assesses the progress made in implementing the 5th Framework Programme and its specific programmes, and also assesses what has been achieved after five years. In this context, particular attention will be given to *women's participation in the various panels set up for this purpose*. Out of a total of more than 2000 experts who

applied to take part in the annual monitoring of the 4th Framework Programme, less than 10% were women. The pool of experts should therefore be enriched by the addition of competent women who are prepared to take part in this work. A particular effort will be made to encourage women to respond to invitations to apply for membership of these panels and, as far as possible, the Commission will seek to ensure that at least 40% of the membership of these panels consists of women.

*The annual report on research and technological development activities in the European Union*, drawn up pursuant to Article 130p of the Treaty, will in future provide an annual review of the extent to which women are involved in Community research.

- *Project assessment panels:*

After each call for proposals, the Commission calls on the services of panels of assessors (the peer review system) to help it assess the project proposals received with a view to making a final selection of the best proposals. As far as possible, the Commission will seek to ensure that these panels comprise at least 40% women.

- *Internal management of RTD actions:*

It is also important to take steps to ensure that, as far as possible, there is a gender balance in the staff responsible for managing research and technological development actions. The Commission is doing so under the third action programme on equal opportunities for women and men (1997-2000) adopted by the Commission on 2 April 1997. This programme renews the Commission's commitment to apply to its own staff the principles it promotes in respect of the Member States.

**(b)** The following measures will be taken to improve *access for women as research workers* to the various specific programmes:

- each call for proposals will include a statement that the Commission promotes equal opportunities and therefore encourages women to put forward research proposals or to take part in them; the coordinators of selected projects will also be encouraged to put together research teams which are balanced as regards gender;
- a system will be developed for ascertaining and compiling statistics on the sex of project promoters, contractors and persons recruited under contracts, so that the results can be communicated and assessed; efforts will be made to improve the statistics available in Europe on women's participation in research and development projects.

This will provide tools for monitoring women's participation in research activities. Under the 4th Framework Programme such tools did not exist. It is therefore difficult for the Commission, at this stage, to pursue a quantitative objective such as that established for the assemblies and panels. However, the Commission would like to be able to award at least 40% of the Marie Curie scholarships to women scientists, provided they meet the selection criteria laid down in the Programme decision. To achieve this, particular efforts will be made to encourage women to apply for these scholarships.

### 2.2.2. *Research for women*

In general terms, the 5th Framework Programme is oriented towards socio-economic objectives and the needs of European citizens, whereas previous framework programmes focused on scientific and technological disciplines. It is against this background that the new notion of "key action" has been introduced. *Key actions* are essential features of the specific programmes and are devised in the light of the problems which need to be solved or the challenges which must be faced rather than on the basis of the endogenous and autonomous development of technologies.

(a) When *drawing up and implementing the work programmes*, account will be taken of a possible gender dimension in the problems or challenges addressed by the key actions and, in a broader sense, by the specific programmes as a whole. Wherever a topic merits consideration from a gender point of view, this will be stated in the call for proposals.

For example, in the programme on "*Quality of life and management of living resources*", research into chronic and degenerative diseases and into genomes and diseases of genetic origin, neurosciences, public health and health services research must all give particular attention to the difference between men and women.

In implementing the key action on "*The city of tomorrow and cultural heritage*", special attention will be given to the possible differences between women's needs and men's needs with regard to the urban environment. The gender dimension should also be included when preparing energy/environment/economy scenarios and in studies on the acceptability of new, clean and efficient energy systems which will be developed as part of the two key actions entitled "*Cleaner energy systems, including renewables*" and "*Economic and efficient energy for a competitive Europe*".

Within the key action on "*Sustainable mobility and intermodality*", researchers will be careful to take into account the needs of women, where they are specific, when carrying out research on the impact of transport policies and projects. In research relating to accessibility, fares policy and urban public transport, assessment will include the question of whether different social groups, including gender, are fairly treated and have fair access to these systems.

(b) In order to introduce a dynamic and critical dimension in the way gender questions are treated, *impact studies* will be carried out within each specific programme. These studies will be coordinated by the "coordinating structure" (see below), in order to develop comparable frameworks, avoid duplications of effort and benefit from shared experience. These studies will take place in a synchronised manner during the year 2000 so that the results are available to those responsible for designing the 6th Framework Programme.

### 2.2.3. *Research on women*

Promotion of research **on** women consists essentially of supporting gender-relevant research under the key action on "***Improving the socio-economic knowledge base***". The work programme for this key action covers a wide range of questions including gender as a social construct, the evolution over time of men's and women's conditions, the situation of women on the labour market and in terms of social exclusion and integration, the prospects opened up to women by new models of development including the promotion of women as entrepreneur, and the place of women in emerging systems of governance and citizenship.

In addition, socio-economic research will be used to throw light on the challenges of gender in policy-making processes.

### **2.3. A coordinating structure for implementing the gender and science watch system within the 5th Framework Programme**

In developing the abovementioned schemes, the Commission has opted for a pragmatic, step-by-step, decentralised approach. How can the gender dimension be taken into account in every scheme, at all levels and at each stage while still preserving the inherent nature of research and technological development policy?

The answer is that these schemes and measures form a dynamic and evolving system known as "*the gender and science watch system*". It includes the principle of its own development: one thinks, in particular, of the increasing number of women involved in consultation and decision-making processes, of impact studies or of the improvement in statistics. The challenge of gender will be kept under constant review.

To implement these measures, a "women and science" coordinating structure has been set up within the Commission, comprising two elements:

- a *sector*, a small and flexible administrative body dedicated to coordinating and providing the impetus for the "gender and science watch system";
- a *working group*, made up of staff from the relevant Commission departments, whose role will be to implement the "gender and science watch system" within the specific programmes and the Framework Programme in general.

The role of this coordinating structure is:

- to develop the "gender and science watch system" within the 5th Framework Programme, as described above in its three dimensions: by, for and on;
- to gather and disseminate statistics from the implementation of the 5th Framework Programme on the numbers of women participating in research activities and in the various advisory and decision-making bodies, and to coordinate the efforts which will be made to develop better indicators on the participation of women in research in Europe;

- to stimulate dialogue among the Member States and with the scientific community by providing the interface with the group of experts and the group of national civil servants, and by developing the network of women scientists;
- to be a point of contact within the Commission for all those, in the Commission or outside it, who are involved in promoting women in European research.

### **CONCLUSION: A NEW FACE**

The 5th Framework Programme provides the ideal opportunity for the Commission to set out on the road towards providing women with better access to European research activities.

By setting up the various schemes described in this communication, the Commission is providing increased opportunities for women to take part in scientific research. But these efforts will have been in vain unless all those concerned express their interest by working together towards this goal. It is essential to take concerted action in response to the needs expressed by research institutions and business as well as by women scientists.

The Commission will assess the measures which have been taken in accordance with this communication and will report on them to the European Parliament and the Council.

The Commission is confident that the process now getting under way will yield positive results: it is, in fact, about giving a new face to research in the next millennium.

# ANNEX 1

**This annex aims to give an overview of the efforts made in the different member states to promote the role of women in science**

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# 1. BELGIUM

The federal structure of Belgium comprises two types of entities : regions (Brussels, Flanders, Wallonia) and communities: the Flemish community, the French speaking community and the German community. The Flemish community and the region of Flanders fused. Industrial and technological research is regionalised, fundamental and university research is under the responsibility of each community. The federal authority is mainly responsible for space research and for the creation of networks to exchange data among scientific institutions at national and international level.

The support of women in science has mainly taken the form of developing and supporting women's studies in universities.

In Flanders, in 1994 a full time programme Women's Studies at postgraduate level was set up at the University of Antwerp, but it is a joint initiative of several Flemish universities. It is an inter-university programme. The degree is called Advanced Academic Study in Women's Studies. It is a full time programme of one year. This type of degree (A.A.S.) has been made possible by the new law (July 1991) concerning higher education in Flanders. Several scientific disciplines have organised this kind of postgraduate education, and Women's Studies has proven to be one of the most successful.

The Flemish Ministry of Culture, supported in 1978 the creation of the documentary centre RoSa (Rol en Samenleving / Role and Society). RoSa started to collect and make available material about the situation of women, long before any feminist concern could be detected at the academic libraries.

In the French speaking part of Belgium, at the "*Université Libre de Bruxelles*" (ULB), the group GIEF (Groupe Interdisciplinaire d'Etudes sur les Femmes) is active since 1989 and the Group GERFeS (Groupe d'Etudes et de Recherches Femmes et Société) since 1994. An honourable chair in Women's Studies, named after Suzanne Tassier (history professor at the ULB) was created. Every two years, an eminent scholar in the field of Women's Studies is invited to give lectures.

At the Université Catholique de Louvain-la-Neuve (U.C.L.) the "Groupe de sociologie wallone, femmes et sociétés" is doing research about three central topics: sexual harassment, women in developing countries and political participation of women in local communities. At the University of Liege much research work has been done concerning the position of women in education.

The FNRS (National Foundation of Scientific Research) supported a research network "Femmes et histoires" (women and histories).

The group "Les Cahiers du Griff" (Grif - Groupe de Recherche et d'Information Feministe), founded in the 1973, has been the source for feminist inspiration and support in Belgium and far abroad.

In 1979, l' *Université des Femmes* (The women's university) was created in Brussels. It organises courses and seminars and functions as a library and documentation centre. Women's studies are encouraged through the award « Prix du mémoire de l'Université des femmes » which is given every year to the best work on women, at graduate level.

French speaking and Flemish speaking feminist academic women in the field of Women's Studies organised themselves in the "bi-communautarian" professional network Sophia. It is a co-ordination network of women's studies in Belgium aiming at promoting a feminist approach in higher education and research and creating links between the academic world and the women's movement. Sophia is the Belgian member of Wise.

There is no specific measure to promote women in industrial research. However, the general action undertaken to promote women in enterprise allows to reach although the research department. At the federal level, the Ministry of Employment and Labour set up a Positive Actions Unit, considering that the topic of equal opportunity can be seen in the enterprise culture value, in the human resources management, in the management of quality and productivity of the enterprises.

This unit can offer enterprises services such as Consulting, Training, and Networking

The Positive Actions Unit is an active partner, with the "Vlaams Centrum voor Kwaliteitszorg", l' "Association Wallonne pour la Gestion de la qualité" and the Irish Quality Association, of the European project New Opportunities for Women "Putting the E into Quality". The purpose of this project is to integrate equal opportunities in an economic model.

The Organisations, which in the last years made particular efforts on equal opportunities and Quality Management could participate to the *Equality Award*. This prize for equal opportunities in the enterprises is addressed to the organisations which take equal opportunities into account not only because it is an ethical principle, but also because it is an important factor for success and profitability. The winners of the first Equality Award were IBM Belgium Luxembourg (on the flemish side) and Dow Corning Belgium (on the french speaking side).

## 2. DENMARK

In the spring of 1997, Jytte Hilden, Minister of Research and Information Technology published a discussion document “*Why be a researcher? Career or dead end?*”. The document concentrated on the recruitment of young people as a prerequisite for revising the very small proportion of women researchers.

In the summer of 1997, the Minister for Research and Information Technology took two initiatives.

The first was a proposal that the national budget should provide for funds for a special research programme for highly qualified young women: FREJA (Female Researchers in Joint Action). During the years 1998 to 2001, 78 million Danish kronen (+/-10.500.000 EURO) extra is being provided for new research projects in all disciplines.

The second was the initiation of the debate *Women and Excellence in Research* with five round-table meetings. The meeting prepared the way for a conference on the same theme, held in Aalborg on 17 November 1997 at which the Minister presented thoughts about what action could be taken to improve the level of sexual equality in research.

These thoughts are known as “**Hilden’s 11 point action plan**”:

### **1. Equal opportunities: a Management Responsibility:**

*Achieving equality in research is a management responsibility at all levels. Heads of institutions are responsible for preparing and implementing plans for research and at the same time plans of actions on equality.*

*In addition to the requirement for the preparation of plans of action for equality, the “managements” are to obey the relevant regulation governing appointments, when recruiting scientific personnel. The executive order on appointments gives the management of government research institutions the possibility of regarding questions of equality and taking them into account as one of appointment parameters. The regulations governing appointments at government research institutions differ from those applying to universities. For this reason the universities should be given similar possibilities.*

*It is not only in respect of the formal framework that it is important for research management to take responsibility for equality. An equal distribution of men and women is the best basis for a good working climate and for a good research environment.*

### **2. More female Professors**

*Being a professor provides a powerful and solid platform in the world of research as well as in society.*

*In Denmark only 6% of full professors are women.*

*The low percentage of female professors also has consequences for research and teaching.*

*There is a lack of role models, supervisors and mentors for students and young women researchers. In order to increase female recruiting to research posts, it is necessary for more women to show that it is possible to be a female researcher.*

### **3. Awareness in Job advertising**

*It is mainly male senior researchers in leading positions who set the priorities for research areas. Since the majority of job advertised lie within the fields of interest of male researchers, female researchers with different fields of interest and experience have little expectation that they will be seriously considered and do not apply for these positions.*

*“It is therefore important that the process of wording job advertisements is as open and transparent as possible”*

### **4. Gender Neutral Selection Committees**

*The demand for equality in publicly appointed councils and boards has been made statutory through a series of laws since the middle of the 1980's.*

*The selection committees for research positions are not subject to the requirement of equality in publicly appointed councils and boards. At universities there are no formal, central requirements about equality in the composition of selection committees, but some institutions have recognised the necessity of introducing requirements covering the representation of both sexes. The executive order of appointments in government research requires that both sexes be represented in selection committees. A similar requirement for the universities seems to be quite necessary.*

### **5. Tutoring and Mentoring**

*During studies for a Master's degree and during training as researchers, tutors are crucial for the encouragement of new talent. Especially women are motivated by encouragement from their thesis supervisor. The importance of a good mentor in the establishment of a research career is incalculable. A research career requires more than good knowledge of the subject. Social as well as professional training is of the greatest importance. Through a mentor or tutor, the young researcher gets the opportunity to make contact with other professional experts in the field and to be introduced to networks and organisations. Research institutions, which develop good mentor systems, should receive more funds.*

### **6. Yearly Progress Report on Equal Opportunities in Research**

*It must be a requirement that the annual reports submitted by research institutions should include information on the initiatives taken to improve equality.*

### **7. Higher Priority on Gender Research**

*In the gender research of recent years, the relationship between gender and research priorities has been examined. Apparently women carry out research in areas that men find less interesting than their female colleagues. Because men dominate the decision-making bodies at research institutions, the research areas of interest to women receive no priority.*

### **8. Government Research Institute on Equal Opportunities**

*The discussion on equality in research as well as in society in general, has shown that there is a great need for documentation, analysis and objective information. A government research institution for equality could strengthen the public debate and the shaping of political initiatives in this area.*

### **9. Child Rearing Allowance for Young Women and Men**

*Pregnancy and maternity period can have a great effect on the scientific career of female researchers. The publication frequency of women will often diminish in this period.*

*Some initiatives have been taken by the Natural Science Faculty of the University of Copenhagen to solve the problem. A limited number of two year "Curie Fellowship" make it possible for female researchers who have lost contact with research to renew their qualifications. But this is not enough!*

*A childbirth leave fund should be established, to give the possibility to young male and female researchers who have had childbirth and child-minding leave to apply for funds to purchase themselves free of teaching responsibility for a corresponding period. The young parents would have an opportunity, through a concentrated research period, to regain more quickly their former level and continue on their way on the research hierarchy.*

#### **10. Family and Career Balance**

*"There are no studies which show that women without children do better than women with children"*

*Denmark has a high career rate for women. The existence of inexpensive and well-functioning day-care centres has contributed to making this possible. But as long as there are not more women to show and explain that it can be done, children will continue to be regarded as a problem for research career.*

#### **11. Equal Opportunities in all Walks of Life**

*At the institutions equal status should be introduced at all levels, from appointment procedures to job descriptions and from elected councils and boards to recruitment.*

As a result of Mrs. Hildens 11 point action plan, a committee under the Ministry of Research has published (end of October) a report with suggestions on how to follow up on Hildens 11 point action plan. These suggestions are currently being considered by the Minister of Research. New initiatives are likely to be taken in 1999, especially measures to increase the number of women professors in Danish universities and research institutions.

## 3. GERMANY

The proportion of women in science and research in Germany has been rising since 1990 but is still low. In 1996, only 5 % of full professorships were held by women.

The target of the German federal government has been to rise women-participation in leading positions in science and research (full professorships at universities) up to 20% until the year 2005. Creating women-friendly framework conditions in the world of research is one of the central goals. It is expected that quality of research will improve with greater equality. The federal government strives also to increase the proportion of women in the councils and boards that make research-decisions and provide research advice.

The new Frame Law for Universities (Hochschulrahmengesetz, vom August 1998) which points out that funding and evaluation of universities has to take into account the progress on equality.

The German federal government has proposed a number of specific initiatives to increase the proportion of women in research.

In collaboration with the state governments, an extensive general programme for research (Hochschulsonderprogramm HSP II/III), including a number of actions for the promotion of women in science, is being carried out. It started in 1991.

For the second period of the programme, between 1996 and 2000, about 720 million GDM (+/- 368.130.154 EURO) have been allocated to increase the participation of women in science and research especially in leading positions (the programme includes scholarships for doctorate dissertation, post docs, inaugural dissertation etc.). About 200 million GDM (+/- 102.258.376 EURO) are spent on special scholarships for women, additional charge for child-care, special programmes, positions for women limited for a period of time for habitation.

In general the initiatives cover:

- “Re-qualifying scholarships”: considering the fact that the proportion of women in research falls drastically as women choose to have a family, re-qualifying scholarships are being established, so that female researchers have an opportunity to return to their scientific activity.
- “Stand-by association”: scholarships that provide female researchers temporarily absent from research with the opportunity of maintaining an association with research. This includes participation to courses and limited participation in research. Scholarships to be provided for female researchers to include a child-minding allowance, enabling them to pay nursery costs. Scholarships for women to the special university course required for permanent employment at German universities.
- “Qualifying scholarships” for women so that the proportion of women able to become professors is increased.

On 1997 more than 10.000 female scientists received grants financed by this programme

National reports for the Chancellor and the President of the state governments starting in 1989 to evaluate the development and progress of female participation on all levels of academic careers up to full professorships.

The universities had established equal opportunity advisors and developed equal opportunity plans to set up obligatory targets for women participation.

In July 1997, the chancellor and the governments of the states concluded a 5 point-catalogue to rise the proportion of women in science and research on all levels, especially leading positions.<sup>12</sup> A yearly report on progress of women participation in leading positions of science and research shall reflect achievements, problems and developments. The report "women in leading positions" (July 1998) indicates an actual proportion of women on new nominations for full professorships in 1997 of about 17%.

In summer 2000, during the world exhibition, "Expo 2000", an International Women's University of technology and Culture will take place for 100 days in Hannover. A research-oriented, interdisciplinary, international and multilingual postgraduate programme of studies will be mainly offered to 1000 female students. Instructions and research will be available in seven interdisciplinary project areas: "intelligence", "information", "body", "water", "city", "labour" and "migration".

The pilot project will run from June to September 2000. After a concluding evaluation it will be decided whether the university can go on as a virtual campus applying open distance learning methods including modern information technologies.

Since July 1997, the legal and organisational conditions for the implementation of the International Women's University" are being checked with the support of the Ministry for Science and Culture of Lower Saxony.

The creation of a joint central institution of universities in Lower Saxony is planned for the first half of 1998. This institution will cooperate with the association to implement the "International Women's University" on a contractual basis. Other universities from outside Lower Saxony may join by separate co-operation agreements with the association.

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<sup>12</sup> Equality for women in science is to be seen as an integral part of science policy at all levels : federal, states, universities, research institutes.

## 4. GREECE

In order to promote equal opportunities in scientific research, the General Secretariat of Research and Technology (GSRT), which is part of the Ministry of Industry, has planned several studies to have an overview on the current situation in Greece.

On the basis of these studies, the GSRT, in collaboration with the Ministry of Education and the General Secretariat of Equal Opportunities, will devise a series of measures to promote the participation of women in all RTD programmes.

These studies should determine the participation of women in the Research Centres, such as the National Research Foundation (FIE), the National Centre of Social Research (EKKE), the National Research Centre for the Physical Sciences "Demokritos", the Foundation for Research and Technology (FORTH) and in University.

The studies should also investigate the situation in Greece on:

- The problems that women scientists encounter in their attempt to seek employment in the national Research Centre;
- The problems in the examination procedures;
- The problems in the selection procedures.

The main objective of the studies for the moment is to find the right answer to the following questions:

- Are women applicants required to be more qualified for the same position than male candidates?
- Are women applicants discouraged from applying for certain positions? If so, are they discouraged because they believe they do not have the proper qualifications or because they believe they will be discriminated because those positions are considered to "suite only men"?
- When the GSR publishes" calls for applications for the position of President of a Research Centre, following a transparent procedure for evaluation by the National Research Advisory Committee, why don't women scientists and women managers apply for them? Do women, obviously at a high level of intellectual accomplishment, believe that the position of the President of a Research Centre is "a man's job"?
- What is the reason for the shortage of women in the Advisory bodies and Selection Committees? What can be done to change the situation?

## 5. SPAIN

In Spain the proportion of women in research is small. Women do not even hold 10% of full professorships.

Following to the fourth World Conference on Women (Beijing 1995) the Spanish government prepared a Study Programme: « women and gender ». This programme became part of the Third National Plan on Scientific Research and Technological Development. This initiative was taken according to an agreement between the Women Institute and the inter-ministerial Commission of Science and Technology.

The Women Institute (part of the Ministry of Labour and Social affairs) undertook many actions to promote women in science.

On the basis of article 9.2 of the Constitution positive actions are foreseen in Spanish legislation.

The Equal Opportunity Plan (1996-2000) foresees:

- *More educational models to make science and technology more accessible to female students;*
- *Facilities for women to the access of scientific and technical training;*
- *More educational and vocational orientation services for unemployed women;*
- *To promote research in all sectors in which women are interested;*
- *To promote women specialisation in careers that could be a source of employment with an innovative character.*

For the accomplishment of these initiatives the Women Institute made agreements with the authorities responsible for « Mainstreaming », the Ministry of Education and Culture and with the inter-ministerial Commission on Science and Technology.

Among the projects promoted by the Institute:

- Training courses to make the trainers aware of equal opportunities and to make them play a role in orienting girls towards the science and technological sector.
- University training courses (maximum 330 hours) for unemployed women to allow them to reorient their training towards sectors such as environment, recycling, new technology information.
- Annual grant (in collaboration with the Commission for Research and Development on “women and gender”) for:
  - creation of “theoretical structure” on women and gender to promote the introduction of this kind of studies in all university sectors
  - training of women researchers in order for them not to be considered only as an object, but also an active subject of research.
- Pilot project in the framework of community programme NOW and in collaboration with « Escuela Técnica Superior de Ingenieros de Telecomunicación” for the creation of “teleservice for women telecommunicators”.

Beyond the actions undertaken at the central level, each of the 17 regional authorities has adopted an Equal Opportunity Action Plan.

These Plans take into consideration:

- The vocational diversification, with the promotion of women in sectors such as Science and Technology which are non traditional sectors
- The support to the research by women and for women
- The coeducation (“la Coeducación”), education in moral values (educación en valores)

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## 6. FRANCE

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- The Minister of National Education and the Minister in charge of gender equal opportunities signed two agreements:
  - **The 20<sup>th</sup> of December 1984 agreement's** main objective was « the improvement of girls training orientation and professional integration »
  - **The 14<sup>th</sup> of September 1989 agreement's** main priority was the need for girls to widen the range of their orientation towards an industrial training.

The implementation of this agreement was easier thanks to many initiatives raised by three-year academic plans. The awareness of some actors of the educational system increased on the enlargement of girls' professional choice. In this framework a considerable number of actions to push girls to focus their career on scientific sectors was implemented. A European Seminar was organised in Paris on the 6<sup>th</sup> and 7<sup>th</sup> of November 1995 to draw a report on these actions.

- Attached to the Minister of Labour and Social Affairs, the Secretariat of State for Women's rights and vocational training has the role of the co-ordination and the promotion of women's rights and gender equal opportunities.
- **The Scientific vocational prize** is at present the principal action of the Women's Rights Service - Ministry of Labour and Solidarity - to make the access to science easier for girls.

This initiative is locally implemented by the regional delegations. 480 prizes of 5,000 francs (762 EURO) were distributed in 1997 and 1998. The initiative exists since 1991. It is addressed to young girls, in their last year of secondary school, who want to undertake a scientific or technical career.

The criteria for the awarding are quality of the project, school grades and family resources.

- Considering one local example: on the 28<sup>th</sup> of March 1996 the "Women's Rights Service" in collaboration with "Académie de Paris" organised a meeting between 700 female students of the Academia and Pierre-Gilles de Gennes, Nobel Prize for Physics in 1991. The objective was to confront them with the choice of a scientific project.

## 7. IRELAND

The key actors impacting on the participation of women in Science Engineering and Technology in Ireland are

- Women in Technology and Science (WITS)
- Department of Education and Science
- Individual Educational institutions and their initiatives.
- Higher Education Authority (HEA) and Higher Education Equality Unit (HEEU)
- Department of Justice Equality and Law Reform specifically via the Employment Equality Agency.

### WOMEN IN TECHNOLOGY AND SCIENCE (WITS)

WITS is the most important organisation which actively promotes women in science, technology and engineering in Ireland through initiatives at industrial, school, higher education, national policy and European levels. As a wholly voluntary organisation, WITS draws its members from all technical and scientific areas: research personnel, industrial scientists, technicians, journalists, engineers, administrators, policy analysts, teachers and lecturers, computer experts and consultants. Many progressive companies from both the private and public sectors are corporate members of WITS and their female employees form an important part of the membership. The organisation places great emphasis on helping its members to network through a confidential directory of members, through social events and information seminars. It is also involved in public policy initiatives, lobbying Government Departments and working with all relevant actors to promote its aims. Various activities of WITS are aimed at helping to achieve gender balance in the SET.

These initiatives include:

- Encouraging girls to consider science and technology as real career options through regional **Role Model Days**, and supporting materials. Senior cycle schoolgirls are given the opportunity to meet and talk to women from a wide range of science, technology and engineering careers.
- **Management Development programmes** and career development workshops devised specifically to increase the participation of women SET in decision making in industry - with the support of the EU EMPLOYMENT NOW programme.
- **Equality promotion programmes** devised to promote the integration of women into non-traditional areas within industry. This work is also supported by NOW.
- **Talent Bank** of senior female scientists and technologists willing to serve on State and other boards, which has been circulated to Government departments and other nominating bodies. WITS is also the Irish compiler of data for the European Handbook of Women Experts in Science, Engineering and Technology, a project co-ordinated by WITEC.

- Production of a book “**Stars Shells and Bluebells**” highlighting Irish women’s participation in SET in the early years of the century. The project was supported by the Department of Education and Science.

#### INITIATIVES RELATED TO WOMEN RETURNING TO SET EDUCATION AND EMPLOYMENT

Pilot projects have included:

- Foundation skills in SET for women returners to education. Developed by Cork Institute of Technology, these programmes are now mainstreamed in six Institutes of Technology. Over 70% of women completing these programmes have gone on to further education and employment. -
- Innovative schemes for training in electronics and IT have been piloted for women returned to education/ young women with few qualifications and are available in conjunction with certain colleges and companies. -
- Programmes integrating innovative training methods and training of trainers for women as aircraft maintenance engineers.
- Schools "taster" programmes, organised by Cork Institute of Technology (CIT) and other third level colleges, encourage schoolgirls into SET and offer them a hands-on experience of science, technology and engineering.
- The "Introducing Technology" Programme in Tralee Institute of Technology is a foundation course in science and technology subjects aimed at mature women students. The programme aims to increase the participation of women in non-traditional areas of study and employment, particularly engineering, the physical sciences and new technology - all fast expanding areas of employment. The work is supported by the NOW Initiative.

#### HIGHER EDUCATION AUTHORITY AND HIGHER EDUCATION EQUALITY UNIT

The Higher Education Authority funded a national unit called *The Higher Education Equality Unit*. Its role is to promote and encourage good policy and practice in relation to the tackling of inequalities in the higher education sector in Ireland.

#### EMPLOYMENT EQUALITY AGENCY

The Employment Equality Agency (EEA) is a public body and was established in 1977 under the Employment Equality Act. Its main function is to implement and monitor employment equality legislation. Its main objectives are to eliminate discrimination within the workplace and also to promote equal opportunities. A major new Employment Equality Act will come into force in 1999. Under that Act the EEA will become the Equality Authority with significantly increased powers. In the recent past the Agency has sponsored a study of equality in the Irish Dairy Industry, with a particular focus on SET.

#### DEPARTMENT OF EDUCATION AND SCIENCE

Some of actions undertaken by the Department of Education & Science for gender equality are as follows:

- ***Intervention Project in Physics and Chemistry***

In 1985 the Department of Education & Science devised an intervention project with the aim of increasing the numbers of girls studying Physics and Chemistry.

- **Action Research Project 1992**

"Equal Opportunities for Girls and Boys in the Primary School Curriculum" - a continuation of the work begun in a TENET project to create equal opportunities in the curriculum for both girls and boys.

- **Girls into Technology 1992**

Teachers from the participating schools developed four modules which they implemented with mainly Second Year Junior Cycle Classes.

Aims of the Project:

- To develop girls' confidence and competence in technology.
- To heighten students' awareness of gender stereotyping in work and in society.
- To encourage active participation in planning and decision making, i.e. problem solving.
- To encourage students to reappraise traditional subject/career choices.

This project was co-funded by the E.U.

- **Guidelines for Teachers 1994**

These Guidelines were prepared in order to assist schools towards greater awareness of equality of opportunity issues in education and towards the elimination of inequality in the day to day business of the school.

- **The Equality Pack 1994**

In 1994 all primary schools in the country were issued with an equality pack consisting of the following publications:

- The 1992 Project Report.
- Guidelines for Teachers.
- The Report of the Working Group on the Elimination of Sexism and Sex Stereotyping in textbooks and teaching materials in Primary Schools 1993.
- The G.E.A.R. Report "Exploring the Gender Gap in Primary Schools".
- "Gender Influences in Classroom Interaction."

- **Exploring Sex Stereotyping 1994**

The Programme was designed for the purpose of addressing the issue of sex stereotyping. It includes a video supported by teaching materials.

Aims:

- To promote awareness of stereotyping with particular reference to gender stereotyping.
- To facilitate change in attitudes where stereotyping is found to exist
- To provide skills in dealing with gender issues.

This project was co-funded by the E.U.

- ***“Suitable Jobs for a Woman 1994”***

Women in Technology and Science (WITS) published a booklet entitled “Suitable Jobs For A Woman in 1994”. The booklet describes women who work in a range of scientific and technological occupations and was designed to encourage female students to broaden their career aspirations and choices.

- ***Gender Matters 1996***

"Gender Matters" comprises an educational manual and video designed for use by facilitators involved in comprehensive in-career development programmes for teachers. The resource materials incorporate activities to raise awareness of gender issues among teachers, parents and pupils. They are intended to help teachers address their own attitudes and expectations of pupils, to challenge stereotyped attitudes and behaviours and to develop and implement gender equality policies and practices.

The Department of Education & Science Trainers have undergone additional specific training in the use of these materials.

This project was co-funded by the E.U.

- ***Women in Educational Management-Research (1st phase 1996, 2nd phase undergoing).***

This project examines the career structure of women teachers at first and second level education in Ireland. The focus is to examine and analyse the reality of a career in teaching in Ireland for women today, and to examine possible courses of action to redress the gender imbalance in the management of schools.

- ***Co-education and Gender Equality 1996***

This research was commissioned by the Department of Education & Science and undertaken by the Economic and Social Research Institute. The main objective of the study was to determine whether coeducational schools relative to single sex schools, have negative effects on girls' educational achievements and personal and social development.

## 8. ITALY

On the 29th of July 1997, the Ministry of University and scientific Research founded a “Working group on culture of difference and studies on women in university (Gruppo di lavoro su Culture delle differenze e studi delle donne nella istituzione universitaria)”.

The purpose of this group (formed by university professors and three ministerial civil servants) is to promote gender equal opportunities encouraging access for women to university studies and research. The working group should indicate the best way of collaboration and interaction with national and university bodies as well as the different sector of university administration that deal with the university and research process reform that is currently under way.

In the short term the work programme of this working group will be based on statistics survey and on a sort of census of the initiatives on women’s studies and “women centres”.

In the long term the working group will:

- write a progress report on women population in the university and gender culture
- promote best practice experiences using the mechanism of “sponsorship” and co-promotion
- organise, in the framework of the “*lifelong learning society*”, a Forum on women’s studies and gender studies .

Among the future steps it has been decided:

1. to issue a publication on women and university. The initiative comes from the Ministry of Equal Opportunities, the National Commission for Equal opportunity within the Council of Ministers, the Working group on culture of difference and studies on women in university and ISTAT (Italian Institute for Statistics). This publication should be ready by January-March 1999 and its structure will consists of one part on data and the other on analysis.
2. to organise a joint conference on women and science under the sponsorship of both the Ministry of Research and the Ministry of Equal Opportunities .

Within the public centre for research the presence of Equal Opportunities Commission are as follow:

ANPA (Agenzia Nazionale per l’Ambiente):	under constitution
CNR (Consiglio Nazionale delle Ricerche):	YES
ENEA (Ente per le Nuove tecnologie, l’Energia e l’Ambiente):	YES
INN: (Istituto Nazionale della Nutrizione):	NO
ISFOL: (Istituto Sure di Formazione e del Lavoro):	YES
ISPE ( Istituto Superiore per la Programmazione Economica):	YES
ISTAT (Istituto Centrale di Statistica):	YES.

The Equal Opportunity Commission within the National Research Council (CNR) was set up in 1998. It is a 4 years renewable Commission and is composed by 5 researchers of CNR, 1 member of the Ministry for Scientific Research, 1 member of the Ministry for Equal Opportunities and 1 member of the National Commission for Equal Opportunities.

This Commission will:

- promote the creation of networks and other information activities on the specificity of women research activities in the different disciplines at national and international level.
- collect statistical information about the research staff and about the scientific researches conducted within the CNR to give a gender perspective on the access to a scientific career, on career developments and on the evaluation of the scientific product. In accordance with the European Commission initiative an Italian "Observatory on women and research" will be set up within the CNR.
- draw the content and the aims of training courses for "women manager of science". These women could occupy directional posts within the CNR. The courses will be organised in the framework of the project "Emily in Italy" which aims to promote women to posts of responsibility within the Public Administration and within the institutions.
- Diffuse the European Union initiatives, in particular the promotion of the Fifth Framework Programme through specific seminars for the female researchers of CNR.

Equal opportunities commissions have been created in the following universities (the other universities are being verified): Brescia, Genova, Milano (Catholic University), Napoli 2, Palermo, Parma, Pavia, Pisa, Roma, Torino, Verona.

With regard to science (but not exclusively), women's research and construction of a "female knowledge" in the different disciplines, grew in the last twenty years thanks to autonomous institutions (Research Centres and Documentation, Libraries, etc...). These "women's institutions" are connected to the women's movement. Actually encouraged and supported research and its dissemination even before the development of women's studies within the Universities.

Scientific women in Italy are quite well organised, an example is the informal network of Italian "Women of Science", created about ten years ago, in 1988, under the initiative of the Bologna group. At that time, groups of women and science were already present in Bologna Genova, Milano, Roma Torino etc., raised in the mainstream of the women's movement.

The Coordinamento donne di scienza in Bologna collected those groups, organising women directly involved in the scientific research, or in the studies of the structure and organisation of science, sharing the common interest of discussing their specific working experience according to the main question raised by the feminist debate. Those groups met regularly for ten years, at least twice a year. Moreover the Coordinamento members have been involved in several public initiatives spread all over the country, as conferences, debates and courses. The main topic has been the relationship between women and science, but also bioethical aspects of the technological innovation.

## 9. LUXEMBOURG

Luxembourg doesn't have a university as such. There is only a one-year university course to encourage and to enable young Luxemburgers to go to other parts of Europe to carry out their university studies. There is now a law, which is being transposed which establishes some courses for the first part of a University cycle. There is a plan to have activities for post-doctoral studies, it will be ensured that these new university structures pay attention to offer equal opportunities.

The government launched:

- A big awareness campaign from primary school and even from nursery school level, together with the Ministry for feminine promotion which was created in 1995.
- The idea of a project for the children in pre-school age, which is called "sharing equality" (partager l'égalité) based on the fight against stereo-typical roles.
- An action to revise school textbooks as regards their featuring of professions and the featuring of women.
- A project called "Eureka". In regard to the promotion of technology, the government set up classes where twelve years old girls were put in homogeneous groups enabling them to raise their questions without the presence of boys. In these classes, it was observed that the girls spoke up much more and put forward more questions than when boys were present in the same classroom.
- In the secondary establishments, a network was set up to make sure that equal opportunities were taken into account.

Luxembourg has a very low female employment rate. It was 33 % in 1991 against 36 % in present female employment. There are many different explanations for this. One of them may be the lack of childcare facilities. In order to improve this situation the government plans to allow children to start school at three years old rather than four, as it is the case now.

The Goodyear firm in Luxembourg has a very significant research centre. The recruitment process for research tries to follow the principle of promoting women. So there are many women who are recruited by the Goodyear firm and who participate in research. The government is trying to set up special prizes given to firms that pursue this kind of policies.

The government together with the social partners adopted *The Action Plan for employment*. This Action Plan foresees a parental leave of six months for the mother and six months for the father. The government entirely covers the threshold of a social minimum wage and the employer who grants this parental leave is obliged to reemploy the people who are on the unemployment list. The government awards a special bonus for each woman who is reintegrated back into her job. The indirect wage costs are reimbursed at a level of 60 %. A positive discrimination is introduced for women reinserted back into jobs. There is also an initiative to try and have more self-employed women because there are not enough of them setting up on their own businesses.

## 10. THE NETHERLANDS

In 1997 the percentage of women professors was 5%, associate professors 7,5% and assistant professors 19,8. Within the sexes the distribution of the positions is very different: 50% of the men are either associate professor or professor, the rest is assistant professor, whereas only 20 % of the women are either professor or associate professor, and almost 80% is assistant professor.

Apart from this hierarchical segregation there is a strong horizontal segregation, with an even lower representation of women in the technical and natural sciences.

At the end of the 1980's, the Ministry of Education and Science has mildly stimulated affirmative action programs in the universities. At that time the universities also started to seriously introduce child-care measures and – more in general – care facilities. However, the minister never used any form of pressure or sanction in this respect. The result was that equal opportunities policies were not so much directed to women faculty but to women in administrative jobs.

Only in 1997, a Law on Equal Representation of Women in Leading Positions in Education was introduced, which obliges school and universities to set target figures and to develop a plan to reach these figures. Recently a research has been published on the mobility of women in the scientific positions to support the law. (Portegijs, W. Eerdaags evenredig? 1998)

This law on equal representation, however, came about almost at the same time as the law on the Modernisation of the University Structure was passed, which seems to run counter to such measures as a law to stimulate the decentralised universities' policies. Also the new stress on management seems not productive for hiring women

At this moment there are a few other institutions which are developing policies to stimulate a better representation of women in higher scientific position: the Advisory Council of Sciences and Technology Policy, the Association of Co-operating Universities, and the National Organisation of Research (NOW).

At the request of the Minister of Education, Arts and Sciences, the Dutch Association of Women's Studies analysed the evaluation methods within the National Organisation of Research to see whether there is gender bias involved in the system.

The National Network of Female Professors recently started a campaign to have more women professors appointed at the universities, on the model of the programme set up to redress the age balance in the universities.

There have also been some campaigns to encourage girls to choose natural sciences and technical studies.

Women's studies have been given a good start in the eighties. There is now an officially recognised research School in Women's and Gender Studies.

# 11. AUSTRIA

Austria is a federal state, which means that the legislative and executive powers are divided between the Federal and provincial governments.

Higher education falls within the purview of the Federal Government, which is responsible for making and enforcing laws in this area.

According to Austrian law, universities are set up by the Federal Government and centrally administered by the Austrian Federal Ministry of Science. This means that university employees are public civil servants who are employed either under laws governing public employees, or under laws governing privately employed persons.

This fact is important to the advancement of women for the following reason: While the Equal Treatment Act in the private sector merely provides protection against discrimination for women, the Equal Treatment Act in the area of civil service (Federal Equal Treatment Act) includes protection from discrimination as well as regulations providing for the advancement of women.

In Austria, the Civil Servant Law governs scientific personnel structures. There are two qualification levels for an academic university career: the dissertation and the *habilitation*. The latter entitles the holder to the *Venia Docendi* (authorisation to teach as a full professor). The awarding of grants is one way of promoting women to achieve this highest level of qualification. The goal of such grants is to correct under representation of women in the university as full professor (in Austria the percentage of women at this level is 4%).

The goal of the *Federal Equal Treatment Act* is to reach a level of 40% representation of women in all positions and employment groups of Federal Government agencies. This quota depends on qualifications. The goal is to be achieved through preferential employment of women in the Federal Civil Service, preferential promotion of women, and preferential training and continuing education for women. The exact nature of measures for the advancement of women is not specified in the act and can be determined by the individual federal ministries.

In 1995, the Ministry of Science set up the first *Affirmative Action Plan for Women*. This plan was enacted in the form of a legal decree, i.e., as a normative document, which provides for various measures for the advancement of women among university personnel. This affirmative action plan for women proved to be a quite effective legal instrument and was amended in 1998.

The requirements of this decree also serve to support work groups on equal treatment issues (see next paragraph), as they regulate these groups' roles in staff recruiting procedures in detail. Furthermore, universities are required to furnish rooms, material, and human resources for work groups on equal treatment issues, so that the actual implementation of the legal mandate to prevent gender-based discrimination against women can be managed.

To a lesser extent, efforts are being made to use the affirmative action plan for structural changes. For example, measures for the advancement of women are to be considered as relevant for budget planning and distribution when university budget plans are established. At a university, the appropriate rector must consider proposals made by the work group when distributing the budget, and must also penalise non-compliance with the women's advancement regulations. Extra-university research institutions are not covered by this affirmative action plan.

In 1993, the *University Organisation Act* was completely revised, granting universities comprehensive autonomy.

Currently, efforts are being made to organise universities as individual legal entities independent of the Federal Government. Such a policy would mean that the Federal Equal Treatment Act and the Federal Civil Servant Act would no longer apply.

The current organisational status entitles universities - in compliance with the law - to handle their affairs autonomously, i.e., they are not bound by administrative orders. The Federal Minister has no direct influence on decisions made by universities. Under certain circumstances, however, and through a formal administrative procedure, he is entitled to repeal decisions made by the university. Such circumstances are, among others, gender-based discrimination when university employees are appointed. Thus, the Federal Government acts as a supervisory authority for the universities, which are funded mainly by the State.

Since 1991, every university has had a work group for equal treatment issues, which - as a kind of monitoring body - makes sure that women are not being discriminated against during recruiting because of their gender. Members of work groups for equal treatment issues have significant power in personnel affairs. They must be informed of every staff recruitment and, if they suspect discrimination against a woman, can file a complaint to the Minister of Science against the discriminatory decision. In consequence, the recruitment process is stopped and reviewed by the Federal Minister of Science. If gender-based discrimination is substantiated during the review, the decision made by the university is repealed through a legally binding notice.

In this respect, the affirmative action plan for women developed by the Ministry of Science is important, as it provides for a variety of regulations supporting the activities of the work groups. For example, one of those issues is the equal value of women's studies and gender research when the qualifications of a candidate are evaluated.

Interdisciplinary and extra-university achievements in the area of women's studies and gender research require particular consideration.

According to the University Organisation Act, every university needs to set up its own affirmative action plan for women that matches its special requirements. This is in addition to the Ministry of Science's affirmative action plan for women. The individual work groups are involved in the creation of such plans.

## 12. PORTUGAL

According to a recent study, « both sexes contributed to the development of Science in Portugal in the last 20 years. On the part of women this contribution came also as a result of an effort, clearly noticeable throughout the eighties, to eliminate disparity in the level of qualifications. Difficulties were overcome to the point that women are now well established in the « outer circles » of the scientific community »<sup>13</sup>

The same study reports on the position of women graduates pursuing an academic career : 53.4 % are lecturers (against 36.7 % men), 32.6 are Associate Professors (33.9 % men) and only 6.7 % are Full Professors (24.4 % men).

In order to counteract the still unfavourable position of women in Science, the Global Equality Plan (Council of Ministers Resolution n°49/97, March 24<sup>th</sup>) foresees the following measures in its Objective 7 – Education, Science and Culture :

- Create new, wide ranging options in curricula and professional careers, providing at the same time guidance and information to students after the 9<sup>th</sup> year of compulsory education on all medium and higher courses and their respective professional outlets and promote short duration stages in enterprises and central, regional and local administration institutions.
- Facilitate the involvement of young generations in cultural, scientific and technological areas, and encourage its participation in experimental teaching programmes.
- Include socio-economic aspects in RTD funding programmes.

Considering the relationship between recognised skills and their socio-economic value on the one hand and, structure and results of educational curricula on the other, the IOFID Transnational Project (Equal Opportunity for and Training of Teachers) was set (1995-1997). It is coordinated by the Open University in cooperation with the Women Equality and Rights Commission, and has produced a number of different plans of studies, with the objective of introducing topics related to gender and equality of opportunities in the teachers' curricula such as :

- Nature and culture
- Gender : stereotypes, comparisons and roles
- Language and education
- Body language
- The build-up of gender inequalities in teaching practice

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<sup>13</sup> A Comunidade Científica Portuguesa nos finais do Século XX – Comportamentos, atitudes e expectativas (coordenação de Jorge Correia Jesuino), 1995, Celta, Oeiras (pág. 160).

- Equal opportunities and information and communication technologies

## 13. FINLAND

Activities promoting gender equality in research and academia have been conducted since early 1980s by the Academy of Finland, the Ministry of Education, and the national gender equality authorities, consisting of the Council for Equality between Women and Men and the Equality Ombudsman. The measures include, on the one hand, monitoring and promoting gender equality in academia, especially the position of female researchers and university teachers, and, on the other hand, promoting Women's Studies and Gender Research.

Starting from early 1980s, the Academy of Finland allocated funding for Women's Studies (research projects, national co-ordination, networking).

In 1981, the Academy of Finland and the National Council for Equality between Women and Men created the post of a National Co-ordinator of Women's Studies, that was located in the secretariat of the Council. The Council for Equality, founded in 1972, is a parliamentary advisory committee with a permanent secretariat. Its task is to monitor and promote gender equality in all areas of society.

The Council's Subcommittee on Research was founded in 1981. The main tasks of the National Co-ordinator and the Subcommittee on Research are to promote Women's Studies and Gender Research, and to monitor and promote gender equality in academia through conferences, publicity, lobbying, advisory and information services including a national newsletter.

In 1982, the Ministry of Education appointed a Committee to monitor obstacles in female researchers' careers, with a follow-up working group in 1986. A national review on women's position in academia was conducted again in 1997 by an Academy of Finland working group. The statistics on universities (the national KOTA-database which is also searchable on Internet) include, since 1989, gender as one variable for students, degrees, and academic positions.

In 1987, the Equality Act aiming to prevent discrimination on the basis of sex and to promote equality between men and women came into force. The function of the Equality Ombudsman was created to supervise observance of the Act. The Equality Act especially mentions training and education as important areas of implementation and states that educational institutions shall ensure that instruction, research and instructional materials promote gender equality.

In 1990, the Equality Ombudsman issued Guidelines on Promoting Gender Equality in Universities. These guidelines were later included in the Equality Plan of the Ministry of Education.

The Equality Act made it possible to complain about discrimination on the basis of gender (including pregnancy, childbirth and parenthood) in recruitment, working conditions or termination of employment. Between January 1991 and May 1997, 33 complaints were made from universities. The person alleging discrimination has to take his or her case to the court to claim for compensation. The court can rule that the employer has to pay compensation (maximum 50,000 FIM – 8,409 EURO). Several cases from universities have proceeded to the court and compensations have been paid in some cases, but the data on these has not been analysed systematically yet.

In 1995, the Equality Act was amended and a quota paragraph was added. The Act now states that the minimum percentage of both women and men in government committees, advisory boards and other corresponding bodies shall be 40, unless there are special reasons for the contrary. This affects also the four National Research Councils as well as the Board of the Academy of Finland. Half of the members in these are now women except in the Research Council on Natural Sciences and Technology where 30 percent of members are women.

Another amendment in the Equality Act since 1995 concerns equality planning. All employers with a staff of at least 30 shall include measures to further equality between women and men at the workplace in the annual personnel and training plan or the action programme for labour protection. This is relevant for all universities, research institutes and equivalent. However, there are no sanctions in the law in case of non-applications.

Finnish family policy aims to facilitate combining work and family. The length of the parental leave is 263 days, of which 158 can be taken by either parent. Since 1996 day care for children under school age (7) is guaranteed by law.

In 1995-1997, the Ministry of Education created eight professorships in Women's Studies for five years. After this five year period, the decision on the funding of these lies with the universities. A research professorship in Women's Studies, the Minna Canth Professorship, was created by the Academy of Finland in 1998.

Since 1998, the Academy of Finland encourages female researchers to apply for funding in the general call for research funding application. Among the concrete measures of the Academy of Finland, which facilitate combining research and family are:

- for postdoctoral (3 years) post holders: extension to their term will be granted on the basis of a written request for a period corresponding to the duration of a maternity or parental leave and military or equivalent service;
- for researcher training abroad, grants are higher for researchers with dependent children.

In universities the situation varies, but in several of them there are:

- Equality Committees, which usually do not have executive power or ombudsman functions, but more agenda setting, planning and information functions;
- Equality Plans or equality issues included among other plans, e.g. Personnel Development Plans;
- Guidelines on how to prevent sexual harassment;
- Annual Prize on Promotion of Gender Equality (25,000 FIM – 4,205 EURO, University of Helsinki, since 1996)

Since 1996, the Equality Committees of Universities have organised an annual National Conference. First European Conference on Gender Equality in Higher Education was organised in Helsinki in 1998 jointly by several universities' Equality Committees. One outcome of this conference was establishing a European Network for Gender Equality in Higher Education, the host institution of which will be the University of Helsinki.

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## 14. SWEDEN

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In Sweden the proportion of women in research is also small. In the academic world, few women are represented at the top of the hierarchy. In 1997 only 10% of approximately more than 2.000 professors were women. In other parts of the public sector the proportion of women in high-ranking positions is much higher.

In its research policy Bill of 1993, the Government presented a ten-point programme for promoting gender equality in higher education. The core of the proposals amounted to earmarking special funds for the purpose of promoting gender equality activities.

In 1995, Parliament acted on a Bill from the Government concerning equality between women and men, girls and boys, within the area of education. The Government Bill contained a series of proposals concerning the promotion of equality both within the public school system (compulsory school and upper secondary school) and higher education and research.

In 1996, the Government presented a Bill regarding research which contained proposals to increasingly promote research with a gender perspective. By way of example, it was proposed that funds be allocated to establish 18 posts concentrating on gender research, six of these are professorships (chairs).

Funds were also allocated to create a secretariat as an autonomous body attached to a university (University of Göteborg was finally chosen) with the task of investigating, creating opinion, stimulating, documenting and providing information concerning gender research.

All the measures proposed in these Bills have now been carried out.

In 1997, the government instructed that plans should be laid for achieving equality, including target figures for each of the institutions of higher education. Each university was given target figure for the appointment of new female professors. The figures are based, in part, on an assessment of the number of women qualified to be professors and assistant professors found within the disciplines involved. Then it is the responsibility of the individual institutions to attract qualified women candidates.

The first target figures have been set from 1997 to 1999 and the consequences of not fulfilling the target may be a freezing of part of the funding for appointments. The Government can stipulate that such funds may be used only for the recruitment of professors of the underrepresented sex.

To start the process, 32 professorships were established for the under-represented sex. These positions receive tripartite financing from the Swedish Ministry of Education, the Swedish research councils and the university concerned. Those institutions which were interested in having one of the professorships could apply to the research council.

This initiative may also covers 73 research assistant positions for the under-represented sex as well as funding for 120 postgraduate studentships for women and for visiting female professors.

Other interesting measures taken by the Swedish government in recent years to promote equal opportunities for men and women in higher education and research are:

- Measures to counteract the division between fields of study heavily dominated by men and those dominated by women;
- Creation of an Advisory group for equality between women and men within higher education and research with direct access to the Minister of Education and Science (1992-1997).
- A new clause has been introduced in the instructions of the research councils and the sector research bodies stating that the councils have the task of promoting equality between women and men.
- A co-ordination group for the research councils has been set up with the task of co-ordinating the efforts of the research councils in respect of equality, gender research and interdisciplinary approaches.
- Universities and university colleges have been given the task of increasing the proportion of female students on the natural science and technical courses and of increasing the proportion of male students in teacher training and nursing courses. This is part of continuous efforts to counteract the division between fields of study heavily dominated by one of the sexes.

One of the five programme areas within the institute for Public Health concerns *women's health*. Its programme statement points out that legislation, research, education, working life, medicine and other treatment are mostly based on men's needs and conditions.

During 1995 the Institute financed several regional and local projects related to women's health. Measures have also been undertaken directed to young women.

Still in 1995, the Government allocated funds (SEK 1.5 million – 169,071 EURO) for development projects with the aim of integrating issues concerning women's health into the basic medical education as well as in further training programmes for medical doctors.

Since 1996, special attention has been directed towards the health situation of personnel (mostly women) working in the care sector. A research project is being carried out which will end in 2001.

In August 1996, a committee with the task of investigating the way women and men respectively, are received and treated by the health and medical services, presented its final report to the Government. The committee proposes, inter alia, increased support to research related to women's health, further measures to integrate a gender perspective in medical and other education fields and ways and means for evaluation and monitoring of progress in this sector. The report is presently studied, within the Ministry of Health and Social Affairs, with a view of taking further measures in the field of women's health.

## 15. UNITED-KINGDOM

The Government is committed to gender equality of opportunities between the sexes. It is pursuing a variety of measures to reduce inequality for women.

In the White Paper on science, engineering and technology (“Realising our Potential: a Strategy for Science, Engineering and Technology SET”) published in May 1993, the Government recognised the particular importance of attracting more women into these vital activities. Women represent 46% of the civilian labour force in Great Britain.

In March 1993, the Chancellor of the Duchy of Lancaster established an independent committee on Women in Science, Engineering and Technology “to advise on ways in which the potential skills and expertise of women can best be secured for national advantage and for the benefit of SET”.

The Committee’s report “The Rising Tide” was published in February 1994. In this report the Committee emphasises that, apart from personal rewards of a challenging career, there is a sound economic case for attracting and retaining women in SET.

The Government has given careful consideration to all aspects of the report. It accepts many of the recommendations, including the proposal that a Development Unit should be established under the Office of Science and Technology to facilitate a range of important tasks.

The Government is committed to ensuring that the most is made of the talent and expertise of both men and women. As part of this policy the *Development Unit* has been set up in 1994 within the Office of Science and Technology (OST). From 1998 this office is part of the Department of Trade and Industry and the *Development Unit* “*Promoting SET for Women*” works in co-operation with The Department for Education and Employment, in addition to a wide range of public and private sector and voluntary organisations.

The Unit encourages, stimulates and helps co-ordinate the good work of the many existing expert bodies and organisations active in the field of promoting women in science and equal opportunities generally. The aim is to:

- raise public awareness of the contribution women can and do make to science, engineering and technology;
- ensure access to adequate careers advice on science, engineering and technology
- identify, disseminate and promote good employment practices and publicise the economic advantages;
- create a catalogue of database of women experts to encourage the recruitment of women to senior public appointments;
- monitor the progress and impact of initiatives on encouraging women into science

The unit works in strict relation with The Education department, the Industry department and with the Research Councils.

Therefore the Development Unit was established to take forward the recommendations set out in the report "The Rising Tide". Among them:

1. *"The Council for Science and Technology should be invited to consider the report";*
2. *"The Government Education Departments and education training establishments should ensure the initial and in-service training of teachers on equal opportunities issues included guidance on means of maintaining the interest of girls as well as boys in all science subject."*
3. *"The Office for Standards in Education should routinely review the status and effectiveness of equal opportunities policies in schools";*
4. *"Equal opportunities policies should be a recognised part of an organisation's or company's strategy. The implementation of these policies should be monitored and reported in Annual Reports";*
5. *"The OST Development Unit should initiate a series of pilot studies to identify and disseminate information on the economic and other benefits of existing women friendly management practices in SET";*
6. *"The Government should allow childcare costs to be claimable against employees' income tax, where both parents, or a single parent in single parent families, are working. In addition the Government should increase the provision of publicly-funded childcare services";*
7. *"The Department of Employment should facilitate national support and funding for successful returners schemes for women in SET, to help secure the future of these schemes and enable greater numbers of potential women returners to take advantage of this type of training";*
8. *"Funding bodies should make research funding arrangements for principal investigators and research fellows more flexible so that potential award holders are not disadvantaged if their mobility or availability for full-time work is restricted by family commitments".*
9. *"Employers and professional institutions should set up and maintain their own databases and networks of women scientists and engineers qualified for appointment to their boards and committee, or for nominations to public appointments. A central catalogue of database should be held by the OST, and updated annually, to disseminate this information";*
10. *"Government Departments and other employers should set targets specifically for all public appointments and senior positions in SET, including chairmanships, of at least 25% qualified women, by no later than the year 2000."<sup>14</sup>*

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<sup>14</sup> *The Rising Tide – A Report on Women, Engineering and Technology - , HMSO, London 1994*

## **ANNEX 2**

### **STATISTICS TABLE**

*Extract from the publication of the European Commission : « Key data on education in the European Union 1997» (figure F14-pp. 98-99)*

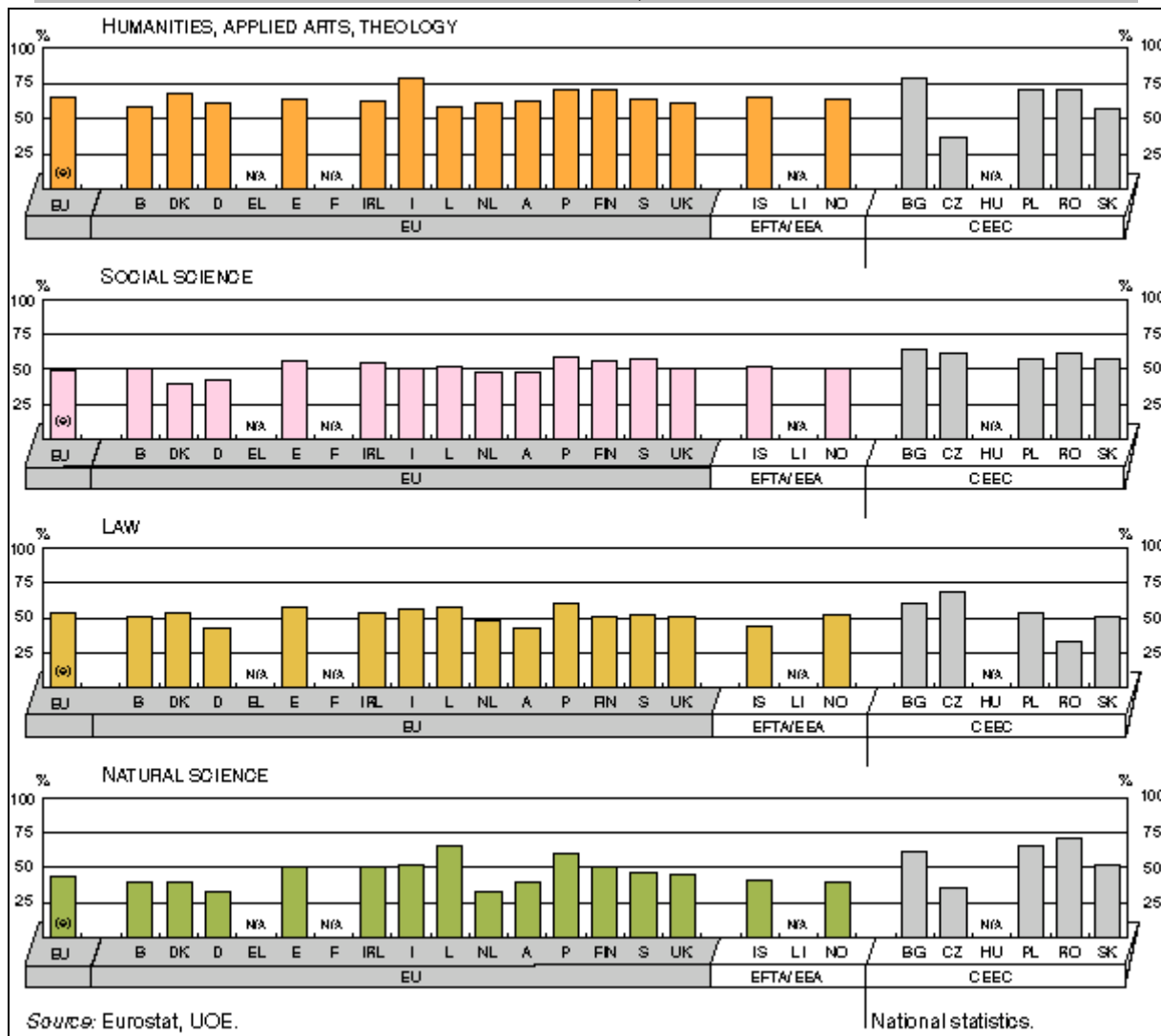
WOMEN PREFER ARTS AND MEDICAL SCIENCES

Some subject areas are more often chosen by women than others. Throughout the European Union, more women than men choose the medical sciences, which include nursing, and 'humanities, applied arts and theology'.

The large proportion of women in the medical sciences can be clearly seen in Denmark (80%), Finland (84%) and the United Kingdom (77%). However, in Italy, where the balance of men to women on these courses is equal, more women tend to choose 'humanities, applied arts and theology'.

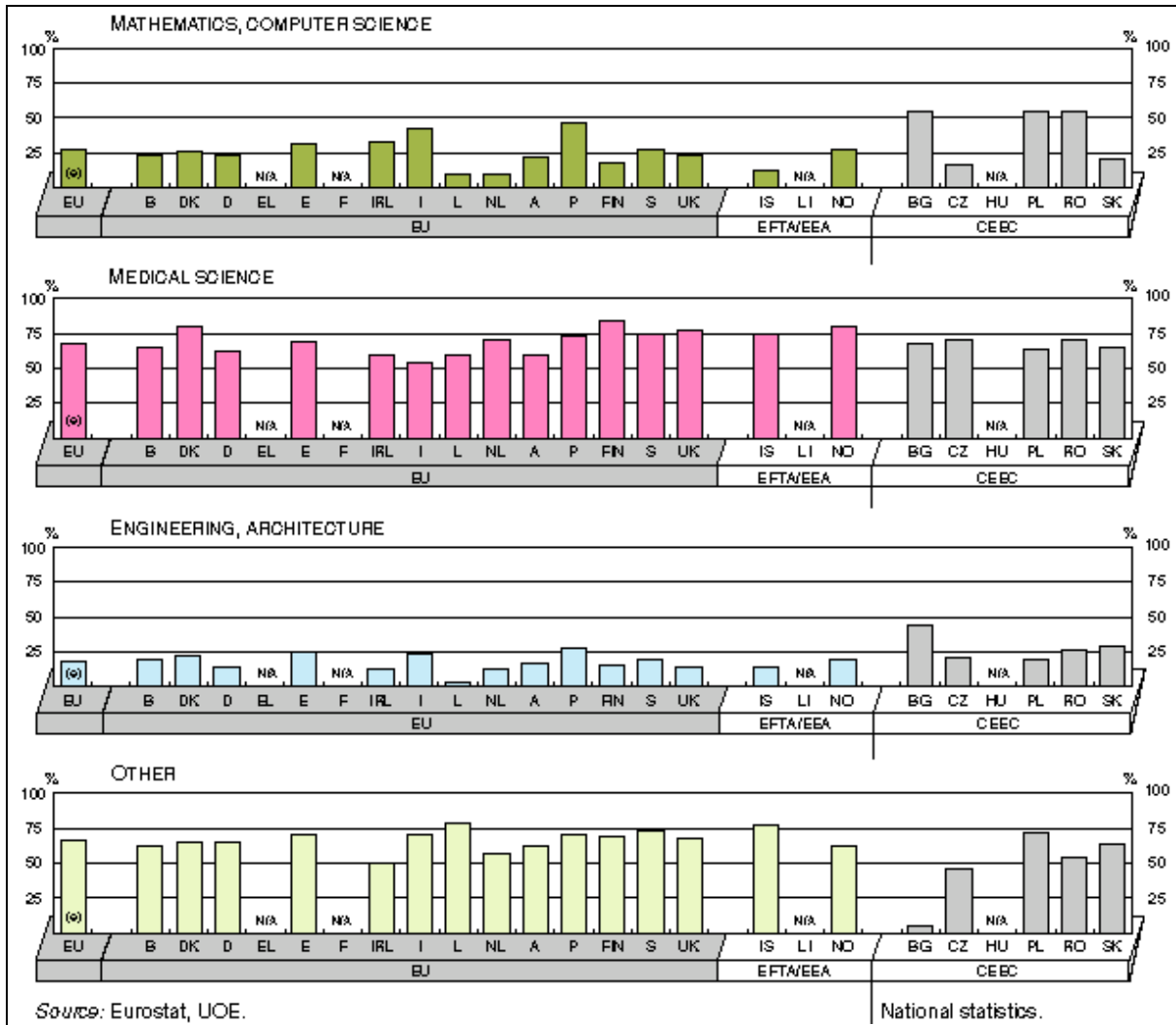
Women tend to be underrepresented in 'mathematics and computer science' and in 'engineering and architecture' in all Member States. However, the proportion of women enrolling on courses in these subjects is relatively higher in Spain, Italy and Portugal than in the other Member States.

FIGURE F14: PERCENTAGE OF WOMEN STUDENTS IN HIGHER EDUCATION BY FIELD OF STUDY, 1994/95



Belgium: 1993/94.

FIGURE F14 (CONTINUED): PERCENTAGE OF WOMEN STUDENTS IN HIGHER EDUCATION  
BY FIELD OF STUDY, 1994/95



Source: Eurostat, UOE.

National statistics.

Belgium: 1993/94.

In the EFTA/EEA countries, there are also more women than men on courses in the medical sciences (over 75%) and in 'humanities, applied arts and theology'. They are less represented in 'mathematics and computer science' and 'engineering and architecture'.

#### EXPLANATORY NOTE

Using the ISCED definitions of fields of study, Eurostat classifies subjects into eight groups in the following terms: humanities, applied arts and theology; social science (including business administration and mass communication and documentation); law; natural science; mathematics and computer science; medical science (including nursing); engineering and architecture (including trade, craft and industrial programmes); other and unspecified (including education science and teacher training; agriculture; home economics and service trades).

A rate is calculated for each study area and the European Union rate is calculated by dividing the total number of female students by the total student population for all Member States, and multiplying the result by 100.