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EUROPEAN WOMEN IN MATHEMATICS

Newsletter 12

Edited by
Sofie Castella & Stine Timmermann

2005

Contents

| | |
|--|-----------|
| I. Meeting announcements | 3 |
| • Kvinnor och matematik 6 | 3 |
| II. Other Contributions | 4 |
| • Waste of talents: Turning private struggles into a public issue | 4 |
| • British Women in Mathematics Day | 13 |
| • Report from meeting in the Helsinki Group | 14 |
| • Workshops organized at Malta University | 14 |
| II. Publications of interest | 16 |
| • "Mathematicians as Enquirers: Learning about learning mathematics" | 16 |
| • "Which Way Social Justice in Mathematics Education?" | 16 |
| • "Sophie's Diary" | 16 |
| III. Future activities of EWM | 18 |
| • The 12th General Meeting of EWM | 18 |
| IV. Useful e-mail addresses and links | 20 |
| • EWM addresses and links | 20 |
| • Other useful links | 22 |

I

Meeting announcements

Kvinnor och matematik 6

June 13-15, 2005

Umeå, Sweden

The conference is organized by the Swedish network "Women and mathematics" and Umeå university.

For more information please contact:

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II Other contributions

Waste of talents: turning private struggles into a public issue Women and Science in the Enwise countries

By

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At the Press-conference organised on the 30th of January, 2004 in Brussels, the Enwise experts presented the Enwise report delivered to the Commissioner for Science and Development Philippe Busquin. Enwise report was commissioned by the European commission to map the situation of women scientists and researchers in the Central and Eastern European countries and Baltic States. Acronym Enwise - **En**large **W**omen **I**n **S**cience to **E**ast articulates the main issue brought by the report, which was to integrate women scientists from the new member states to the European Research Area. Title of the report ***Waste of talents: turning private struggles into a public issue, Women and Science in the Enwise countries*** underlines the difficult real situation facing women scientists in the Enwise countries, working in the insufficiently developing and weakly financed sectors of Science, Higher education and Research in the complicated economic conditions of countries reforming all spheres of social and private life (including the private family life) and transforming their national economics in connection to the EU membership. Report is delivered to the European Commission, Directorate General for Research, and it is provided for all interested bodies on the European and national level in Enwise countries (Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, the Slovak Republic and Slovenia), politicians, representatives of press and information media, scientists, women organisations, and all public.

The main idea of the report was to raise awareness about gender mainstreaming in connection to the sectors of science, higher education and research in the Enwise countries. The report brings a view of women scientists – Enwise experts from different scientific fields in all Enwise countries. On one hand it is a glimpse back to expert's personal experience in the conditions of different countries, on the other it is an attempt to analyse the not very favourite situation, in which the mentioned sectors appeared. Analyses of the position of women in science in the Enwise countries comes out from several aspects and it brings the picture of the situation from several perspectives, with respect to the different historical development of the countries but taking into consideration the common communist period, from the gender point of view in connection to the specific role of women as mothers, with respect to the brain-drain, from the statistical indicators presenting the participation of women in the hierarchical structure of academic degrees, leading positions and decision posts.

Report is structured in five chapters dealing with mentioned aspects and bringing a colourful mosaic of information, ideas, statistical data, graphs, citations and sources, but also personal experience, stories and statements of women working in science and research in the Enwise countries.

The first chapter **From national icons to superwomen**, Gender in social change from pre-communism to post-communism brings the whole problematic from the gender perspective in the historical context. Geographic position of the Enwise countries at the periphery of Europe significantly influenced, and still does, the development of this region, where mostly small nations live and find their place in the European context. In all Enwise countries, there were the first women organisations based already in the first third of the 19th century. Their role was different from the sister organisations in the Western European countries. National liberation movements in these countries concentrated on the fights for the liberation and equality. Women's suffrage and right for the higher education were the goals reached sooner than in the Western Europe (university allowance from 1883 in Romania till 1922 in Lithuania, suffrage in Estonia, Hungary, Latvia, Lithuania and Poland in 1918, in Czechoslovakia in 1920, in Bulgaria in 1937, Slovenia in 1945 and Romania in 1946). Social and cultural position of women was the tool for demonstration of society development.

In the communist regime it was typical to declare equality of genders, women emancipation without the chance to personal decisions and career building. Women movements were forbidden as bourgeoisie relict. Positive point can be the fact that at the end of 70-ties there was reached the parity in the numbers of students – boys and girls - at the secondary school level, and in the majority of the Enwise countries also on the university level. This period is typical by the declared progressivism and gender equality, but there was no gender awareness and women issue was again marginalised.

Transformation period brought new socio – economic conditions with the reformation to the market economy. A specific women career pattern appears, when the decision to have children automatically assumes acceptance of the limited professional ambitions. This free choice – family or career – becomes a private problem of women. Increasing demands on women (both at home and in the work) in the competitive labour market disqualify women. Society is not interested in this, again marginal, problem of gender issues.

Gender mainstreaming policy of the European Union influenced the process of the "harmonisation" of legislative of the new member states with the legislative of EU. New paradoxes appeared in this process, as financial independence of women versus conservative gender models, jump from the cultural isolation to the globalised European culture, lost of the prestige of science and scientific work in the society, insufficient state financial policy towards science, education and bad working condition, old equipment and technical devices, information and communication technology namely, weak infrastructure. These factors influenced the structure of the academic community, caused the escape of men to more attractive sectors and brought new chances to women scientists in much more difficult conditions. Financial underestimation of scientists led to the brain-drain, lack of chances for development and stagnation.

In the second chapter **Funding without freedom, freedom without funding, Higher Education and Research & Development sectors in the Enwise countries**, the restructuring of the sectors of higher education, science and research is described and analysed using the methodological reference point of the concept of the science centre and the science periphery (Joseph Ben - David, 1971). During the 19th century the institutions of modern universities with academic autonomy and national academies of science had been established according to the western model. In communist times the institutional autonomy had been lost in both sectors and the scientific workers were under a constant ideological pressure. Structure of the

research institutes and Academies of sciences had been re-organised in accordance with the organisation structure of the Academy of sciences of the USSR. The strict government planning was implemented and both sectors were under a strict political control. The tragedy of scientific workers in Enwise countries, as well as Russian scientists was in the fact that they had **either money or freedom, but never both together**.

Transformation reforms of higher education and science and research sectors passed thorough two different phases. The first phase, from the year 1990 till 1995, was identified as a bottom-up driven process. Academic community participated actively in the preparation of a new legislative, academic autonomy was renewed and universities and academies of science established academic freedom and self-governance. From 1995 to 1998/9 a top-down driven phase was recognised, during which the national priorities were formulated, needs and possibilities of the Enwise countries were figured out and governments of the Enwise countries started to apply significant changes in the structure of the science financial policy. Private schools of all types appeared, but not the expected increase of the private sector share on the science funding. Insufficient financing caused brain-drain, aging of the scientific staff, and reduction in numbers of academic workers and increase in the women participation in the weakly rewarded academic community at universities, which reached the numbers showed in the Table 1.

| Country | Female teaching staff, 1999 (%) |
|-----------------|---------------------------------|
| Bulgaria | 40.2% |
| Czech Republic | 31.7% |
| Estonia | 43.7% |
| Hungary | 53.6% |
| Latvia | 78.6% |
| Lithuania | 31.5% |
| Poland | 45.2% |
| Romania | 35.1% |
| Slovak Republic | 39.0% |

Table 1. Percentage of women among scientists, 1999

The high percentage of women in the scientific community does not correspond to their participation on the decision posts. In the Table2., there is the gender distribution in the position of university rectors in the Enwise countries in the year 2002.

| Country | Women | Men |
|-----------------|-------|-----|
| Bulgaria | 1 | 41 |
| Estonia | 1 | 56 |
| Hungary | 8 | 57 |
| Latvia | 1 | 4 |
| Poland | 24 | 255 |
| Romania | 1 | 45 |
| Slovak Republic | 0 | 15 |
| Slovenia | 1 | 2 |

Table 2. Number of women and men in the position of the university rectors, 2002

The third chapter *The bees and the honey*, *Women in scientific professions in the Enwise countries* brings the statistics on numbers, positions and participation of women scientists in the science and research in the Enwise countries, collected by Enwise expert on national level, official statistical data of the Statistical Unit at the European Commission, which were collected by the national statistical correspondents of the Enwise countries and published in the *She Figures 2003*, and also data from the UNECE database of the gender statistics on Internet.

In the Enwise countries there are 214 000 people employed as research workers, from whom 81 000 are women. EU enlargement in May 2004 represented the increase of the scientists about 180 000 individuals from the Enwise countries, among whom there were 66 000 women representing 38% of the total. Looking at the optimistic participation of women among scientists in percentage in all Enwise countries in the Fig. 1, there can be the feeling that the situation in all Enwise countries is better than in the former EU15 member states.

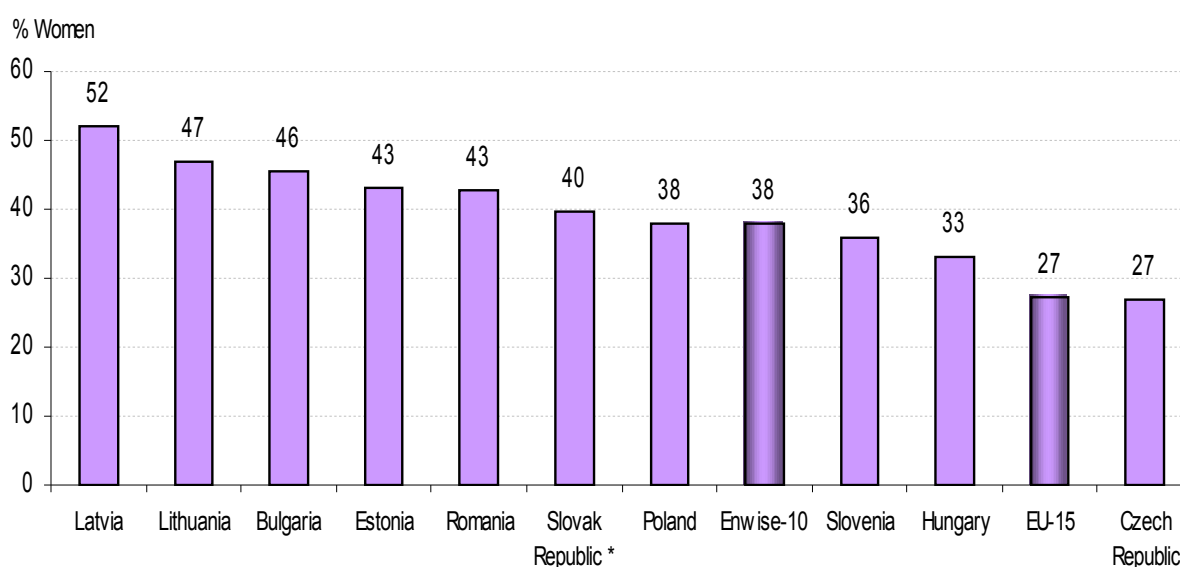


Figure 1. Women among scientists in the Enwise countries, 2001 (percentage)

Anyhow, the total number of women scientists in the Enwise countries is non-comparable with number of women scientists in the former 15 EU states. For instance only in France the number of women in science is almost equal to the number of all women scientists in the Enwise countries, see Fig. 2.

Number of women researchers

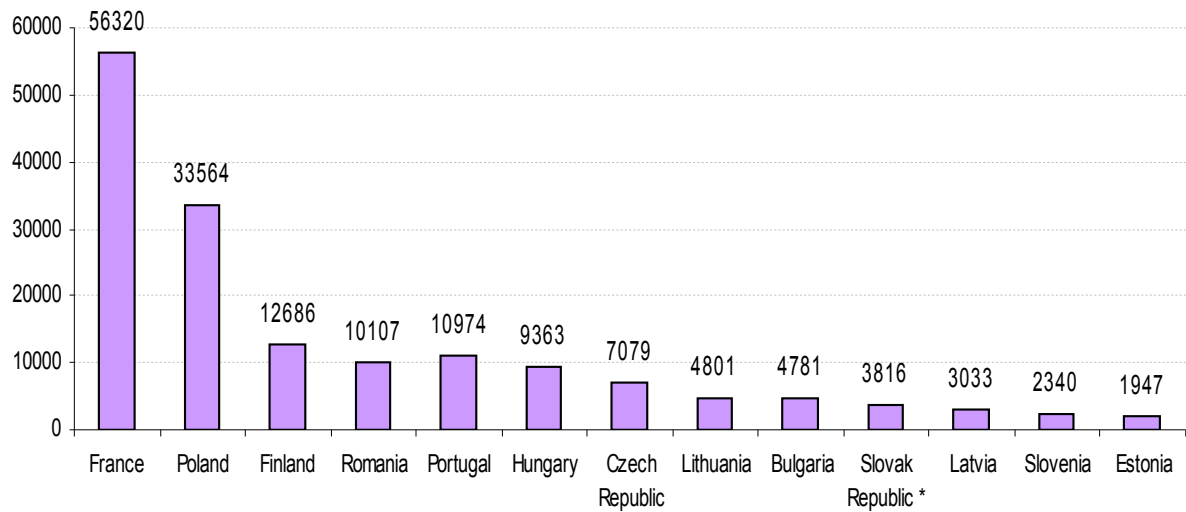


Figure 2. Women scientists in the Enwise countries and 3 former EU member states, 2001 (number of persons)

Insufficient financial support of the Enwise countries governments and investment to the development of the sectors of higher education and science and research are evident from the Fig. 3, where the annul R&D expenditures per capita researchers in Euro of separate countries are compared throughout different sectors.

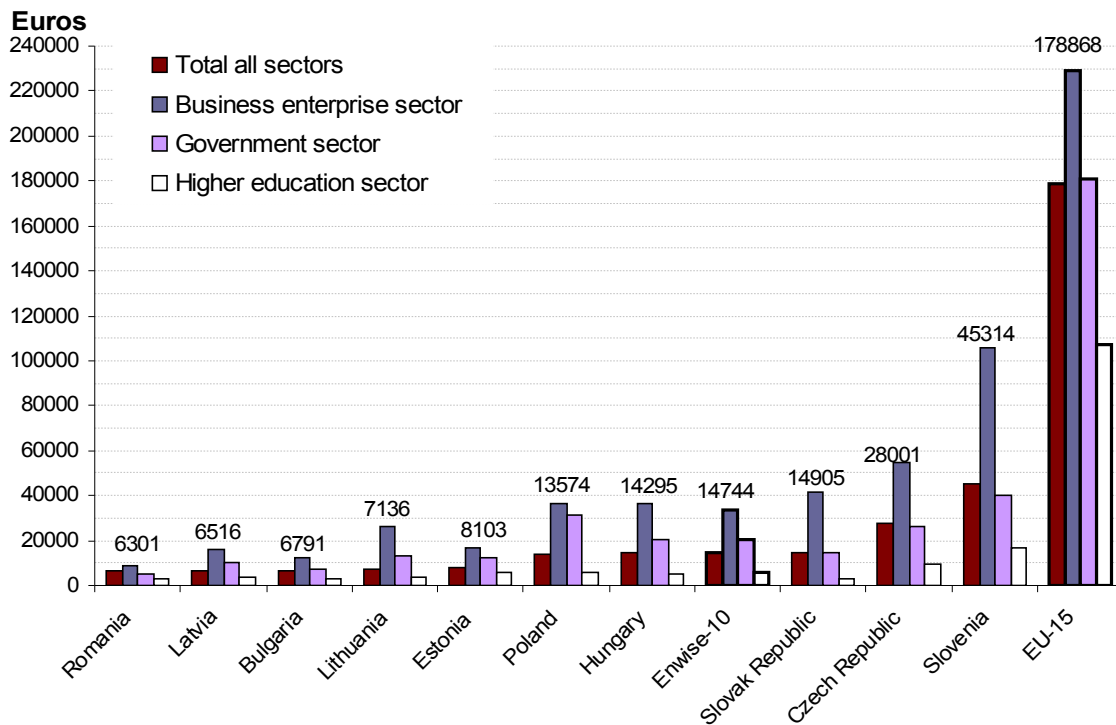


Figure 3. R&D expenditure, in Euros per annum, per capita researchers and by R&D sector in 2001

There is presented a new “Honey-pot indicator“ showing the rate of correlation between concentration of women/men and expenditure on science and research in separate sectors. It quantifies the loss of access to the financial support facing women scientists due to the fact that they are concentrated in the less funded sectors (government sector, education) and in the

less supported scientific fields. Negative score indicates that women scientists are more likely distributed in the sectors with low expenditure than men. The correlation between gender and available financial funding – and therefore the potential reward – indicates that opportunities for scientists in the Enwise countries, women and men, are really comparable only there, where is the weakest funding for science, research and development.

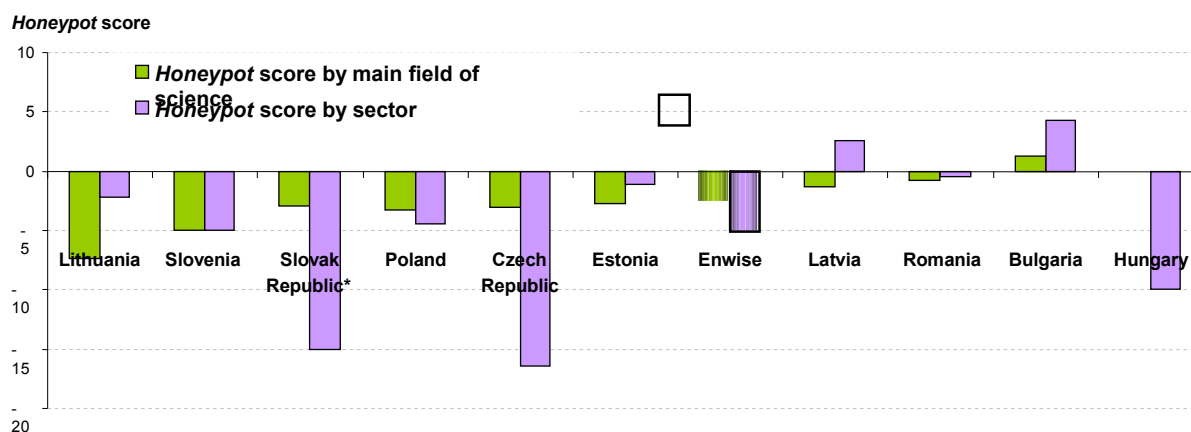


Figure 4. Honeypot scores by main field of science and by R&D sector 2001

In the majority of the Enwise countries women represent the majority of university graduates and the increase of number of women on the postgraduate level is higher than the number of men. Participation of women graduates decreases on the third, PhD. level. The decrease in number of women in progression to the postgraduate study programmes can be normalised and compared between countries by the Higher Education Gender Progression Ratio (HEGPR). This indicator presents the ratio of percentage of women graduates on the PhD. level and percentage of graduates on the master level. HEGPR is the measure of a shortfall of women pro rata from one level to the next one. In the Fig. 5 there are presented career pyramids for women and men in the Enwise countries in the year 2001, illustrating the gender progression ratio of both gender, therefore a gender dependent rate of success at the very beginning of the career building after the PhD. graduation. Men are twice more likely successful than women so it is difficult to speak about equal opportunities and a free choice between family and professional career in the complicated economic situation, with not very promising future expectations (regarding personal development and financial reward).

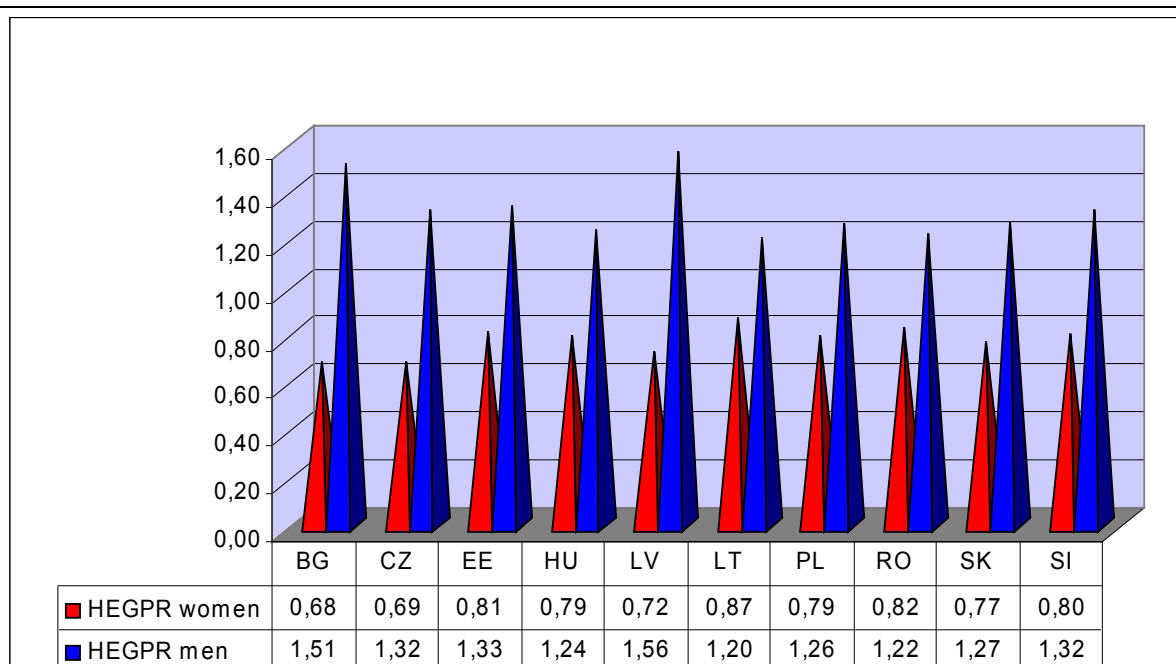


Figure 5. Higher education gender progression ratio in the Enwise countries, 2001

The development of the Higher Education Gender Progression Ratio in the years 1998 – 2002 for 10 Enwise countries is illustrated in the Fig. 6, where even the difference between the HEGPR scores for men and women is higher than the score for women.

The ratio of the HEGPR for men and HEGPR for women declare, what are the real expectations for women and men to be successful at the very beginning of their professional career. The coefficient called “Odds ratio” indicates how men are more likely to complete their PhD. programmes than women, it shows the loss of educated women at the start of their professional scientific career. The development of the Odds ratio in the Enwise countries in the time sequence 1998 – 2002 is illustrated in the Fig. 7.

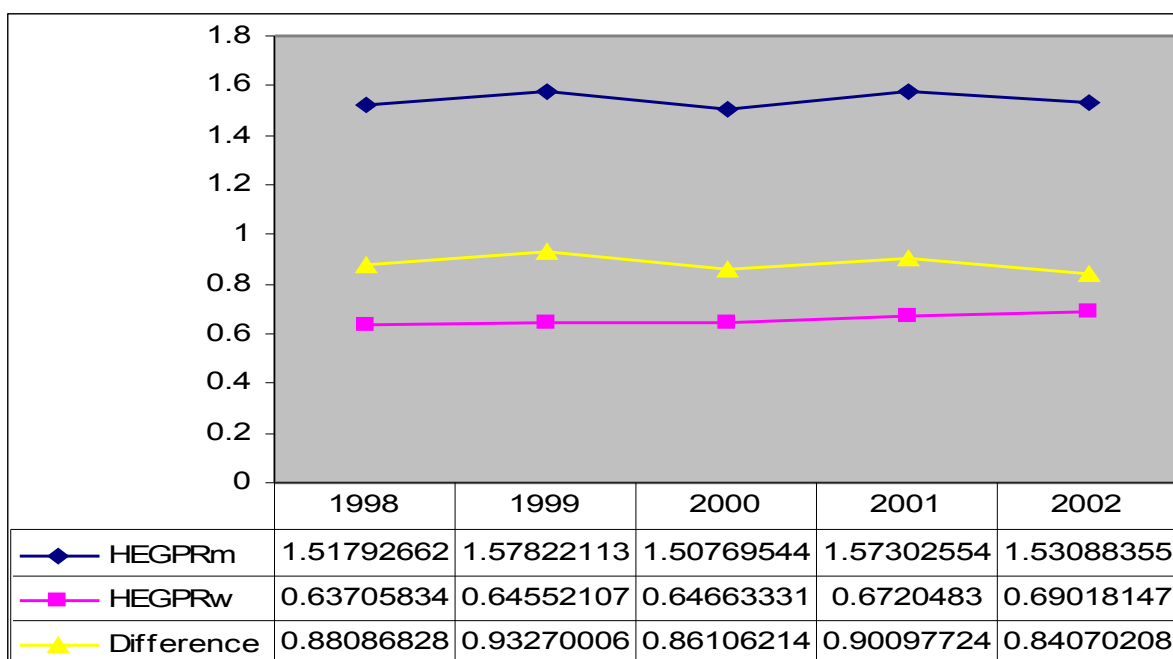


Figure 6. Development of the HEGPR for both gender in the Enwise countries

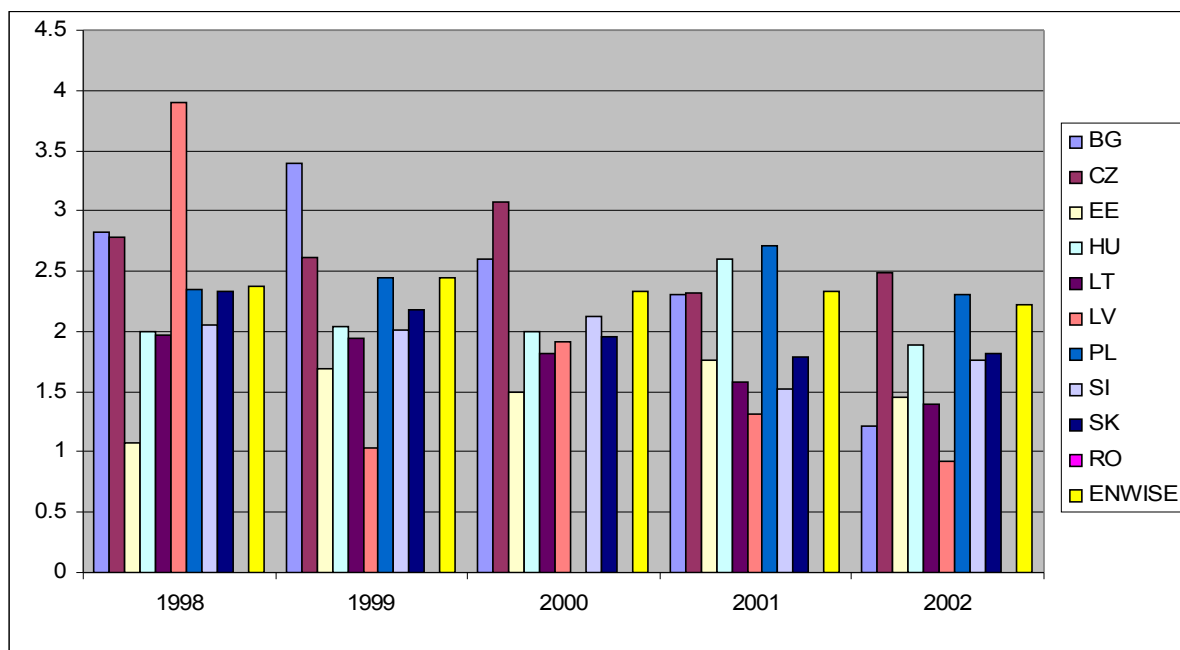


Figure 7. Development of the Odds ratio in the Enwise countries

The figures represent a serious loss of investment to education in all countries if there are factors blocking educated women from reaching and completing the most advanced stages of education and to be involved actively in the scientific research work on the appropriate level. Numbers of women scientists in the highest qualification degrees, numbers of women professors, doctors of sciences and associate professors (Fig. 8) prove the existence of a glass ceilings, which is blocking women from the progression to the higher posts, and the relevance

of a threat of the leaky pipeline, when the percentage of women participation decreases rapidly with the increasing qualification degree.

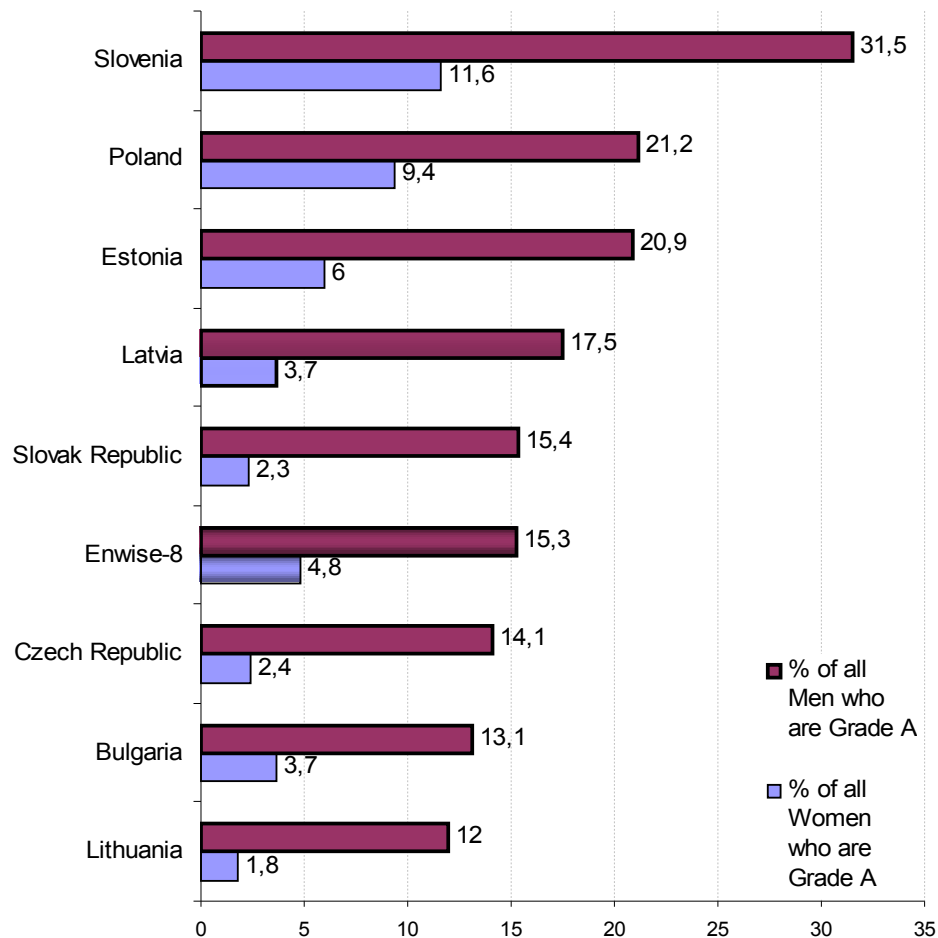


Figure 8. Participation of women and men among scientists of the highest academic degree, 2000.

Activity of women scientists from the Enwise countries in the European Research Area and their participation in the EU Framework Programmes is presented in the fourth chapter **How far is the target?, Measuring the participation of women scientists from the Enwise countries in the research Framework Programmes**. Percentage of women participation in the 5th Framework Programme is given for successful programmes (29%), expert database Exsis (30%), external advisory groups EAG (10%), National contact points NCP (33%) and programme committees (23%). In the 6th Framework Programme the presented statistics shows participation of women scientists from the Enwise countries in the successful programmes (29%), in the database of experts EMM (33%), in the advisory groups AG (10%), National contact points NCP (48%) and in the programme committees (27%).

There exist more factors limiting the full active participation of the scientific communities from the Central and Eastern European countries and Baltic States in the EU research programmes and projects. One of them is for instance the price of a 2-day working meeting of a scientific team in Brussels, which is about 800 Euro, and which must be pre-financed by the experts themselves, while the average monthly income of academic staff in the Enwise countries is in the interval 200 – 600 Euro.

This chapter includes also the information on the working meetings organised by the Enwise experts, three Workshops dealing with serious problems related to the gender issues

and science: „Young scientists“ on April 25, 2003 in Prague, „Debating bioethical issues with women scientists from the Enwise countries“ on October 2 – 3, 2003 in Budapest, „Starting a debate with women scientists from Balkan region“ on November 11 – 12, 2003 in Brussels.

The fifth chapter **Fostering the talents and knowledge of women scientists from the Enwise countries, Recommendations** brings recommendations to several institutions and bodies.

- Council of Ministers and European parliament

To provide permanent support and control to the new member states in the implementation and fostering the gender mainstreaming policy in science

- European Commission

To collect gender segregated statistical data

To profile sufficient information on EU activities, grants, mobility, fellowships

To organize training to promote participation of women scientists in the EU Framework programmes

- National policy makers / governments / ministries of education and research

To apply gender mainstreaming in the national policy of the education and research development

To encourage young people in their interests in science

To enable re-qualification programmes for senior scientists

To provide funds for innovation and equipment, namely information and communication technologies for schools and scientific institutions

To create department / commission / contact centre responsible for the gender equality in science

To establish Steering Committee "Women and science"

To guarantee family-friendly social policy

- University and scientific institutions

To implement institutionally the gender mainstreaming policy – department for gender issues

To ensure equal opportunities in the scientific promotion, career, or in recruitment

To develop more objective criteria for the scientific evaluation independent on the quantitative number of "presentations"

To support gender studies

- Business enterprises

To adopt family-friendly working environment in favour of working mothers

- Media

To improve the image of science in the society, more attractive to young people

To present openly gender problematic

To contribute to the gender awareness in the society

To foster gender mainstreaming policy in science as the basic principle of the personal freedom and choice

- Scientific workers and women organisations

To establish professional organisations and networks

To utilise all cooperation links within the Enwise countries

To create strategic cooperation between east and West to foster women in science in the ERA

In the **Epilogue: Abundance or Shortage?, Gender and Scientific Excellence in the Enwise countries**, the idea of the scientific excellence as a men affair is analysed. Women are excluded in several stages, in the gender perspective and due to the peripheral position of the

Enwise countries on the frontiers of the Europe. Report is aimed to show that to be a woman scientist in some of the Enwise countries (on university, academy of science, or at the research institution) is a demanding task without appropriate reward and in the unsatisfactory conditions with the bad technical equipment and minimal funding for research.

Waste of talents of the huge number of potential excellent women scientists is a detrimental loss. None of the academic communities in the Enwise countries, nor the European research area, and even the humankind cannot afford this loss. It is time to start the public discussion on these issues, to debate the position of women scientists in the Enwise countries, to turn the private struggles into a public issue.

References

Blagojević M., Havelková H., Sretenova N., Tripsa M., Velichová D., Waste of talents: turning private struggles into a public issue. Women and Science in the Enwise countries. European commission, Directorate-General for Research, Science and Society – Women and Science. Luxembourg: Office for Official Publications of the European Communities, 2003, ISBN 92-894-6750-9, 179 pp.

* * *

British Women in Mathematics Day

By

Helen Robinson

The British Women in Maths Day held at the London Mathematical Society's headquarters in De Morgan House, London, on September 28th was a very successful day with a good attendance from research students. The main speakers were Susan Howson (Oxford), Helen Byrne (Nottingham) and Jackie Stedall (Oxford). The afternoon speakers were Janina Panovska (Oxford), Claire Irving (Leicester), Maha Rarouh (Durham), Susha Parameswaran (Cambridge), Karin Gehles (Glasgow) and Apala Majumdar (Bristol). Topics included elliptic curves, the history of mathematics, Bayesian statistics and the application of mathematics to studying cancer growth. We should thank Gwyneth Stallard for organising this and the LMS for their support.

The next British Women in Maths day (to be renamed "Women in Maths Day" to avoid confusion about what the "British" part meant) is to be held in May 2005.

The Mentoring project, the EWM Web-based mentoring scheme for women in maths, for which Cathy Hobbs is largely responsible, won an Athena Award for the best use of IT in furthering the careers of women in science. This is awarded jointly by the British Computer Society and the Royal Society. There are some new Grace Chisholm Young Fellowships

available through the LMS. These are intended to provide some support when a mathematical career is interrupted by family responsibilities, relocation of a partner or similar circumstance, to make possible some continuous mathematical activity and so enabling the Fellow to apply for posts when circumstances allow. The Fellowship will give an endorsement of the holder's status as a mathematician, so that the break in formal employment should not prevent them from resuming a career as a mathematician at a later stage. (These are applicable to the situation for some women mathematicians in Britain. I have mentioned these because the idea may be applicable elsewhere in Europe).

* * *

Report from meeting in the Helsinki Group

By

Irene Sciriha Aquilina

I am the Malta representative of the Helsinki group of the Women and Science section, Science and Society directorate of the European Commission (EC). At the meeting of the group, last Dec., the following statistics emerged:

While the number of women researchers in Europe, across all disciplines, is about 30% of the total, in the EC database women represent only 25%, with huge disparities among disciplines (higher percentage in biosciences, much lower in aeronautics, mathematics or IT). This data has to be improved to at least cover the 5% missing quota. The same situation exists for the panels: women experts represent 25%.

* * *

Workshops organised at Malta University

By

Irene Sciriha Aquilina

The EWM members organised two workshops held on Tuesday 9th November 2004 and 28th Feb 2005. Students and staff from the Department of Mathematics, Faculty of Science presented ideas from various fields of mathematics including

Spectra of Graphs

Trees and matrices

The Laplacian

Interpolation by Optimization

A Case of Fermat's Last

Interface with Excel

Surreal numbers

A Financial Model

There were sessions for spontaneous problem posing.

Students and staff met to exchange new ideas, pose new problems and arouse exciting yearning for more exposure to math. Such interaction does wonders in building the self confidence that students so desperately need to persevere in the challenging subjects that may initially prove difficult to understand. It motivates them to prove themselves among their peers and mentors. For some students the outcome is an eloquent example of how a lost cause is turned into a win.

III

Publications of interest

”Mathematicians as Enquirers: Learning about learning mathematics”

by Leone Burton

This book reports on an empirical study with 70 research mathematicians, 35 females and 35 males. The purpose of the study was to explore how these mathematicians came to know mathematics. The assumption underlying the research was that, when researching, mathematicians are learning and, consequently, their experiences are valid for less sophisticated learners in classrooms. The study provided major surprises particularly with respect to the mathematical thinking of the mathematicians and to the ways in which they organised their practices. It also contradicted long-standing stereotypes and provided further evidence on the difficulties faced by females in the cultural climate of mathematics.

The book is published by Kluwer/Springer, 2004, www.springeronline.com.

* * *

”Which Way Social Justice in Mathematics Education?”

edited by Leone Burton

Published in paperback by Information Age Publishing, 2004, www.infoagepub.com in the Series International Perspectives on Mathematics Education.

* * *

”Sophie’s Diary”

Texas Author Uses Fictional Story to Tell How Young Sophie Germain Taught Herself Mathematics during the French Revolution

Arlington, Texas, April 14, 2005 — Historians and mathematicians have written about a woman who became associated with the greatest scholars of the 19th century such as Gauss, Lagrange, Poisson, Legendre and others. Many have wondered how a young woman became a great mathematician during a time when women were not permitted into the centers of higher learning.

Starting with the scant biographical information available about Sophie Germain, author Dora Musielak began to piece together a story of a young Parisian girl who discovers mathematics at the beginning of 1789, a time that coincides with the start of the French Revolution. Armed with her own experience and love for mathematics Dora Musielak develops a fictional character, Sophie, inspired by the real Sophie Germain. Using the format of a personal diary Musielak writes how this shy 13-year-old girl, who has been taught basic arithmetic by her father, begins to read about the ancient scholars and becomes fascinated by mathematics. Without a tutor to guide her Sophie reads everything relevant in her father's library, and the more she reads the more she wants to learn mathematics. As the French Revolution builds up she begins to master algebra and arithmetic, and her hunger for knowledge intensifies.

Dora Musielak's account sets in perspective the challenges of learning alone. Her fictional character Sophie, although timid and soft-spoken, is resourceful and develops the courage to approach those who might provide her with the tools to learn more. And like Sophie Germain herself, the character in *Sophie's Diary* is frustrated at the lack of opportunities to obtain the education that she eagerly desires but that is reserved for men.

Dora Musielak has always loved mathematics and has pursued it since childhood. She holds a Ph.D. in aerospace engineering and has taught science and mathematics courses at several universities. Born in Mexico, Musielak currently lives with her husband and daughter in Texas.

Sophie's Diary is a must read for anybody interested in the history of women scientists and will be an invaluable resource and inspiration for students and teachers. It can be purchased directly from AuthorHouse by ordering at www.authorhouse.com, or calling 888-280-7715. The price for the paperback is \$11.50. *Sophie's Diary* can also be purchased through Amazon, www.amazon.com, and Barnes & Noble, www.barnesandnoble.com.

Dr. Musielak is available to give talks about her books or about other topics of interest to women in science and mathematics. Please email her at: Musielak@scientist.com

III

Future Activities of EWM

The 12th International meeting of EWM, 2005 Volgograd, Russia

18th - 24th September 2005

Please come to the 12th General Meeting of EWM!

The following talks are now confirmed :

Prof. Nina Uraltseva, Saint Petersburg State University, Russia:
Parabolic equations and their applications

Prof. Ljudmila A. Bordag, Halmstad University, Sweden
New types of solutions for nonlinear Black-Scholes model.

Prof. Sabine Pickenhain, Technical University Cottbus, Germany
Optimal control with application to problems in economics.

Prof. Catherine Bandle, Basel University, Switzerland
Singularities for solutions of parabolic equations. Blow-up phenomena.
She will also speak about "Woman in Mathematics in Europe"

The talks are meant to be accessible for mathematicians from all areas of pure and applied mathematics. The program will be completed with speakers in other specialties and a session on women in mathematics.

All participants are invited to contribute to the poster session, in all mathematical subjects.

The web page for the conference is at <http://ewm.volsu.ru/>. There you can register and fill in the form for the letter of invitation. It is important to register early (deadline June 1st!) as the process of making official letters of invitation, sending them, and applying for visum takes a long time. It may be advisable to register now if you think you will come, even if you are not absolutely sure yet.

Organizing committee:

Ljudmila Bordag, Halmstad University, Sweden, chair
Laura Fainsilber, Chalmers and Goteborg University, Sweden
Inna Yemeljanova, Nizhny Novgorod State University, Russia
Colette Guillope, University Paris-XII, France
Tatiana Vassilieva, Volgograd State University, Russia

Local organizing committee: Tatiana Vasilieva, Elena Mazepa, Irina Bodrenko, Irina Potapieva, Elena Grigorieva, Irina Reshetnikova, Natalia Kolodiy, Natalia Medvedieva, Tatiana Azarova, Vera Ponomareva.

Tatiana Vassilieva assures us that all participants will be very well received in Volgograd. The meeting will take place in a sanatorium where we will be housed. The nature, in particular the Volga river, is quite fantastic. The university is celebrating its 25th anniversary and is very interested in promoting international meetings (the city was closed to foreigners for many years). Volgograd was Stalingrad during WWII. For those who fly via Moscow and would like to visit there for a day or two, excursions can be organized. Volgograd is a 2-hour flight (or a 20-hour train ride) from Moscow.

The conference is open to members and non-members of EWM.

As this meeting is getting close... we should begin thinking about the following meeting, in 2007 or 2008. Would you like to host it? Do you have suggestions for places, session themes, organizers?

Please contact the standing committee (you can find the email addresses on the next page)!

V

USEFUL E-MAIL ADDRESSES AND LINKS**EWM addresses and links**

EWM web page: <http://math.helsinki.fi/EWM>

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EWM International Coordinators: <http://math.helsinki.fi/EWM/committee.html>

EWM Regional Coordinators: <http://math.helsinki.fi/EWM/coordinators.html>

Other useful links

Biographies of Women Mathematicians

<http://www.agnesscott.edu/lriddle/women/women.htm>

Women and Science

<http://www.cordis.lu/improving/>

Forum des jeunes mathématiciennes et des jeunes informaticiennes

<http://www.ens-lyon.fr/~nportier/forum2002>

Femmes et Mathématiques

<http://www.desargues.univ-lyon1.fr/home/fem/fem.html>

Mathematics Information Servers

<http://www.math.psu.edu/MathLists/Contents.html>

Mentoring Program for Women in Mathematics

<http://www.math.ias.edu/womensprogram/>

American Association of University Women (AAUW)

<http://www.aauw.org/>

Association for Women in Mathematics (AWM)

<http://www.awm-math.org/>

Russian Association of Women in Science and Education

<http://mars.biophys.msu.ru/awse/>

Topology Atlas

<http://at.yorku.ca/topology/>

The Math Forum

<http://mathforum.org/>

European Science Foundation

<http://www.esf.org/>

The Math Net

<http://www.math-net.de/>

Alexander von Humboldt Foundation

<http://www.humboldt-foundation.de/>