

What has worked in Europe to increase women's participation in science and technology?

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The objectives of the report

- The objective of this report is to provide an insight in the current situation of women academics and researchers in the Eastern countries. By 'Eastern countries' we mean the former post-communist countries, which are nowadays the 'new' EU Member States + Croatia which is currently in accession process for EU membership.
- The other objective of the report is to illuminate the European policy of ***gender mainstreaming in scientific research*** and in particular the large scope of initiatives and measures set up by the European Commission during the decade 1999-2009 in order to increase women's participation in science and technology.

Facts and Figures: A look at the statistics - Where we are?

- The public availability of sex-disaggregated statistics about the presence of women in science across R&D sectors and fields of science which allows cross-national comparisons should be considered as highest priority for any attempt to improve the current situation, i.e. to 'break the pattern'.
- Europe: '*She Figures 2003*', '*She Figures 2006*' and '*She Figures 2009*'
- The three editions of '*She Figures*' apply international reporting standards and methodology- the so-called Frascati Manual.
- We could identify some **trends** in different indicators for the period 2001-2007 by comparing the data presented in these three '*She Figures*' booklets.

Women students at the level of PhD studies (ISCED 6)

- 2006: The proportion of female PhD graduates in all Eastern countries except Czech Republic stands above the **EU-15 average of 44 %**. In six Eastern countries – Lithuania (59%), Estonia (57%), Bulgaria (53%), Latvia (51), Slovenia (50%) and Poland (50%) the female PhD graduates either outnumber male PhD graduates or are at the same level. (EC, 2009, p.49)
- 2006: The proportion of female researchers in all Eastern countries except the Czech Republic is above **the EU-27 average of 30%**. On the top place is Lithuania (49%), followed by Latvia (47%), Bulgaria (45%), Croatia (44%), Estonia (43%), Romania (43%), Slovakia (42%), Poland (39%), Slovenia (35%) and Hungary (33%) (EC, 2009, p.28).

Identified trends of women ISCED 6 graduates share by broad field of study for the time span 2001-2006

- In 2006 in the field of ***'Science, mathematics and computing'*** all Eastern countries except Latvia show a substantial increase (sometimes more than 10 percentage points) of women graduates share in this field of post-graduate/doctoral study in comparison with the respective figures for 2001.
- The same trend is valid for the field of ***'Engineering, manufacturing & construction'*** – in all Eastern countries except Slovenia and Czech Republic is observed an increase in the percentage of women PhD graduates in comparison with the respective data for 2001. For example, in 2006 in the most masculinised field of ***'Engineering, manufacturing & construction'*** eight Eastern countries had a considerable proportion of female PhD graduates which is above the **EU-27 average of 25%**, e.g. Estonia – 59%; Latvia – 43%; Lithuania – 40%; Croatia – 38%; Romania – 35%, Bulgaria – 33%, Slovakia – 33% and Hungary – 29%. Only three Eastern countries – Czech Republic (20%), Poland (24%) and Slovenia (22%) stand below EU-27 average. *One even could say that in Estonia the engineering became a feminized field of study.*

Horizontal segregation

- The analysis of gender distribution of researchers across R&D sectors shows that in 2006 the research potential of almost all Eastern countries is concentrated in the Higher Education sector (HES). The highest proportion of researchers (women and men) are employed in the HES in Lithuania (76.9%); Poland (73%); Slovak Republic (71.2%); Latvia (70%); Estonia (64.8%) and Croatia (63.2%). The research potential of Bulgaria is still concentrated in the Government R&D sector (GOV R&D).
- In five Eastern countries the share of women researchers in the field of **'Natural sciences'** is above the Eastern countries average of 39.4% , e.g. in Bulgaria (53.9%) followed by Romania (50.2%), Croatia (46.2%), Lithuania (45.2%) and Latvia (41.1%). In the field of **'Engineering and technology'** Romania and Slovakia rate highest (39.7% and 32.3% respectively) followed by Croatia (30.2%) and Estonia (29.5%). In the majority of the Eastern countries female researchers outnumber male researchers in the field of 'Medical sciences', while in the fields of 'Social Sciences' and "Humanities' there are to some degree more balanced representation of the two sexes.

Vertical segregation

Identified trends for the time span 2001-2006: some good and some bad news

- The good news is that in all Eastern countries, except Estonia the proportion of female academic staff at 'Grade A' (Full professor) has increased during the period 2004-2007 and it seems to be a stable trend.
- The bad news is that in 2007 despite the existing large available pool of Eastern academic women at 'Grade A' in the majority of the Eastern countries the proportion of female heads of universities and equivalent higher education institutions was less than 10%.
- In general the statistics figures reveal a kind of paradox – on the one hand the proportion of female researchers in all Eastern countries (except the Czech Republic) is above **the EU-27 average (30%)**; on the other hand the so-called 'glass ceiling index' (which measures the gap between the progress of men and women in science careers) is ***thicker in the Eastern countries*** and stands above that of EU-15.

Where we are? The Story Behind the Numbers

- In short the statistics show that despite of some progress made during the last decade gender inequality in science is a persistent phenomenon. In 2007 only 19% of EU-27 professors were women and even less – 17% for the EU-15 (the 'old' EU Member States). At the same time women's share in decision-making positions was marginal.

The European policy of gender mainstreaming in scientific research: A decade of initiatives and support for European women academics and researchers (1999-2009)

The major actor on the European scene is Directorate-General for Research of the European Commission. Some important work was carried out also by the Directorate- General for Employment, Social Affairs and Equal opportunities.

- Initiation of Policy forum at European level: Discussion and sharing experience (*Permanent and Temporal Expert Groups and their Reports*)
- Setting a number of fixed targets
- Implementation of the Gender and Science Watch System
- Providing financial support for research projects
- Launching a European Institute for Gender Equality (EIGE) in Vilnius, Lithuania

Initiation of Policy forum at European level: Discussion and sharing experience (*Permanent and Temporal Expert Groups and their Reports*)

- ✓ The Helsinki Group on Women and Science (1999), Reports:
'National Policies on Women and Science in Europe'. (EC, 2002)
'Benchmarking policy measures for gender equality in science'. (EC, 2008)
- ✓ ETAN (European Technology Assessment Network) Expert Group on Women and Science), - 1998, Report:
'Science policies in the European Union: Promoting Excellence through Mainstreaming Gender Equality' (EC, 2000).
- ✓ ENWISE (*Enlarge Women In Science to East*) Expert Group (2002), Report:
'Waste of talents: turning private struggles into public issue. Women and Science in the Enwise countries'. (EC, 2003)
- ✓ WIR Expert Group (Women in Industrial Research)- 2002, Report:
'Women in industrial research: A wake up call for European industry' (EC, 2003)
- ✓ WiST Expert Group (Women in Science and Technology) - 2006, Report:
'Women in Science and Technology: a Business Perspective'. (EC, 2006)
- ✓ WiST2 Expert Group, Report:
'Women in science and technology -Creating sustainable careers'.(EC, 2009)
- ✓ WIRDEM Expert Group (*Women In Research Decision Making*), Report:
'Mapping the Maze: Getting more women to the top in research' (EC, 2008).
- ✓ Gender and Excellence Expert Group, Report:
'The Gender Challenge in Research Funding: Assessing the European National Scenes' (EC, 2009).

Annex I: Summary chart of equality measures

| Measure / Country | AT | BE | BG | CY | CZ | DK | EE | FI | FR | DE | EL | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | | |
|--|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|
| 1- Equal treatment law | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| 2- Ministry for Women's affairs./ Statutory Gender Equality Agency | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | |
| 3- Commitment to Gender Mainstreaming | x | | | | | x | x | x | x | x | | | | x | x | x | x | | | | x | | | x | x | x | | | |
| 4- Women in Science Unit | x | | | | x | | | | x | x | | | | x | x | | | x | | | | | | | x | x | x | | |
| 5- Quotas | x | x | | | | | | | x | | | | | x | | | | | | | | | | | | x | x | | |
| 6- Targets | x | | | | | | | | x | x | | | | | | | | | | | | | | | | | x | x | x |
| 7- Sex-disaggregated statistics | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | | x | x | | x | x | x | x | x | x | x | |
| 8- Networks for women in science | x | x | | | | | x | | x | x | x | | | x | | | | | | x | | | x | | | x | x | | |
| 9- Mentoring for women in science | x | | | | | | | | x | | x | | | x | | | | | | x | | | | | | | x | x | |
| 10- Women Studies | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| 11- Gender Studies | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | |
| 12- Gender equality plan in universities | x | | | | | | x | | x | | x | | | x | | | | | x | x | | | | | | | x | x | x |
| 13- Special funding available to women in science | x | | | | | | | | x | x | x | | | x | | | | | | x | | | | | | | x | x | x |
| 14- Resources for returnees | x | | | | | | | | | | x | | | | | | | | | x | | | | | | | | x | |
| 15- Paternity leave | x | x | | | | | x | x | x | x | x | x | x | x | x | x | | | | x | | | | | | x | x | x | x |

Legend:
 : Yes, already in Rees (2002)
 : Yes (new)
 : Partially*
 Blank cell = no

* 'Partially' means: for *Mainstreaming*: the country might be committed to gender mainstreaming in official documents but does not have special plans for implementing it; for *Targets*: it means that one, but not all, scientific bodies/ies might have targets; for *Sex-disaggregated Statistics*: it means that some, but not all, data are sex-disaggregated; for *Networks*: it means that there is only one (or very few) network/s for women in science; for *Women's Gender Studies*: see individual country's explanation in policy reports; for Gender Equality Plan in Italy there are Equal Opportunity Committees in Universities but not necessarily plans as such.

Setting a number of fixed targets

- At least **40% representation on average for women** in Marie Curie Fellowships, advisory groups and assessment/monitoring panels and consultative Committees throughout the FP5 (1999).
- An increase in the number of women in leading positions in public research **to 25 % by 2010** (2004).
- An increase in the proportion of female new recruitments to **at least 33 % by 2010** (2004).

Implementation of the Gender and Science Watch System

Establishment of an administrative body of “Women and Science” within DG Research of EC (1999) in charge with the following duties:

- To develop the “Gender and Science Watch System”
- To coordinate the policy of mainstreaming gender equality at all levels, schemes and stages of the FP5.
- To collect and disseminate statistics on the sex of participants in all key actions of FP5.
- To develop indicators for measurement of gender equality in FP5.

Providing financial support for research projects

- Within the decade 1999-2009 the DG for Research of the European Commission has provided financial support to **35 projects** in the field of 'women and science'.
- The full list of the European Union-funded projects is available and appeared in the *Special issue* of the Journal 'Research*eu' of April 2009.
- Another **20 gender-focused projects** were supported within the "Socio-Economic Sciences and Humanities" Programme of the FP6 and FP7 of the EU.
- The EU-backed projects provide different solutions shaped in sets of recommendations and action lines for their implementation for breaking the pattern, for tackling the stereotypes, for getting women scientists visible and being recognized.

Launching a European Institute for Gender Equality (EIGE) in Vilnius, Lithuania

- The European Institute for Gender Equality is a European agency to support the Member States and the European institutions (in particular the Commission) in their efforts to promote gender equality and to raise awareness of gender issues. EIGE opened its doors in Vilnius on 16 December 2009.
- On 8th March 2010, EIGE announced the launch of an ongoing activity; the creation of its future "Women of Europe" database. EIGE encourages nominations from and about the successful 'Women of Europe'. The activity aims to highlight their achievements and success stories - as part of its efforts to disseminate information regarding positive examples of non-stereotypical roles and to publicise such success stories. Further information about this newly launched Institute could be found at EIGE web: <http://eige.europa.eu>

Problems and issues at the stake

- To date not all EU Member States have expressed commitment to the EU policy of gender mainstreaming in science by adopting official strategic policy documents in which the reference to gender mainstreaming is present.
- As far as to the 'new' EU Member States, the governments of majority of the Eastern countries (except Bulgaria, Hungary, Poland and Romania) have committed to the EU policy of gender mainstreaming in science but this commitment had not been backed with the respective financial and administrative resource. We can say that the implementation of gender mainstreaming in science is not at the stake in the Eastern countries because of the scarcity of financial resource to address the issue.
- The set up target of 40% is still not fully met throughout the EU Framework Programs with a notable exception of the case of Maria Curie Fellowships.
- There are no deadlines for achieving of the proposed targets of 25% for women share in decision-making positions and 33% - for female new recruitments at the national level of the EU Member States.

A synoptic vision for achieving gender balance in scientific research and leadership (women's representations in decision-making position in science)

- A shift of the focus of the gendered lens towards the issue of *organizational culture* of scientific institutions (universities and research centers): Instead of encouraging women scientists to fit into the existing science institutional system we should look for achieving a more gender-sensitive system.
- The concept *organizational culture* could be operationalised through a '3Rs-dimension model'. The three **Rs** are: **Recruitment – Retention – Recognition**

Recruitment Dimension

- The crucial topic here is the transparency of selection and appointment procedures and practices at the level of scientific organizations (universities and research centers). The presence of 'Gender Action Plans' and/or 'Programmes for gender equality in science' is necessary as well as an office/unit in charge of monitoring of the recruitment procedures and in charge of implementation of set up gender equality programmes. This unit is supposed to be located at the Human Resource department of the scientific organizations and to serve as promoter of gender mainstreaming in science tracking the progress towards an adequate gender balance at all levels of academic hierarchy. *We believe that the management of gender equality should be considered as an element of quality management at the level of scientific institutions.*

Retention dimension

This dimension refers to issues like:

- **Work-life balance**
- **Dual careers (and mobility)**
- **Gender pay gap and researchers' remuneration**
- **Child- care facilities and flexibility**

The provision of childcare services in the Eastern countries

Source: The provision of childcare services. A comparative review of 30 European countries, European Communities, 2009, p.40

| Country | Provision of childcare services |
|---------|--|
| BG | Limited supply of (and demand for) childcare services for the youngest children. |
| CZ | The demand for childcare facilities far exceeds supply, especially for the youngest age category. There is also a shortage of pre-school facilities for children below 5 years. |
| EE | There is a shortage of childcare places for almost all age categories, but especially for children under 3 years. |
| LV | There is a severe shortage of places in public kindergartens. On average, about 60 % of children attend kindergartens. |
| LT | The availability of childcare services is limited. In addition, there is an insufficient number of places in public kindergartens in most urban and rural areas. |
| HU | Coverage of nurseries is small and falls far short of meeting the demand of working parents. Supply of kindergarten facilities is more or less adequate, except for smaller rural settlements. |
| PL | Coverage of nurseries and pre-school arrangements is small and falls far short of meeting the demand of working parents. |
| RO | Very low coverage. In addition the quality of the services causes problems. |
| SL | There is a growing inclusion of young children in childcare services. There are, however, large differences between towns and between urban and rural areas. |
| SK | Limited provision of (and demand for) childcare facilities for the youngest children. After a period of decline, the coverage rate for pre-school arrangements is increasing and is more or less at the level of 1989. |

Recognition dimension

This dimension refers to issues like:

- ✓ **Career path**
- ✓ **Leadership**
- ✓ **Support for mobility**
- ✓ **Scientific excellence**
- ✓ **Peer review system**
- ✓ **Access to research funding, etc.**

Equal access to research funding: Problems at the stake

- The national agencies of the Eastern Countries are not engaged either with gender equality planning or with gender equality monitoring in all aspects of their activities. For example gender is not taken into account at the selection and recruitment of evaluators both national and international, the success rate by gender of applicants is not monitored and any special positive measures for promotion of women scientists under the form of specific programmes, calls and target funding are lacking.

Some conclusions

- Neoliberal market values and orientation affected HES and GOV R&D sectors in both Western and Eastern countries. The focus is set on **competition** both at the level of institutions and individuals and their ability for attracting research funding outside of the allocated state budget subsidies. The *scientific excellence* tends to be measured in terms of this ability. The prospect is for future challenge of gender equality in scientific research. For example the current reforms in the mechanisms of R&D funding ongoing with different pace across the Eastern countries do not suggest that any kind of gender equality issue or gender balance have been taken or would be taken into account.
- An urgent need to extend the current '*policy of non-discrimination by sex*' in HES, GOV R&D, BES and PNP sectors to a '*policy of gender mainstreaming in scientific research*' through modernization of the **organizational culture** at the national level of scientific organizations.
- At all levels of the debate on gender equality of science, men scientists should participated as well.

Thank you for your attention!