Central European Centre for Women and Youth in Science

Central European Centre for Women and Youth in Science
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Gender Issues in Science as a Luxury

Enwise follow-up activities in Central Europe

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1 Introduction

Results of different analysis and studies over the last ten years show gender imbalance in the field of science. The result is the loss of important intellectual resources, mainly of women, which is a loss for the scientific community and society as a whole. The failure to take advantage of this potential enrichment harms also European interests and it is not in accordance with the efforts of European Union and European countries that are trying to create knowledge based societies. As a result, during recent years the necessity of the provision of equal opportunities for women and men has been pointed out by the documents of the European Commission and also of the Council of Europe.

1.1 Background

We can notice the increased attention to gender equality in science and research and particularly science policy. In 1998 the European Commission set up an expert group on women in science (ETAN – European Technology Assessment Network). Its members came from ten Member States of the European Union: Belgium, Denmark, Finland, France, Germany, Great Britain, Italy, the Netherlands, Spain and Sweden. The group submitted a report on women in science in the European Union (Osborn et al., 2000) which primarily discusses the position of women scientists in Western Europe (European Commission, 1999) and pointing out the need to put more effort into improving the situation.

At the end of 1999 the Helsinki Group on women and science was set up, composed of official representatives from 32 countries, mostly Member States of the European Union. In 2002 the group prepared a report (European Commission, 2002) based on national reports discussing national policies promoting women in science in the involved countries. The report revealed the unfavourable situation of women in research and development overall, while it also pointed to large differences between the (then) member states and candidate countries. The main objective of the group continues to be support for the most effective possible participation of women in research and development by discussing national rules and regulations. As all national reports mention that there is a lack of proper sex-disaggregated statistics and of harmonised data from the countries, the group nominated national statistical correspondents to facilitate the harmonisation and development of statistics.

The attempts to generalise the findings of the ETAN Expert Group over the countries outside Western Europe exposed the need for additional studies. Thus in 2002 the European Commission established the Enwise Expert Group (Enwise – Enlarge Women In Science to East) with members from Central and Eastern Europe and the Baltic States (The Enwise countries are Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia). The main objective of the group was to prepare recommendations on how to raise awareness of the need for gender equality in scientific research in the Enwise countries, how to improve the place and role of their women scientists in European scientific research, as well as how to increase their participation in the Community Research Framework Programmes. On the basis of the national contributions delivered by the members, the expert group prepared a report on women and science in the Enwise countries (Blagojević et al., 2004). The report highlights that for many women, becoming a scientist often means accepting an under-funded position within the scientific community, a double burden in maintaining a satisfactory work-life balance and an implicit expectation that all hindrances form part of the private sphere without any public recognition or remedy. It discusses the main structural factors defining the ways in which perceptions and policies of gender equality have

evolved in the Enwise countries from pre-communist times through the communist regime and to the transition to the market economy.

Furthermore, it describes the respective research and development systems and their evolution, as well as the position of women scientists. It gives an overview of the participation of women from the Enwise countries in the European Research Area, revealing the following main problems:

- there are big differences among the scientific disciplines, the proportion of women is high in social sciences but very low in engineering
- women mainly work in those fields where the salaries are the lowest and the circumstances the worst
- very few women work in industry, where the financial conditions are the best
- more than 40% of PhD degrees are acquired by women but their representation is much lower in the upper levels of the hierarchy.

The Enwise report also contains recommendations on how to strengthen the role and place of women scientists from the Enwise countries in the European Research Area (see Section 1.2)

1.2 Context of this report

The Central European Centre for Women and Youth in Science (CEC-WYS) is a project funded by the European Commission. The consortium brings together partners from the Czech Republic, France, Hungary, Italy, Romania, Slovakia and Slovenia. The project is based on the report delivered by the Enwise Expert Group. In its mission statement (CEC-WYS, 2004) the CEC-WYS project calls to attention that women in Central and Eastern Europe face double marginalisation. On their way to the top they face social and institutional barriers stemming from the traditional roles of women in society and family and stereotypically perceived qualities of women and men. Despite, or even because of, state socialist equal treatment policy, the traditional division of roles and labour, both outside and inside the family, has not changed. In the post-socialist context many women (as well as men) scientists were faced with the consequences of isolation and exclusion from western R&D development, resulting in a lack of networking, required skills and self-confidence necessary for participation in international research projects. Young scientists as well face the consequences of the communist legacy and new demands of the present in the R&D sector. The low investment in R&D results in low salaries and limited technological horizons, encouraging people to brain drain, especially to the commercial sphere.

The objective of the Central European Centre for Women and Youth in Science was to empower women and young scientists in Central Europe and contribute to achieving gender equality in R&D. This was achieved through the following activities.

- Raising visibility and inclusion of women scientists in the scientific community by
  - creating an interdisciplinary database of women scientists from Central Europe, awareness of which was promoted among national and international organisations, industrial bodies and R&D employment sites
  - developing information material and workshops for women to inform and mobilise them to register in the European Commission database of expert evaluators
- Building capacity and skills by
  - developing a Project Sourcebook which introduces the European Commission research funding tools and offers experience-based tips and suggestions on proposal writing and project coordination and management
  - fostering reflective practices among scientists by developing a manual on the inclusion of the gender dimension in research questions and

methodology and organised workshops to introduce the concept and look at concrete examples of how this can be done
    - holding seminars for young men and women scientists, aiming to prepare young researchers to take ownership of their research projects, and to develop skills in communication and responsible conduct of science, and provide them with skills to enable them to develop into effective supervisors and mentors, based on the Reflexives programme
    - explaining and informing scientists about the opportunities and processes of participating in European Commission funded research,
- Contributing to policy development, by
    - Based on the Enwise expert group recommendations concerning the position of women in science in Central and Eastern Europe, CEC-WYS partners monitored policy developments by conducting a mapping exercise and writing national reports and a comparative international report with which to lobby at national level
    - CEC-WYS has built on the Enwise Workshop on Young Scientists and follow-up online questionnaire to write a report on young scientists' perceptions of the issues they face. Results have been made publicly available and synergised with the activities of other organisations and activities concerned with young scientists as a tool to lobby for policy development.

1.3 Purpose of this report

This report brings together findings of an international mapping of the situation of women in science conducted by the Central European Centre for Women and Youth in Science. Four countries were involved in the mapping: the Czech Republic, Hungary, Slovakia and Slovenia. The mapping was inspired by recommendations of the Enwise report. The underlying rationale was that the *de facto* implementation of these fairly general recommendations depends on specific conditions in each country including the current level of institutional support and infrastructures at state level to the local communities, on the prevalent value orientation regarding gender equality, on the personal attitudes of key policy makers, on the sensitivity, and willingness to implement necessary change amongst responsible staff, and on their ideas regarding the future practical activities and measures.

The aim of the Enwise Follow-up Report is twofold: first, we want to present current legal developments in gender equality in science and some current statistical data on the situation of women in science. Second, we want to map empirically the situation facing women scientists after the Enwise project as seen through the eyes of policy makers, researchers at leading positions and public media. These three groups of stakeholders were selected in view of the Enwise recommendations aimed specifically at these three groups at the national level. The Enwise report identified them as instrumental for achieving change in the perception of women in science and gender equality issues in research and development.

The mapping of knowledge and attitudes to the position of women in science and research had two goals: **scientific** and **political**. Scientifically we were interested in how the three groups of respondents represent the issue of gender equality and what knowledge they have of the issue. Politically we aimed at drawing the attention of relevant actors to the issue of gender equality in research and development – through the means of conducting the mapping exercise, we intended to prompt them to think and reflect upon the issue and their contribution to the current situation and possible change.

Our hope is that the mapping results and the corresponding recommendations provided by our work will contribute to improving the position of women in science in each of the countries involved and possibly beyond.

1.4 Links to the Enwise report

As has already been mentioned the necessity of the provision of equal opportunities for women and men has been pointed out by the documents of the European Commission and also of the Council of Europe. Special efforts have also been made towards achieving gender equality in science. Thus women's potential for the creation of new knowledge and better quality of life in general could be used more fruitfully. The Enwise report points to several problems and puts forward a set of recommendations. Out of the set of the Enwise report recommendations to major policy makers at different levels some have to be emphasised:

- National educational policies should pay special attention to creating a general approach supporting gender mainstreaming from elementary school to higher education.
- At universities and scientific institutions a department or a person should be appointed responsible for supporting "women and science" issues and implementing employment policies focusing on equal opportunities.
- The media should improve its image of science and conduct awareness raising campaigns in the Enwise countries. The general image should be more attractive for women and the younger generation.

Taking a look at statistical data, we can see that in 2001, 1 084 726 researchers worked in the enlarged European Union, 47% in industry, 15% in the budgetary sector and 36% in higher education. Although at least half of higher education graduates are women, their proportion among researchers is much lower and they are extremely poorly represented among leaders of the scientific community. The following situation can be observed in the 15 old member states and the 8 new Central and Eastern European member states. In the 15 old member states of the EU the percentage of women among researchers was 34% in the higher education sector, 31% in the governmental sector and 15% in industry in 2000, while in the associated countries[1] the respective portions were 37%, 41% and 31%.

It is apparent that the proportion of women among researchers is higher in the new Central and Eastern European member states than in the old member states (39.5% vs. 27.2%). This is good news but unfortunately the situation of women in these countries is not better than in Western Europe, since:

- the proportion of female researchers is the highest in those scientific fields and countries where the least money is spent on research from the GDP;
- women are usually substitutes for those men that left the research profession because of its decreasing prestige and the dwindling salaries over the past 15 years.

For this report we performed mapping that was inspired by the Enwise recommendations as a general starting point. The results of this mapping show the situation at national level of the four countries, which is important for concrete implementation of the Enwise report recommendations. The specific recommendations from this report are common for several countries in some cases and in the others specific to one or maybe two countries.

[1] Associated countries were at that time: Bulgaria, Cyprus, Czech Republic, Estonia, Iceland, Israel, Poland, Latvia, Lithuania, Hungary, Malta, Norway, Romania, Switzerland, Slovakia, and Slovenia. EU member since 2004: Cyprus, Czech Republic, Estonia, Poland, Latvia, Lithuania, Hungary, Malta, Slovakia, Slovenia.

1.5 Who was involved in the national reports this report is based on

In the mapping conducted in Hungary and Slovenia, three groups of respondents were contacted and asked to fill the questionnaire. The first investigation was directed at **the policy makers in national politics** (questionnaire A): we included people working in decision-making positions at the relevant ministries (in Slovenia: Ministry of Higher Education, Science and Technology, Ministry of Education and Sport, Ministry of Labour, Family and Social Affairs, in Hungary: the National Office for Research and Technology, Governmental Office for Equal Opportunities, Ministry of Education, Ministry of Foreign Affairs, members of the Parliament; as well as the responsible governmental representatives working in the Commission for Education, Science and Technology, Commission for Culture and Sport, Office for Equal Opportunities, and Public Relations and Media Office. The investigation of **media** included representatives of the decision-makers in the public influential press (eg., in Slovenia: Delo, Večer, Dnevnik, Primorske novice), national radio and television (eg., in Slovenia: RTV SLO). The investigation in the field of **science and research** addressed R&D representatives (questionnaire B): we included senior representatives of the higher education institutions (rectors and vice rectors of universities, deans of faculties, directors of research institutes and public infrastructure institutes), representatives of the Slovenian science foundation and the Slovenian and Hungarian Academy of Sciences.

In the mapping conducted in Czech Republic and Slovakia in-depth interviews were key sources of data. Face-to-face interviews were conducted with relevant politicians and policy makers, with representatives of science and/or researchers and with journalists engaged with the science and technology agenda. In each category of interviewees the effort was made to reach persons in positions of decision power (i.e., high in the academic hierarchy, journalists from major newspapers) who apparently have an influence on the course of events. The investigation of **national policy makers** included representatives in charge of research and education policy (in Slovakia: Ministry for Education and Sport - former Minister, head of Department for R&D, in Czech Republic: Ministry for Education, Youth and Sport, the then Governmental Council for Research and Development, the Association of Research Organisations). The investigation in the field of **science and research** included senior representatives of the higher education institutions (rectors and vice rectors of universities, deans of faculties, and in Slovakia: the vice-president in charge of PhD programme and budget of the Slovak Academy of Sciences, the National Council (members from Committee for Human Rights, Minorities and State of Women) and in the Czech Republic: representatives of the Academy of Sciences). The investigation of **media** included well known journalists who are engaged in the field of science and research (in Slovakia: head of press agency SITA, SME. DOMINO FORUM, PRAVDA, SLOVENKA, in Czech Republic: Lidové noviny, MF Dnes, Hospodářské noviny, Czech Televinsion, Czech Radio Broadcasting 8, Respekt weekly, aktuálně.cz online information portal, Osel online portal).

2 Women in science in CEE countries: State of the art

2.1 Legal framework

Even though all four countries have their gender equality legislation harmonised according to the EU requirements, they are at different levels of implementing it in practice both in policy and in other walks of life, including research and development. Here we provide detailed description of the situation in each of the four countries as can be observed at the end of 2006.

2.1.1 Czech Republic

The issue of women in science is a fairly recent one on the political agenda in the Czech Republic. The opening of a debate and actions was closely linked to the EU attention to the issue and the establishment of the Helsinki Group for women in science in 1999. In 2000 the Ministry of Education, Youth and Sports of the Czech Republic set up the Steering Committee for Women in Science, with representatives from the academic, university and industrial research, Czech Statistics Office, the NCP organization, gender experts and the two Helsinki Group delegates. After the establishment of the National Contact Centre for Women in Science (NCCWS) in 2001 based on a grant proposal submitted to the Ministry of Education (under the EUPRO programme supporting international cooperation in R&D), the coordinator of the centre was elected the chairwoman of the Steering Committee.

There is no specific official state body dealing with equal opportunities in R&D and there is not a single anti-discrimination law in the Czech Republic although it was submitted to the Parliament in 2006.[2] The Czech Labour Code contains anti-discrimination provisions, including direct and indirect discrimination, sexual harassment and consecutive term contracts. This protection however does not apply to university and academic staff.[3].

In 1998 the government adopted gender mainstreaming as the national strategy for implementing equal opportunities and the Ministry of Labour and Social Affairs was charged to co-ordinate equal opportunities activities in the Czech Republic[4].

There is also the Council of the Czech Republic for Equal Opportunities between for men and women[5], established in 1998, as an advisory body of the cabinet. Unfortunately, the Council has no executive powers.

In R&D policy documents the issue of the position of women in science is mentioned only in relation to the development of human resources and is merely declarative. There is no specific governmental programme funding either gender research or activities aimed at supporting women in science. The only exception is the NCCWS which, however, is an advisory centre for the Ministry of Education, has no powers and its funding is dependent on the flow of the grant support (should the programme for international cooperation from which it is funded be cancelled, the flow would cease).

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2 The Parliament did not manage to debate the bill of law and therefore it had to be submitted again due to the elections in June 2006.

3 The argument was that permanent contracts may result in poor performance of researchers. The NCCWS has been contacted on several occasions by women researchers who feel that their contracts were terminated based on their sex. There is no transparency in terminating fixed-term contracts; generally, it is up to a head of department at university or director of an institute of the Academy of Sciences to make such a decision.

4 Resolution of the Government No. 6/1998.

5 Resolution of the Government No. 1033/2001 at http://www.mpsv.cz/files/clanky/2027/Resolution.pdf.

2.1.2 Hungary

The legal framework of gender equality in Hungary corresponds to the EU directives. The Constitution and the Labour Code include the prohibition of discrimination based on gender. Hungary became a member of the Convention on the Elimination of All Forms of Discrimination against Women in 1982. The Act on Equal Treatment and the Promotion of Equal Opportunities was accepted in 2003, and the Equal Treatment Authority was funded.

The Council for Women's Issues, founded in 1999, was renamed to become the Gender Equality Council from October 2006. It is a consultative and advisory body for the preparation of governmental decisions. Its members are a president and a secretary nominated by the minister responsible for gender equality, representatives of ministries and NGOs and persons carrying out scientific or practical activities in gender equality nominated by the minister.

Policy competence for gender equality in R&D belongs to two governmental institutions: research belongs to the National Office for Research and Technology and gender equality to the Ministry of Social Affairs and Labour, to the Gender Equality Unit under the Department of Equal Opportunities at the Directorate for Equal Opportunities. The majority of women and men working in research either do not know the gender equality in science issue or do not acknowledge the existence of problems because of a lack of information and awareness. The positive developments of the recent year are to a large extent due to the work of the Enwise group and the CEC-WYS project, but their sustainability is indefinite.

2.1.3 Slovakia

Generally the issue of equality of opportunities and all the related topics are currently determined by institutional, cultural and psychological heritage of the communist legacy on the one hand and on the other hand by very conservative efforts of the Christian-Democratic Movement (KDH) in the area of social policy and role of women in society. During the communist rule the public sphere became open for participation of women who occupied positions in the labour market including professions which were considered to be the traditional domain of men (e.g. legal, economical and medical professions, pharmacology). Slovakia's EU accession in 2004 also stimulated the transposition of EU legal acts concerning equal treatment into national legislation.

Currently there is a draft of Measures for Harmonization of Family and Working Life for Year 2006 with an Outlook to Year 2010 (2006) – the goal of this draft is to support the growth of the employment rate and to support the employment of people with family duties and eliminate the situation whereby such persons are forced to choose between employment or family, or become an object to discrimination on the labour market or in employment because they are taking care of their family.

The National Employment Rate Action Plan for Years 2004-2006 focuses on issues of equal opportunities in all areas as complex, integral and integrating agenda. The Anti-Discrimination Act, which took effect on July 1 2004, is implicitly understood as sufficient legal norm for treatment of equal opportunities issues not only among policy makers but also among the wider public. The Anti-Discrimination Act does not constitute any possibility of compensatory measures nor affirmative action. Gender issues are understood also by scientists as a purely sociological matter with no relationship with the subject, methods and results of their actual research.

Moreover, gender issues are perceived as an imported topic and are displaced in domestic social–economic, political and cultural context by other problems, widely considered as more important (high unemployment rate, low-cost labour, regional

disparities, effects of social and economical reforms on the population, especially the effects of social insurance reform and health service reform, Roma issues, demographic problems etc.). Analogically, in the sphere of science gender studies are considered as not relevant (interviews with women scientists in (Sedová et al. 2005)), and there are more pressing and real problems in science and research – science financing, insufficient infrastructure, under-financed scientific work and its low social status, lack of interest of young people in scientific career and leaving science to work in other sectors.

2.1.4 Slovenia

The situation of women in science in Slovenia at the turn of the 20th-21st centuries has not changed dramatically in spite of the change of political system. The course of the transition from the self-governmental socialism to capitalism (with multiparty democracy) was not been realised by shock therapy and so processes of gender equalization in the field of science and research, as elsewhere in society were not fundamentally interrupted in spite of strong tendencies towards the re-traditionalisation of the patriarchal (androcentric) order. However, this does not mean that manifestations of women's discrimination have been eliminated. The EU strategy of gender mainstreaming since the middle of the 1990s, when Slovenia became a candidate country for joining EU, until the inclusion of Slovenia into EU in 2004 contributed to limiting attempts to re-patriarchalise Slovenian society.

The contemporary (institutional) activities regarding the abolition of gender inequality are thus based on historic (socialist) heritage and supported by EU gender equality policy statements. At present the Governmental Office of Equal Opportunities (constituted in 1992 as Governmental Office of Women's Policy) and the network of equal opportunities coordinators (first appointed in 2004) at all ministries should be mentioned among the institutions responsible for the advancement of women in science and research in Slovenia.

Following the example of the European Commission establishing Helsinki Group on Women and Science, the ministry responsible for science together with Slovenian Office of UNESCO established National Committee for Women and Science in 2001 (http://www.mvzt.gov.si/). The National Committee is an expert body active in the following fields: awareness raising, networking, and preparing recommendations. Women's position in science has not been invisible and neglected in the recent past. During the 1990s the Slovenian Office of UNESCO (which also financially supported the sociological research of the Slovenian female scientists in 1996) provided the impetus for raising gender equality issues in science and research.

2.2 Statistical data on the situation in the four countries

The share of R&D expenditure as a proportion of GDP is commonly observed from statistical data. In all the four countries considered here it is lower than the EU average (Table 2.1). There are big differences between the countries Slovakia having the lowest expenditure (0.53% of GDP) and Slovenia the highest (1.61% of GDP).

Table 2.1. R&D expenditure as a percentage of GDP, 2004. Source: Eurostat.

Country	R&D as % of GDP
Czech Republic	1.28 %
Hungary	0.89 %
Slovakia	0.53 %
Slovenia	1.61 %
EU 25 average	**1.90 %**

Observing the percentage of PhD graduates in Europe, we can see that in average 43% are women (see Table 2.2). In three out of the four countries this proportion is around the EU average, while in the Czech Republic it is lower (35%). The field of engineering has the lowest proportion of female graduates (the lowest is Slovenia with 19.3%) while the highest can be seen in education (the highest in Slovakia 72.4%) and humanities (the highest is Slovenia with 63%). In the EU on average there is a similar situation, with 60.5% of women in education and 21.9% in engineering.

Table 2.2. PhD graduates: proportion of women among PhD graduates, 2003. Source: She Figures 2006.

Country	**total**	education	humanities & arts	social sciences, business & law	science, mathematics & computing	engineering, manufacturing & construction	agriculture & veterinary	health & welfare
Czech Republic	**35%**	66.7%	48.6%	40%	36.7%	22.3%	36.7%	42.2%
Hungary	**43%**	59.5%	56.4%	35.9%	37.5%	29.7%	32%	43.3%
Slovakia	**41%**	72.4%	46.2%	49.6%	57.3%	26.2%	32.1%	71.3%
Slovenia	**41%**	60%	63%	37.7%	44.8%	19.3%	36.4%	52%
EU 25 average	**43%**	60.5%	51.4%	43.1%	40%	21.9%	49.6%	51.1%

However, if the proportion of women among researchers is observed, then it is obvious that it is considerably lower than the proportion among PhD graduates for all the involved countries except Slovakia (see Table 2.3). For instance, while in Czech Republic 35% of PhD graduates are women, only 24.9% of researchers are women.

Table 2.3. Researchers by discipline: Proportion of women among researchers by discipline. Source: CEC-WYS D8.3.1, 2006; SORS 2005,
http://www.klemens.sav.sk/fiusav/cecwys

	Czech Republic 2004	**Hungary 2005**	**Slovakia 2004**	**Slovenia 2003**
natural sciences	26,0%	29,1%	36,7%	33,6%
technical sciences and engineering	13,8%	19,9%	29,4%	20,0%
medical sciences	44,9%	45,4%	59,7%	52,3%
agricultural sciences	38,3%	36,5%	45,6%	39,4%
social sciences	40,6%	36,4%	50,3%	46,2%
humanities	40,6%	47,8%	49,7%	42,2%
Total	***24,9%***	***34,2%***	***41,3%***	***35,1%***
number of women	4 052	10 731	9 176	2 466
total number of researchers	16 300	31 407	22 217	7 027

Observing research staff by category we can see that Slovenia has the highest number of scientific staff per million people, followed by Hungary, Slovakia and Czech Republic in fourth place (see Table 2.4). In all four countries women constitute the majority of technical and other staff, but they are less well represented among scientists, ranging from 24,9% in the Czech Republic to 39,6% in Slovakia.

The private sector where the proportion of women is the lowest in all four countries employs the highest number of researchers in the Czech Republic (see Table 2.5). Women are best represented among researchers in the budgetary R&D institutions (governmental sector) in all four countries where the salaries are usually lower than in private sector.

Table 2.4. Proportion of women among research staff by category. Source: CEC-WYS D8.3.1, 2006; SORS 2005, http://www.klemens.sav.sk/fiusav/cecwys

		scientists and engineers	technical staff	other staff	total	population (appr.), million people
Czech Republic	total number	16 300	9 446	3 020	28 765	10.30
2004	number of women	4 052	3 407	1 348	8 808	
	% of women	24.9%	36.0%	44.7%	30.6%	
Hungary	total number	31 407	8 663	9 653	49 723	10.08
2005	number of women	10 731	5 803	6 679	23 213	
	% of women	34.2%	67.0%	69.2%	46.7%	
Slovakia	total number	15 385	3 792	1 848	21 025	5.43
2002	number of women	6 086	1 965	1 048	9 099	
	% of women	39.6%	51.8%	56.7%	43.3%	
Slovenia	total number	7 081	4 250	1 170	12 501	2.00
2003	number of women	2 435	1 673	655	4 763	
	% of women	34.4%	39.4%	56.0%	38.1%	

Table 2.5. Researchers by sector: Proportion of women among scientists and engineers. Source: She figures, 2003.

		budgetary R&D institutions	higher education sector	private sector	non-profit	**total**
Czech Republic	total number	4 661	4 274	7 297	67	**16 300**
2004	number of women	1 591	1 324	1 116	21	**4 052**
	% of women	*34,1%*	*31,0%*	*15,3%*	*31,3%*	***24,9%***
Hungary	total number	6 213	19 086	6 108	-	**31 407**
2005	number of women	2 371	6 979	1 381	-	**10 731**
	% of women	*38,2%*	*36,6%*	*22,6%*	-	***34,2%***
Slovakia	total number	4 402	11 192	5 425	6	**21 025**
2002	number of women	2 409	4 828	1 859	3	**9 099**
	% of women	*54,7%*	*43,1%*	*34,3%*	*50,0%*	***43,3%***
Slovenia	total number	1 856	2 989	2 012	224	**7 081**
2003	number of women	803	985	569	78	**2 435**
	% of women	*43,3%*	*33,0%*	*28,3%*	*34,8%*	***34,4%***

2.3 National activities after Enwise

After the Enwise report was finished and presented to the EC, a number of activities took place. It would not be accurate to say that they were all triggered by the Enwise report but we can say some of them are probably influenced by the Enwise report. Here is a brief summary of the activities related to women in science issues as reported for each of the four countries (CEC-WYS D8.3.1, 2006).

2.3.1 Czech Republic

The main national activities in Czech Republic we would like to point out are (1) organization of women scientists' conference, (2) triggered activity of main national bodies including Grant Agency of the Czech Republic, The Academy of Sciences and Universities, (3) activity related to issues of women in decision-making.

The conference *Paths through the Labyrinth: why there are so few women in the sciences.* was organized by the project coordinator of CEC-WYS in the Parliament of the Czech Republic in October 2005. Namely, in 2005 the project coordinator of CEC-WYS was contacted by Czech MP Anna Curdova with the proposal to organise a women and science conference. The conference was organised under the auspices of the then Deputy Prime Minister for Economics Martin Jahn and MP Anna Curdova. It gathered approximately 200 women scientists, MPs and other stakeholders. Johannes Klumpers, Acting Head of Unit of Women and Science Unit in DG Research and Ms Karine Henrotte Forsberg, the President of the International Federation of University Women and the head of the Equality/Parity Grouping at the Council of Europe were among the speakers. The conference was organised at around the same time as the interviews described in this report were being conducted in the Czech Republic and this resulted in a greater receptivity to the issue, willingness to give interviews and address the issue of women in science.

The conference resulted in seven recommendations for policy makers, grant agencies and research institutions which were disseminated in December 2005 with examples of policy measures adopted in other European countries. As a result of the recommendations dissemination campaign, NCCWS has received responses from the relevant stakeholders addressed, including the Deputy Prime Minister for Economics responsible for R&D, with their pledge to address the issue of women in science. Most notably, the Grant Agency of the Czech Republic clarified its position on the extension of the age limit for caring parents for early stage postdoctoral research projects and will address the issue of short-term interruption of a research grant implementation due to parenting responsibilities. The Academy of Sciences will be addressing potential work-life balance measures at one of its next meetings of the Academic Assembly. Similarly, universities are looking into their rules for PhD completion deadlines for caring parents.

Apart from work-life balance issues, the recommendations concerned low representation of women in decision-making in R&D and policy making, low numbers of girls and young women in natural and technical disciplines. NCCWS will continue to work with the Ministry of Education, Youth and Sports on developing programmes for girls and young women in science under the new priority for Human Resources in the Structural Funds funding scheme and with Council of the Government and leaders at research institutions regarding the promotion of women for decision making.

2.3.2 Hungary

In the activity of Hungary, we find the most important (1) public discussion on situation of female researchers, (2) initiatives of Ministry of Education, (3) re-establishment of Women in Science Operative Committee.

The Enwise report inspired the Hungarian Enwise expert Dora Groó (also collaborating in CEC-WYS project) to publish an article on the situation of female researchers in Hungary (Papp-Groó) in the November edition of “Hungarian Science” (11/2005). The article got very positive comments that were also published as response. Additionally the minister for equal opportunities publicly commented on the article.

On 26 October 2005 Hungarian Science and technology Foundation representatives met with the Minister of Education and the Hungarian Research Student Movement. Following this, a press conference of the Minister of Education and the National Office for Research and Technology on 23 November 2005. declared that it was important for the economy to support women in scientific careers and they plan a set of initiatives to pursue this goal.

The Women in Science Operative Committee was re-established in Hungary by the National Office for Science and Technology Foundation; the leader of the Hungarian Reseach Studet Movement; by request of the Minister of Education, who wishes to include the equal opportunities of women and men into the educational and research policy. The Operative Committee was set up in autumn 2005 to support the work of the Hungarian Helsinki Group delegate.

2.3.3 Slovenia

Among the national activity in Slovenia on women in science we would like to point out three groups of activities: (1) activity under CEC-WYS related to women in ICT, (2) activity of Slovenia national Committee for Promoting Women in Science, (3) activity of CEC-WYS conducted in collaboration with FP6 project PASCAL.

After the Enwise report the Slovenian Enwise expert Dunja Mladenić (also collaborating in CEC-WYS project) was invited to International Symposium on Women in ICT contributing a paper on Slovenian perspective on women in ICT (Mladenić, 2005). This triggered several activities in Slovenia related to women in ICT including physical and virtual exhibition on Slovenian women in ICT and organization of an international workshop on women in ICT. This also triggered a more general promotion action for promoting science in high school which is conducted in collaboration with Slovenian Association of Young Researchers.

CEC-WYS prepared an exhibition for promoting women in ICT. The women who participate in the exhibition have all received a PhD in Computer and Information Science at one of the Slovenian Universities. They contributed short, promotional description of their work and personal experience being in science. With the exhibition we want to illustrate that scientific work may indeed require constant studying and research, but it is also fun and fulfilling. We also want to show that women also can achieve the highest degree of expertise in computer and information science and through this also the decision-making positions. Our hope is that the exhibition will contribute to breaking the stereotype that computer and information science is a study programme in which only men can be successful. Personal stories of women scientists also show that despite the fact that scientific work is very demanding, there is also time for family, friends and hobbies. Nevertheless, the exhibition is also pointing out some problems with which women in Slovenia are faced within science.

By the beginning of 2006 there were 17 women among 87 PhDs who finished their studies in computer and information science at the University of Ljubljana. At the University of Maribor 47 students finished their PhDs in computer and information science by that time and 6 of them were women. The project was prepared at J. Stefan Institute by Dunja Mladenič providing the project outline and co-ordination; Darja Brodnik collecting and editing the materials; Dalija Sega providing artistic concept and design.

Since 2001 Slovenia has National Committee for Promoting Women in Science, so the activity inside CEC-WYS was synchronized. Although the general political situation in Slovenian is not women-friendly and there is a strong increase of neo-liberal ideology and measures, steps are being made where possible. The Slovenian leader of CEC-WYS has been invited to the regular meetings of Slovenian Committee for Promoting Women in Science. The committee is very active in Slovenia supporting different events (eg., a round table on women in science at Slovenian Science Foundation festival of science), pointing out problematic issues (eg., under representation of women among national scientific award winners), publishing reports (eg., M. Jogan “Why EU stimulates inclusion of women in science”), supporting collaboration (eg., exhibition on women in physics in Slovenian history organized by the Slovenian network of women scientist in physics).

In early 2006 one of the Slovenian Universities, University of Primorska established a gender equality board. In collaboration with EU FP6 project PASCAL we in CEC-WYS organised Women in Science related events as a part of the Workshop on "Complex Object Visualization" at University of Primorska, Slovenia. There was an opening by the University Rector followed by welcome of the Faculty of Education Dean. The event included an invited talk on Gender issues in user interfaces (Corina Bath) and a round table on gender issues with two invited talks, one by the President of Slovenian National Committee for Promoting Women in Science and the other by the Slovenian Enwise expert.

2.3.4 Slovakia

Among the activities in Slovakia, we would like to point out (1) promotion of issues related to gender equality and equal opportunities in the scientific sphere and as a social problem in the media, (2) establishment of Committee for Equality at Slovak Academy of Science,(3) triggered activity of the several decision-making bodies including European Science Foundation Agency for the Support of Science and Research, The Academy of Sciences and National Agency for Promoting Research and Development.

Sylvia Porubänová, member of the Slovak CEC-WYS team and advisor to the Committee of the National Council of the Slovak Republic for Human Rights, Nationalities and the Position of the Women succeeded in bringing gender issues as a social topic into print and electronic media (including PRAVDA, NOVÝ ČAS, SME, NÁRODNÁ OBRODA, TV MARKÍZA, JOJ, TA3, STV, RADIO REGINA, TWIST etc.). During the three years of the CEC-WYS project there were 104 media outputs focused on various aspects of gender equality, including gender issues in science. Activities targeting decision-makers include disseminating the Enwise report, (while being aware of its implementation) and other women and science publications (She Figures 2002, Gender and Excellence in the Making, Excellence and Innovation-Gender Equality in Science, Women in Science: Making Change Happen and others) to all academic institutions and universities in Slovakia with the goal to stimulate gender awareness among responsible stake-holders.

The Committee for Equal Opportunities has been established at the Slovak Academy of Sciences. This is a big advance due to activities of the CEC-WYS Slovak team and especially former vice-president of the Slovak Academy of Sciences Tatiana Sedova (also collaborating in CEC-WYS). The committee is planning monitoring of salary gap in the Academy. The new Committee utilizes findings from the research conducted by and consults its activities with the Slovak CEC-WYS team (e.g. by monitoring vertical and horizontal bias).

The Slovak CEC-WYS team also organized meetings with representatives of European and national agencies supporting research and development (European Science Foundation, Agency for the Support of Science and Research) which resulted in information days in Bratislava concentrated on issues related to applying for research projects. One of the tangible outcomes was the increase of project applications submitted by young scientists. Concrete accomplishments were achieved also in supporting young scientists following our comments on the amendments to the University Act in the question of social support for PhD candidates and postdoctoral students. Also within the framework of "state programmes" for the promotion of research and development a special programme was set up to promote young researchers, which was later supplemented by youth-oriented calls from National Agency for Promoting Research and Development. As members of the Committee for Postgraduate Students of the Slovak Academy of Sciences, the CEC-WYS team supported the application of transparent criteria for staffing research positions by postdoctoral students and gender equality in the selection process of the candidates.

3 Methodology

The aim of the Enwise Follow-up Report was to map the situation facing women scientists after the Enwise project as seen through the eyes of policy makers, leading researchers and public media. These three groups of stakeholders were selected in view of the Enwise recommendations aimed specifically at these three groups at national level. The Enwise report identified them as instrumental for achieving a change in the perception of women in science and gender equality issues in research and development. In the initial stages of this work each national team identified major stakeholders in the three groups and these served as a basis for the selection of respondents for the mapping exercise. For the group of policy makers we targeted ministerial officials, ministers, members of the parliament and members of advisory or executive governmental bodies that are responsible for research and development and equal opportunities policies. Among researchers we aimed at reaching researchers who achieved a position of prominence, hold high managerial offices in universities and public research institutions in addition to being researchers and are members of executive and advisory R&D bodies. Among journalists we targeted mainstream national electronic and print media, their editors-in-chief as well as journalists and editors responsible for a science or science-related sections of newspapers or programmes (public communication and popularisation of science). The interviews were carried out and questionnaires collected in autumn 2005 in the Czech Republic (CZ), in summer 2005 in Hungary (HU), in spring 2005 (policy makers and media) and in autumn 2005 (researchers) in Slovenia (SI) and in autumn 2005 and summer 2006 in Slovakia (SK).

A questionnaire was developed for each of the three groups to examine the knowledge, awareness and attitudes of representatives of the three groups to the issue of gender equality in R&D, together with a brief request letter to participate in the mapping exercise. The partners used this request letter to explain the objectives of the mapping exercise. The questionnaire was similar for all three groups with specific attention paid to the role of journalists and journalism in communicating the issue of women in science to the public. Two teams (CZ, SK) decided to carry out the mapping exercise through face-to-face interviews and for this purpose modified the questionnaire into a semi-structured topic guide to guide the interview. The topic guide centred around the three core areas. Each of these contained a cue and specific questions to prompt answers if they were not forthcoming from the interviewees on particular issues. The two other teams (HU, SI) used the original questionnaire. The questionnaire contained mostly close-ended questions which allowed for statistical analysis.

There are differences in the approach towards the structure, methodology and interpretation in the four national reports. The Czech and Slovak reports use qualitative data and methodology developing specific frameworks useful for interpreting the situation in R&D in the specific country. The Slovenian report resonates in structure and approach with the Hungarian one including qualitative and quantitative analysis of the filled questionnaires. The differences in approach between the four countries are also visible in the use of language which resonates with the research background of each team.

3.1 Approaching respondents and reasons for declining

The method (a questionnaire or face-to-face semi-structured interviews) had an impact on the data collection and approach to respondents. The Slovenian and Hungarian teams which used the questionnaire sent out the questionnaires via mail and in some cases followed this up with email postings for electronic completion. They made subsequent telephone calls to prompt the completion. In Slovenia these

telephone calls were revealing – they made it clear that the respondents addressed did not feel confident about the issue and felt reserved about responding. Sometimes they resorted to making excuses due to lack of time. This excuse was used as an acceptable justification but must also be read as an indicator of the marginal position of gender equality in science and research among some people occupying decision-making positions. Thus, although in some cases the issue was declared to be relevant, participation was still declined. Some respondents also mentioned their lack of knowledge about this area and unwillingness to participate because of this reason. There were also instances when the team encountered outright mockery.[6]

In Slovakia the situation was quite similar. The respondents approached used strategies to avoid appointment times. Moreover, in the time when the interviews were being carried out a political crisis arose and led towards the disintegration of the coalition government and premature elections. This context influenced considerably the selected sample among media representatives because some respondents who originally agreed to give an interview declined completely, being fully employed by the political crisis and countless press conferences. In addition, the chief representative responsible for scientific education policy was replaced as well as the minister of labour, social affairs and family and so the originally agreed interviews did not take place.

Due to the selected methodology we can observe rather different response rates in different countries. The Czech team pre-selected a small number of respondents (35) and consequently had the good response (89%) compared to Slovakia contacting 50 persons and getting 32% response. Hungary and Slovenia had similar response, 14% and 22%, while contacting 285 and 344 persons, respectively (Table 3.1).

Table 3.1. Interviews/questionnaires completed

Country/respondents	Policy makers		Researchers		Journalists		Total
	male	female	male	female	female	male	
Czech Republic	3	5	8	3	6	6	31
Hungary	2	0	38	0	1	0	41
Slovakia	5	0	4	0	7	0	16
Slovenia	5	12	15	23	12	7	74

In the Czech group of representatives of science and journalists none refused to give an interview (Table 3.2) and most of them were very helpful. However, two out of 13 persons among the group of policy makers addressed with a request for an interview did not react at all and another three declined to be interviewed. All people from this group asked for the questions in advance and one of them only agreed to respond in a written form. This presents a strange paradox in the sense that the persons in positions with the highest formal obligation to public accountability were the least willing to participate in the mapping exercise.

Table 3.2. Interviews/questionnaires denied

Country/respondents	Policy makers	Researchers	Journalists	Total
Czech Republic	5	0	0	5
Hungary	15	50	179	244
Slovakia	14	8	12	34
Slovenia	64	130	76	270

6 For example, a dean of one of the members of Slovenian Universities said that in the past two years he had done very much for the women at their faculty. Quite many were offered employment, however, all of them as secretaries. In this way he revived the old belief that women were not capable of independent and innovative thinking but instead are only good at writing down, repetition and implementation of men's ideas.

After receiving confirmation on participation in the mapping, the Czech and Slovak teams arranged a meeting time for the expert interview. Expert interviews are used as a way of making tacit knowledge more explicit as the experts can provide a context for certain developments that are not visible from the outside. This however carries several problems. The first is obviously finding the time for the interview and being able to guarantee the agreed time (this was however a problem that all the partners faced regardless of the methodology used). Secondly, experts may feel uneasy if they cannot prove their expertise in an area of concern. Since we were concerned about the issue of gender equality in R&D, which is not a high priority for R&D, we expected a poor level of knowledge about the issue. Therefore, a specific approach had to be adopted which would not make people feel uneasy if they did not have the information and knowledge the research team was asking for. One of the strategies was easing into the interview and making the interviewees feel comfortable through more general questions regarding recent R&D developments in the country and country specific problems which they used as a bridge to the issue of women in science. It must be noted that all three groups of respondents pointed to the fact that they did not feel to be experts in the area of gender equality and thus resisted the framing of being an expert. On the other hand, since they were people in top positions in R&D or R&D policy, an expert-like approach had to be used in interactions with them.

3.2 Data analysis

The analytical approach in all the four countries was theme centred, in that the teams aimed to set the issue of gender equality in the larger picture of the R&D situation in each country and in the context of general attitudes toward gender issues and equal opportunities in society. For the comparative report, the results of all the fours national reports were compared performing a kind of meta-analysis.[7]

Data analysis in Hungary and Slovenia was based on quantitative and qualitative analysis. General statistical analysis of individual questions was applied and in Slovenia additionally also machine learning methods for data analysis (Mitchell, 1997) which enabled to identify the interdependence of the answers to various questions. For instance, people who answered one question in a certain way were likely to provide a certain answer to another question. This can be seen as identifying groups of respondents based on a certain criterion. The team decided to use decision trees which are a generally accepted machine learning method. The questionnaires were analysed with decision trees as implemented in the system Magnus Assistant, the system that was already successfully used with a number of real-world applications (Mladenič et al., 2004; Pilih et al., 1997). The questions were formulated as open (verbal) and closed (multiple-choice) questions. The closed questions (mostly yes/no questions) were primarily were used for statistical and machine learning analysis. Open questions were used in interpretation of the answers from a sociological view point.

The Czech and Slovak teams decided to base the mapping on qualitative approaches. This approach works with an assumption that reality or realities are re/constructed and maintained in and through on-going connections and interactions between persons, institutions, texts and material devises. Understanding reality means understanding the processes of dis/connecting issues and mobilising arguments, objects and identities. The teams were interested in how people conceive of things and issues, connect and disconnect them and how textual representations represent and re/construct different issues and institutions in the public space or

[7] However, because the Slovak team did not separate the analyses according to the three groups (policy makers, researchers and journalists) it was possible only to a limited degree to draw specific conclusions about each particular group.

policy-making venues. Second, for political and activist reasons the teams wanted to have a personal interaction with respondents in order to embody the issue of women in science. The issue was, at least for an hour, enacted by a concrete person, face and voice. Third, the qualitative, face-to-face strategy turned out to be a very efficient strategy for getting responses from highly engaged people who normally tend not to respond to sociological surveys.

In the Czech Republic the interaction had a form of thematic interviews which followed a topic guide. The guide was slightly different for each group of respondents and the specific focus of topics was also possible in individual cases, in relation to particular positions of respondents. As the team aimed at capturing the broader conditions and contexts of the position of women in science the topic guide was not limited to the issues of gender equality but encompassed two other areas – the conception of science and its relation to society in general and developments of science policy in recent years. The interviews were fully transcribed and were analysed by means of discourse analysis. In their discourse analysis the Czech team concentrated on analysing “global” structures such as the overall topics and the schematic organisation of interviews in relation to specific topics. The quotations were edited into a form appropriate for a written report and in these cases were authorised by respondents.

In the Slovak Republic the research was carried out by the means of a guided interview with relevant representatives of the top positions in the spheres of constitutional policy, education, research institutions, ministries and the media. Interview questions were formulated also in regard to key European Commission documents. The method of semi-standardised in-depth interviews with predetermined framed structure was used in the mapping exercise. Topic focus and the formulations of questions were modified according to a concrete contextual and situational stimuli and respondent’s profile. This refers mostly to the respondents from the media. The interviews were recorded as audio records, transcribed into electronic version and analysed by means of content analysis.

4 Ambivalence at a Crossroad: Between Adopting "European Equality" in Science and maintaining the "National Natural Gender Order": Comparative Findings

How does the situation of women in science, and equal opportunities in general, look like from the perspective of the researched participants in the four CEC-WYS Central European countries? The more they know about the issue, the more seriously they take it, may be the answer. However, having listened to various stories and answers our respondents gave us, we encounter a strong ambivalence at various levels. This Section introduces the specific findings in each country and common findings representing findings from all the four national reports on a meta-level.

Each of the national reports used as an input has its specificity, however similarities may be found on a general level. It appears that there is no specific legislation in any of the countries dealing with gender equality in science. However, there are anti-discrimination laws framing the issue in human rights rhetoric, focusing on equal pay and treatment at work and specifically on the issues of violence, abuse and rape.

First of all, for all the three groups of respondents (policy makers, researchers, media representatives) the national reports state a **lack of systematic knowledge** concerning the situation, documents and activities related to women/gender in science issues and activities. Policy representatives tend to show more awareness of European documents than of national activities and strategies, and there is a strong ambivalence in terms of accepting this theme in general. It is clear that the more people know about the possible problems related to equality in science, the more sensitive they become. However, this does not mean that they are more willing to react to the situation or change the current status quo. Knowledge of activities, documents and strategies related to women/gender equality in science co-exists with a lack of practical and institutional co-operation and information flow between relevant bodies as well as with the wider public.

Second, most respondents show a strong **ambivalence in accepting and respecting the gender equality theme**, activities and legislation in general. There might be two reasons for this. First, there is a great degree of **ambivalence towards the European Union's strategies and activities related to gender equality in general** and towards the European Union as such. However, even though the reports are supposed to refer to be national, the framing of gender equality remains "European". This reveals a very interesting paradox, noticeable in all reports and specifically argued in the reports of the Slovak and Czech Republics. On one hand, there is a strong requirement to harmonize the national legislations and standards with the ones accepted by EU member states, on the other, these changes are sometimes perceived as top down initiatives with no relation to the actual, concrete situations, lives and desires of the people in these countries. The reports mention how governments (ministries and policy makers) rely on the measures, recommendations and especially funding from the EU but they do not wish to accept gender equality policies as such without further examining their relevance in the context of each country. Gender equality in science is perceived as a top down activity not really necessary for the country's development, or as a luxury the country cannot afford (e.g. in Slovakia, Czech Republic). The second reason for the strong ambivalence toward gender issues in science is specific to the post-communist countries where there is a general rejection of top-down activities and targeted strategies in general. The Slovakian report explicitly mentions the country's communist past leading to a public refusal of any laws (regulations/acts) based on specific group protection. This report states explicitly what remains implicitly present in the other reports – the belief in the **natural gender order** as the highest determining principle organising society and roles of men and women.

All these factors are related to the non-acceptance of and disrespect for gender equality issues in science. One of the few accepted issues relevant to equality in science is the concept of **work-life balance**, which resonated with the natural gender order system where women are meant to be mothers and men breadwinners. This creates a situation where this concept is relevant for representatives of state bodies and gender experts as well. However, for science policy makers it represents a must (an imperative) from the European Union as well as from the natural gender order (if we want to give women at least some chance to pursue a career). For the equal opportunities experts this concept represents the first potential change in discussing women in science issues although some are becoming critical about reproducing the so-called natural order by accepting this issue as it relies heavily on the traditional division of gender roles.

To sum up, we encounter a problematic situation in implementing policies, which causes strong ambivalence towards the European Union and the following reactions towards gender issues in science among many participants.

4.1 Situation Concerning Stake Holders: Women in Science As a Must

In general, the situation concerning state bodies can be described by a lack of knowledge, little co-operation between specific national bodies like ministries and a huge gap in understanding the contextual situation between EU and national levels.

There is a very little interest in issues of equality in science (manifested for example in the Hungarian report in the very low return rate of the questionnaires amongst policy makers). The issue of women in science is considered a luxury “we” (the government) cannot afford because there are more urgent problems in science. Low co-operation is manifested among national bodies responsible for R&D concerning the information flow within the area of gender issues in science. The respondents showed more knowledge of European programmes and strategies than of national activities in the field. The noticeable gap between European and national levels probably reflects the ambivalence towards EU gender equality policies, which although they might be perceived as “on paper only” and ignorant of national specificities, histories and contexts nevertheless largely frame the national context in which the policy makers operate.

There is a noticeable distancing from gender equality issues in science, which is sometimes supported by the personal opinions of the people interviewed. The assumption of a “natural gender order” arises in relation to the low presence of women in technical and natural scientific fields where women are considered to simply choose not to be there due to their nature and character. The same representatives tend to consider the situation of gender equality as “neither bad nor good”. We can assume that political correctness may be at play as policy representatives cannot be disloyal to the EU strategies targeting equality. Also, based on the idea of a “natural gender order”, there is a tendency to accept the issue of work-life balance as the only one to be taken into account when discussing gender equality in science.

Policy makers do not take into account potential criticism of the system of science as such (e.g. with respect to its gendered organisation or positivistic approach to science) and focus on individual/group solutions only. They are not convinced that anything needs to be changed. There is an interesting combination of widely rejecting the male breadwinner ideology (mostly in the Slovenian report) and the general acceptance of gender equality principles such as right to pursue a career without being blamed for not taking care of the family on the one hand and on the other hand, a strong criticism of EU policies to achieve parity representation in science (40% quotas etc.).

4.2 Listening to Researchers: Science Is About Quality, Not Political Influence

None of the reports show that respondents from science and research have any systematic knowledge of current policies and activities related to gender/women in science. Across all four reports the issue is perceived neither as urgent nor as problematic. However, as the Slovak and Slovenian reports show, the more people know about the issue of women in science, the more problems they find in their respective institutions and become more sensitive to the topic in general.

When speaking of the knowledge of gender/women in science issues, respondents often turn to problems in science they find more urgent– such as the lack of funding, brain drain, and the situation of young people. The personal opinion of the researchers is formed to a large extent by the general situation of the country in relation to the EU policies as well as by the public acceptance of the gender order in the specific society. A very common phenomenon is the opinion that science is about quality and results and not political influence, which gender is perceived to be. This reflects a strong acceptance of science as a neutral, value free activity where objective and impersonal statements count. A majority of respondents in each country consider the situation of women in science satisfactory; however, again, the more knowledge of the problem they have, the more unsure they are. It is more often women who speak out about the unsatisfactory situation of gender equality in science as the Slovenian report indicates where dissatisfaction is expressed by twice as many women than men. The issue of gender equality is not rejected as such and is discussed diplomatically.

Addressing gender equality in general is conceived of as an imported issue that is a requirement if the country wants to be an EU member state. If the issue of gender/women in science is considered significant it stays within the realm of a "biological handicap" that women have when pursuing career. The notion of handicap is very telling since it points to the natural gender order. It implies that the issue of women in science is taken seriously only if we stay within the traditional perspective where women are mothers and men money-makers. Few respondents question the system of science as such, except a slight criticism expressed in the Czech report.[8] This indicates that gender issues in science are perceived to be an individual problem and something that women should take care of – possibly with state assistance if work-life balance policies are considered legitimate. No broader discussion of the system of science is visible and it is not the system that needs to be changed, rather that women need to change to fit the system.

The issue of quotas is unequivocally rejected as a top down activity not corresponding to the needs and situation in the countries. It may again be the case that quotas stemming from EU measures/activities/strategies to promote equality in science are associated with the state-socialist past.

To sum up, researchers understand the issue of women in science in terms of the human resources rhetoric, socio-biological rhetoric and pro-democratic rhetoric. The first point reflects the European trend of discussing this issue as a loss of human resources (wasting talents); the second, socio-biological, assumes a biologically determined low interest of young people and women in science and specifically in technical and natural fields and speaks about a women's naturally given handicap (their ability to give birth) and the last point, pro-democratic rhetoric reflects the Europe-wide accepted issue of equality of citizens in general.

[8] Science was reflected on as discovering on one hand and as enterprising on the other. "The first framing represents science as a rational cognitive activity defined by specific method...The second faming of science as enterprising stresses competitiveness, at least in some fields, and also practical usability of research and collaboration with industry." (Czech National Report – Enwise Follow-up activities in the Czech Republic, p.16)

4.3 Media Representatives: Equal opportunities and Science in Media

There is a different approach in the national reports concerning the analysis of gender equality in science as perceived by media representatives. In general, the dominant image of science communicated to the wider audience is framed as a field of activity and expertise where no political influence plays a role. This communication usually consists of translating recent scientific discoveries to a wider audience and the second one tells stories about scientists and their lives. Another framework for communicating science is through successful life stories of various scientists.

Concerning knowledge of the current situation, most of the journalists have no familiarity with the issues of gender/women in science in general. Again we face a lack of knowledge which may be caused by insufficient informational flow as well as no interest on the side of journalists (as mentioned in the Czech and Hungarian reports).

However, the issue of women/gender is discussed in the rhetoric of science as enterprising, e.g. as an issue of human resources and the attitude of women to academic and decision-making positions in science. By framing the issue of women in science in this way, journalists often think that no changes are necessary with respect to communicating the women and science issue to wider audiences.

In terms of personal opinions, there is a strong respect for the "natural gender order". Even though the male breadwinner ideology is widely rejected there remains the notion of the women's natural handicap.

Since science journalists often perceive themselves as mediators or translators of highly expert terminology into the language of regular readers, it is not surprising that we see the same low level of awareness and opinions on science and gender issues in the field that we have already seen among researchers and science leaders.

4.4 Conclusion: The Same Problems at Various Levels

The reports analyse various issues related to women/gender in science. But no matter what target group was interviewed, there are common points for conclusion and further policy debates.

The first conclusion is **a lack of systematic knowledge** concerning the gender in science issues, policies and activities connected with the lack of communication between relevant institutions. The second conclusion is manifested in personal opinions of respondents. Most of the research participants **view the natural gender order as determining other activities**, including science. Therefore, inequality is not a problem since there are "naturally" given different genders roles. Third, there is a strong **ambivalence with respect to EU gender policies** and documents and to the role of the EU itself. On one hand, respondents know they should adopt and promote them (especially politicians and policy-makers) in order to be a "proper" member state; on the other hand, there is a strong criticism of European top-down activities and the uncritical and context insensitive mode of implementation. Gender issues are perceived as a luxury and a top-down activity with no real connection to the actual situation. Respondents are not convinced that anything needs to be changed at all.

General problems of science, mentioned by a majority of respondents concern poor funding of science, poor support of science and low prestige of science. The decrease of prestige of science, as explicitly mentioned in the Hungarian report, thus reveals an interesting paradox since science receives more and more visibility and

importance in the institutions of the European Union. This is obviously not the case in the countries analysed. The other relevant and extensively documented problem of gender equality in science is the feminisation of lower positions and the least paid positions in science – all the reports showed "a brilliant leaky pipeline" (see the chapter 2 for detailed explanation).

An interesting issue for further discussion is the fact that the issue of men in science is not thematised, or more precisely, the focus is only on women who are assumed to be those solely responsible for the equality issues.

4.5 Summary of important findings

4.5.1 Knowledge

- People display greater sensitivity to gender issues in general when they have more information about the issue.
- There is a lack of systematic information concerning women/gender in science related activities, documents, strategies at all levels. Policy-makers especially show better acquaintance with European strategies than national activities. If there is knowledge about gender issues in science, people still find it difficult and unclear; moreover, they do not know where to obtain relevant information.
- The reports also show a lack of co-operation between interested stake-holders (especially between science and equal opportunities policy makers), a lack of clarity in division of responsibilities and competences and insufficient communication about gender equality in science.

4.5.2 Opinions

- An important opinion common to all the researched groups is that there is a strong believe in "the natural gender order" but also a refusal of the one breadwinner ideology. Women are perceived as "handicapped" because they can bear children and therefore cannot/should not devote their lives to science only. Therefore, openness to policies addressing the issue of work-life balance can be found since this model respects and does not challenge the so-called natural order of roles and behaviours.
- In general, there seems to be no urgent need to change the current status quo. Potential problems of gender equality in science are understood as individual problems and not as a failure of the system of R&D and doing science.
- Science is mostly believed to be apolitical and the question of gender in science is not considered as particularly relevant for scientific activities.

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4.5.3 Gender in science awareness and appraisal of the situation

- Women in science issues are more accepted in connection with young people in science, but only as an issue of numbers.
- There is a strong lack of clarity as to who actually wants equality in science – is it the EU or the nation state? Or the nation state because of the EU?
- Strong legacy of the past is manifested in the ambivalent acceptance of EU activities. The EU is often perceived as not understating the specific needs, culture and history of each nation state.

5 Recommendations

The recommendations are based on recognizing the following existing shortcomings in the implementation of the EU policies:

- lack of adequately qualified professional staff responsible for the implementation of gender equality policies in research and development,
- lack of co-operation among key state bodies (ministries, agencies) responsible equal opportunities for women and men and research and development;
- lack of ties between non-governmental organizations and competent state bodies;
- the ambiguous role played by the European Commission and other European institutions in terms of promoting gender equality in that the top-down approach of the accession negotiations and European policy making may serve to undermine the acceptance of the issue at national level. The unease about the top-down approach to implementing gender equality is also linked to the state socialist legacy of forced emancipation. Local/regional differences must be recognized in order to ensure efficient policy implementation in national contexts.

5.1 General recommendations

5.1.1 Publicly available data

A recommendation for policy makers and science and research managers at different levels

There is a *lack of information on the issue of women in science*. Only rough sex disaggregated statistics (numbers of employees in science and research) are available but more subtle statistics, e.g. on positions of women in academic hierarchies and in formal positions are lacking. Research institutions, universities, statistics office and other relevant stakeholders should be encouraged or required to monitor and report systematically on the representation of women in R&D, representation of women in the hierarchy, gender pay gap and distribution of R&D resources according to sex.

5.1.2 Gender research on knowledge production

Research councils, policy bodies, research institutions and civil society

Further research is needed into the gender dimension of knowledge production, R&D institutions, science policy discourse and construction on knowledge and science. Such research will have the potential to:

- o direct special attention to disclosing and eliminating (gender) bias when assessing the quality of work and to increase the objectivity of evaluation of research output/performance;
- o to encourage interdisciplinary research of complex occurrences of gender discrimination in R&D activities
- o to apply gender mainstreaming principles in educational policy (abolishing gender stereotypes from textbooks, including the main principles of gender studies in the education of all teachers from kindergarten upwards, etc).

5.1.3 'Harmonisation' measures (work-life balance)

Research councils, policy bodies, research institutions, researchers and civil society

The next recommendation concerns the way in which we handle harmonization measures. Instead of thinking about supporting parents – which can be biological and/or social mothers and fathers – work-life balance measures are generally reduced to support for (biological) mothers. Kindergartens in a research complex are conceived as institutions supporting mothers; stipends for continuing career after child-care break are conceived as a support for mothers.... Being framed in this way, these measures can become a device for enhancing gender equality in professional life while contributing to the stabilization of gender *inequalities* in family care and

childbearing. They may help individual mothers to harmonise their career with family duties but at the same time they petrify traditional family gender roles.
Work-life balance measures should be seen as an issue for everyone – not only mothers but parents, and not only parents but society. And even further: not only parents but persons. In our opinion, the science–society relationship may only profit from researchers having parts of their lives reserved for different social roles and experiences.

In the short term, however, attention needs to be paid to the gender dimension of issues such as:
- harmonising life and work with respect to research and mobility;
- family-friendly working environment and work-life balance at research institutions;
- extending age limits for early-researcher grants with extended parenting responsibilities;
- taking parenting responsibilities into account in the construction of tenure-track positions.

5.2 Specific recommendations

5.2.1 The European Commission

Clear support at EU level
Unequivocal support at EU level is necessary. The perceived lack of interest at the EU level is detrimental to efforts to push the issue at national level. National policy makers may thus feel justified in adopting a similar approach of 'ticking off' the issue only on paper.

5.2.2 National policy makers

Gender mainstreaming in national policy and strategic documents
The issue of women in science is still *not officially recognised and therefore not mainstreamed at the national policy level* beyond declaratory preambles. For gender equality in R&D to be successfully mainstreamed, the state bodies responsible for R&D and gender equality policies need to start coordinating and communicating on the issue.

Establish national support infrastructure for gender equality in R&D
The establishment of National Contact Points, centres or other types of organisations should be supported at national level as it appears to be an efficient way of communicating and promoting the issue of gender equality at national level and of supporting concrete women scientists. Such established infrastructure could work toward achieving other important goals such as:
- to raise awareness of the issue among decision makers, the media and in the scientific community;
- to develop and support concrete case studies that could serve as role models for further change and activism
- to sensitise women scientists to the issues facing them and by doing this empower them to speak up for their interests;
- to enhance the attractiveness of scientific careers to young people and women;
- to network between national and international women scientists' associations;
- to organise events in order to update the knowledge on how to participate in various research programmes at European and national levels;
- collecting research data. Such a centre would serve as an archive and a documentary and informational centre.
- to encourage the emergence of social networks for self-help intended for young parents who should be aided (when needed) with an organized childcare in their working environment.

5.2.3 The media and journalists

Presenting women's research and women scientists in the media
Since one of the two main ways to penetrate the media is to work on interesting research, it is necessary to present successful research results produced by women scientists. In order to *overcome the invisibility of women scientists their work must be presented*.

Workshops on communication and research, networking
Expert commenting on scientific results created by "global" science is another way for scientists to appear in the media. W*orkshops on communication, research and networking events for women scientists and journalists*, could work toward creating an environment that would be open and able to overcome gender stereotypes related to the particular communication of women scientists.

Presentation of science in gender non-stereotypical way
The media should be encouraged to communicate science in ways that will enhance the interest of young women and girls in science, especially in areas where they are traditionally underrepresented.

Working to alter the mainstream representation of science
In special science pages in the media science today is represented as objective, neutral and unambiguous. It would be highly effective to create space dedicated not only to mainstream scientists and their translators (journalists) but also to *create space for scientists advocating different points of view and to NGOs in this field. Last but not least, to support journalists who take a more critical approach to research,* who follow the process of creating knowledge and its ambiguities. This paradigmatic change will open the space for more gender sensitive writing.

5.3 Final note: legitimacy, activism, civil society and knowledge production

The last recommendation poses the question of who is to be concerned with and mobilised by the issue of women in science. In our view, it should be not only women and not only people within the research sector. While there definitely are some "women" specific issues (e.g. prejudices and disbelief in women's ability and disposition for technical subjects), the problems which we are trying to address have also other dimensions not necessarily related only to women's positions. They concern more generally the role of social or political identities and structural locations of research institutions within the market and power structures (e.g. the relations of research with the military, corporate actors) in knowledge production processes. Many feminist writers insist on the need to redefine the notion of objectivity so that the reflection on these identities and locations becomes a part of knowledge production and usage.[9] On one hand, this perspective on knowledge would contribute to uncovering possible biases and one-sidedness of current scientific practices. For example, what are the consequences for independence of safety expertise in GMOs of the fact that most research is carried out within public-private partnerships between universities and private companies? Thus it is very hard to get any expertise not related to corporate interests. On the other hand, it would contribute to making legitimate knowledge related to specific identities which have been up to now excluded from institutionalized research and political arenas (local knowledge, patient groups' knowledge, including women's patient groups etc.).

[9] E.g. Haraway, Donna J. 1991. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective" in *Simians, Cyborgs, and Women: the Reinvention of Nature*. New York: Routledge. Pp. 183-201.

If we share the (not only) feminist critical perspective on current framings of science and objectivity, we must insist that the issue of women in science should not be reduced to promoting women in their research careers but rather contribute to opening up *a debate on objectivity and legitimacy of different knowledge inside and outside of institutionalized research settings*. Activists in this area should thus concentrate on and mobilize *not only women inside research institutions but also other women and men producing and using knowledge outside those institutions*. It is relevant to notice in this context that the agenda of women in science has been addressed by the European Commission within the Science and Society programme. This programme is concerned not only with issues of how to communicate science to society or how to manage public concerns in relation to the ethical or social dimensions of research. Framings of science and the very production of knowledge have become increasingly important subjects of debate. NGOs concerned with science, technology and the environment insist on the recognition of knowledge distributed in societies and communities as legitimate, and support collaboration between specialized research institutions and civil society on the production of knowledge. Society becomes more active in relation to science which has implications for the very framing of science.

This way of thinking has relevance for the issue of women in science. It shows gender representation as an important vector bringing the diversity of social and embodied experience into knowledge production processes. It also enables us to think about women in science in different roles than researchers solely – e.g. as active patients or members of an NGO producing expertise. Last but not least, it mobilizes women as political actors to claim their vision of useful and accountable research – in relation to their particular needs and identities and also the overall development of society. In this perspective, the issue of women in science needs to develop its social movement character and relate to other social movements in national and European public spaces.

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