TERRITORIO DELLA RICERCA
SU INSEDIAMENTI E AMBIENTE
RIVISTA INTERNAZIONALE
DI CULTURA URBANISTICA

10

che "genere" di città per il futuro

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sommario

che "genere" di città per il futuro/
what "gender" city for the future

Sommario/*Table of contents*

TERRITORIO DELLA RICERCA
SU INSEDIAMENTI E AMBIENTE
RIVISTA INTERNAZIONALE
DI CULTURA URBANISTICA

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abstract

COST network genderSTE: Networking Gender Equality in Research and Innovation in Europe and beyond

Inés Sánchez de Madariaga

Abstract

Gender is one of five priorities of the European Research Area, as stated in the Communication adopted in July 2012 entitled *A Reinforced European Research Area Partnership for Excellence and Growth* (EC 2012c). Following this Communication, the EC has fully integrated gender dimensions in its proposal for a regulation on the new research framework program *Horizon 2020*¸ which includes in article 15 a provision for gender mainstreaming (EC 2011b). One final upcoming policy instrument announced by the EC

is the *Recommendation on Gender, Science and Innovation* that will address member states and be adopted in the next months. Against this European policy background, the international COST network genderSTE (Gender, Science, Technology and Environment) aims at enhancing a better integration of gender dimensions in science and technology at three main levels: i) promoting women's careers in science and technology through structural change of institutions (as recommended by EC) by disseminating existing research and practice; ii) promoting a better integration of gender in the content of science, research and technology, by dissemination existing research on the topic, ie the EU-US Gendered Innovations Project; iii) identifying gender dimensions relevant to environment-related Horizon2020 Grand Challenges and other urban EC initiatives.

COST network genderSTE: creare rete per la parità di genere nella Ricerca ed Innovazione in Europa e oltre

Il genere è una delle cinque priorità dello Spazio europeo della ricerca, come dichiarato nella comunicazione adottata nel luglio 2012 dal titolo *A Reinforced European Research Area Partnership for Excellence and Growth* (CE 2012C). A seguito di tale comunicazione, la CE ha pienamente integrato le dimensioni di genere nella sua proposta di regolamento sui nuovi programmi quadro di ricerca *Horizon 2020*, che prevede all'articolo 15 una disposizione per il mainstreaming di genere (CE 2011b). Un prossimo strumento di politica annunciato dalla CE è *Recommendation on Gender, Science and Innovation*, indirizzata agli Stati membri e sarà adottata nei prossimi mesi. In questo contesto di politiche europee, la rete internazionale *COST genderSTE* (genere, Scienza, Tecnologia e Ambiente) mira a consolidare una migliore integrazione della dimensione di genere nel campo della scienza e della tecnologia a tre livelli principali: i) promuovere le carriere delle donne nella scienza e nella tecnologia attraverso un cambiamento strutturale delle istituzioni (come consigliato dalla CE) per la diffusione di ricerche e pratiche esistenti; ii) promuovere una migliore integrazione di genere nel contenuto della scienza, della ricerca e della tecnologia, mediante la diffusione di ricerche esistenti sul tema, per esempio la *EU-US Gendered Innovations Project*; iii) individuare le dimensioni di genere rilevanti per le G*randi Sfide di Horizon 2020* e altre iniziative urbane della CE.

Keywords:
genderSTE, Gender Equality, Research and Innovation, EC

COST network genderSTE[1]: Networking Gender Equality in Research and Innovation in Europe and beyond

Inés Sánchez de Madariaga

The European policy context on gender and science

Statistics show that the presence of women in the science system does not advance at the same rate as the numbers of women holding PhD's and also that horizontal segregation persists in some scientific and technological fields. Horizontal (or quantitative) segregation is produced to the extent that some fields of knowledge are very feminised (especially those related to life sciences), whilst others are very masculinised (engineering and experimental sciences). Vertical segregation is produced in all fields, independently of the degree of feminisation of the university student body: there are very few women at the highest levels in science, even in fields, such as medicine, where women have been in the majority at Associate Professor level for some time.

The presence of women at the highest level in science is not proportional to the number of women who are qualified, of the correct age, and have the necessary merits and motivation for these posts. Furthermore, the number of women in leadership posts is practically unchanging and is progressing only very slowly over time.

It is becoming broadly agreed in European scientific institutions that the scarce presence of women in science and technology is a waste of resources that neither science nor the economy can allow. 60% of people graduating from European universities are women. They graduate with excellent academic grades, often better than those of their

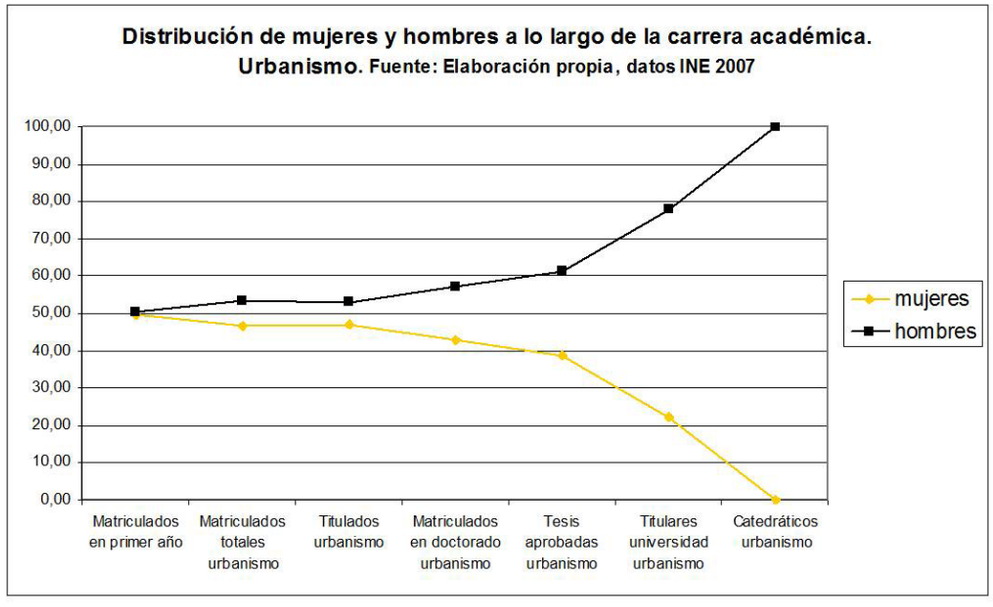

Fig 1 Presence of women and men throughout the academic career, the so called leaky pipe-line, field of urban planning, Spain.

male counterparts. But this highly qualified personnel does not find a place in the system. Many technological fields remain highly male also in overall numbers among undergraduate students, with average numbers of women studying these subjects below 30%.

Effective public policies are required to remove the obstacles and barriers that stand in the way of women in science and technological careers in Europe. The European Commission started along this path in 1999 with the creation of two organisations responsible for defining these courses of action and putting them into practice: the Women and Science Unit at the very heart of the Directorate-General of Research, and the Helsinki Group, an assessment group for the Commission. In 2001 the Commission published a preliminary report on the matter, the *ETAN Report Promoting Excellence through mainstreaming gender equality* that, for the first time, provided a global view of the position of women in science in Europe.

Since the publication of the ETAN Report, the Commission has funded a large number of studies that are already providing a solid base to help us understand the situation, its causes, and the measures taken so far by each country. In addition to promoting a solid knowledge base, the European Commission Directorate-General for Research has developed a number of innovative measures: including gender requirements in calls for proposals in the 6th Framework Programme, "proposals should indicate whether, and how, sex and gender are relevant variables in the objectives and methodology proposed"; gender and science training programmes; targets for the presence of women in the research programme; publication of statistics; committees, teams and calls for proposal; calls for proposals for Structural Change to institutions.

An evolution has been noticed in the stance of European institutions towards understanding the position of women in science and gender bias in research content as a problem with systemic and structural roots and which, therefore, requires more systematic measures than those taken so far and structural changes in scientific institutions aimed at better consideration of the gender dimension in all areas (EC 2011c).

In 2010 the Competitiveness Council, comprising European research and innovation ministers, adopted an important agreement to provide support for women in science and to promote structural change through the modernisation of scientific institutions. This agreement incorporates the recommendations of the document entitled *Gender and Research Beyond 2009* by the Helsinki Group (Helsinki Group 2009). It urges the Commission to adopt a Recommendation on Structural Change. This Recommendation will presumably be adopted in 2013. An Expert Group has issued a report with recommendations (EC 2011c) and another has been created at the beginning of 2013 to draft an impact analysis of the proposed Recommendation.

Over a decade of women in science policies at the European Union have produced a significant body of research and policy action at the European level and also in a number of member states. The series *She Figures. Statistics and Indicators on Gender Equality in Science,* now in its fourth edition after being first published in 2003 (EC

2012b), provides a good data source at a European scale from which to devise and benchmark policy. Additionally, some countries do produce specific publications with sex disaggregated data and gender indicators of women and science, such as the *White Paper on the Situation of Women in Science in Spain* (Sánchez de Madariaga et al 2011) and *Científicas en Cifras 2011* (Ministerio de Ciencia e Innovación 2011).

A number of studies describe specific best practices for gender in science and technology: *Talent at stake. Changing the Culture of Research – Gender-Sensitive leadership* , by the Norwegian Committee for Gender Balance in Research (2009); *Prages* (EC 2009b) is a database of experiences around the world; *Mapping the maze* (2004b) provides a list of good practices to help reduce vertical segregation, as well as national reports on the situation; *WIR- Women in Industrial Research: A wake up call for European industry* (EC 2003) tackles the participation of women in private sector research; *Waste of talents: turning private struggles into a public issue. Women and science in the ENWISE countries* (EC 2004a) analyses the situation in Baltic, and central and eastern European countries; *The gender challenge in research funding* (EC 2009) includes recommendations for improving transparency in assessment processes and in research funding in general. The study *Stocktaking ten years of women in science policy* (EC 2010) provides an overview of a decade of European policy making on women in science, celebrating the creation in 1999 of the Women and Science Unit in DG Research. The *Meta-analysis of Gender and Science* (EC 2012a) provides a wide overview of research, policies, issues and best practice. The *Toolkit of Gender in Research* by Yellow Window (EC 2009) provides a number of examples on how to introduce the gender dimension in research projects of the different thematic areas of the European Framework Program. The European Commission has also funded the *genSET Report* (genSET 2010) in which a panel of European science leaders identify a set of thirteen main recommendations.

Fig 2 European statistics on women in science and technology published every three years by the European Commission.

The League of European Research Universities has issued a Report on *Women, research and universities* (LERU 2012) also with recommendations addressed to various sets of actors and a selection of best practices among its institutional membership.

The Commission has published recently two key documents providing roadmaps for gender and science. The first one has been already mentioned and is a roadmap for promoting women in science titled *Structural Change in Research Institutions* (2011c) which identifies main problems, produces recommendations organized thematically and by actor, and a selection of best practices accross the world. This report has identified five main sets of problems faced by research institutions: opaqueness in decision-making, despite significant progress in Europe, as lack of transparency continues to affect structures and processes; institutional practices which appear to be neutral but do have negative effects on the career opportunities of women;

unconscious gender bias, which also affects the assessment of excellence; wasted opportunities and cognitive errors in knowledge, technology and innovation; finally, statistics show that there is still a gender pay gap, and that gender continues to be a structuring factor in the workplace, also in research.

The *Structural Change Report* proposes structural change in science institutions as the means to address each of these five sets of problems, so that decision making is more transparent, unconscious bias is removed from institutional practices, human resources management is modernized, excellence is promoted through diversity, and research and innovation are improved by the integration of a gender perspective. Its recommendations address the different interested stakeholders: member states, science institutions, European-wide organisations, gate-keepers of excellence, and the Commission itself. It includes a selection of best practices from around the world. It is a short, precise and to point document.

The second one is the *Gendered Innovations Project* which develops practical methods of sex and gender analysis for science, health and medicine, and engineering, and provides case studies as concrete illustrations of how sex and gender analysis leads to innovation. Gendered Innovations—fueled by sophisticated gender methods—stimulate the creation of gender-responsible science and technology, and by doing so enhance the lives of both men and women around the globe.

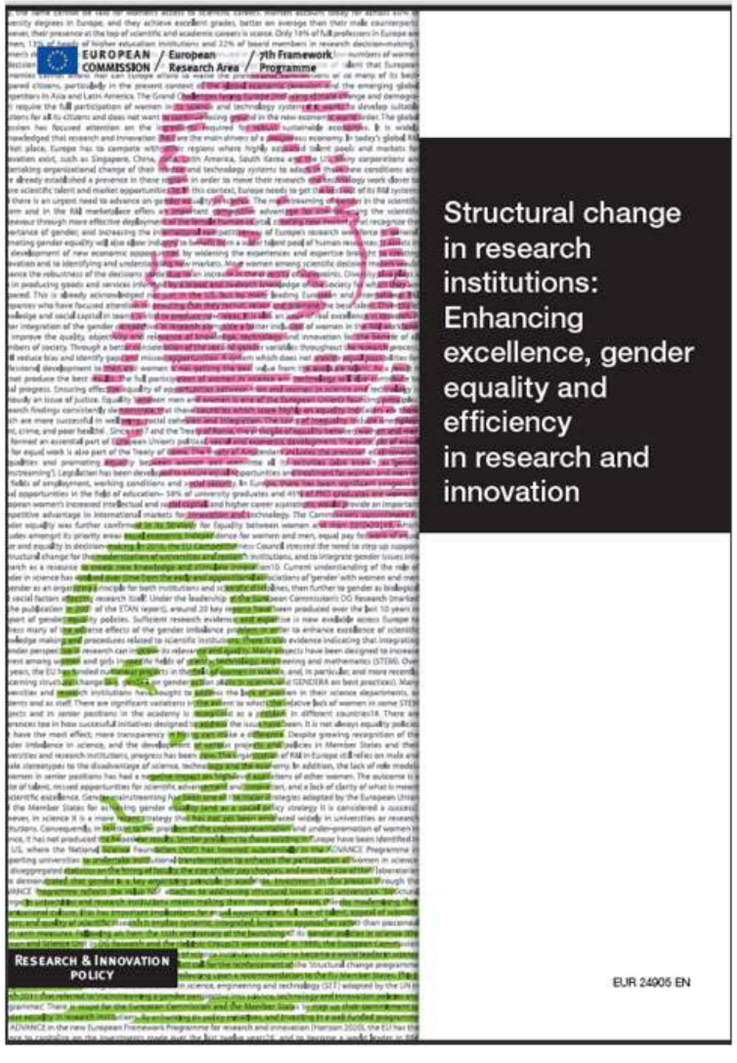

Fig 3. The Structural Change Report of the European Commission, 2011. Recommendations addressing universities and other stakeholders to promote gender equality as a means to promote excellence in research systems.

The goal of the *Gendered Innovations Project* is to provide scientists and engineers with practical methods for sex and gender analysis. Examples of gendered Innovations include: sex and gender analysis has led to the development of pregnant crash test dummies that can be used to enhance safety in automobile design; sex and gender analysis has included men in osteoporosis research, leading to better diagnoses and treatments (in the past, osteoporosis was conceptualized as a disease of postmenopausal women); sex analysis in animal research has led to new knowledge about how sex hormones influence basic molecular pathways involved in immune system function. This is relevant to treating numerous diseases, including autoimmune diseases and HIV infection.

All these studies, policy documents and position papers sum up to the existing wealth of research on gender in science and technology to provide a basis for action. The implementation of all these recommendations, however, is still slow and very uneven across COST countries. As the EC is moving forward with its policy initiatives, it is of paramount importance that individual and institutional actors at all levels and across Europe –governments, funding agencies,

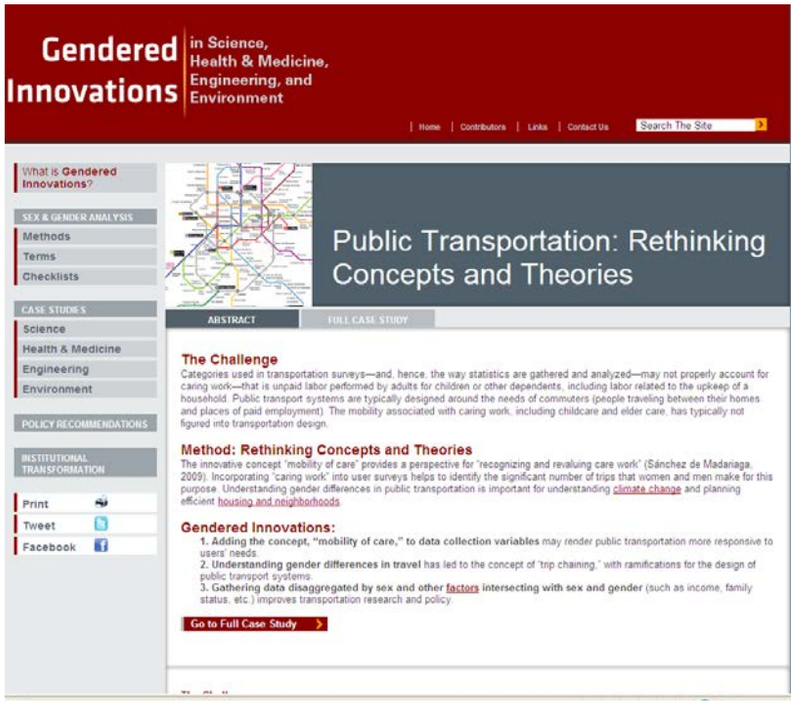

Fig 4. the Gendered Innovations in Science, Health and Medicine, Engineering and Environment Project, funded by the European Commission and the US National Science Foundation, provides methods and case studies as tools for researchers and policy makers.

universities, journals, professional bodies and European-wide organizations, researchers and policy makers, etc.- become aware of the policy options available, examples of best practice, the manuals and toolkits.

The COST policy driven network Gender, Science, Technology and Environment, *genderSTE*

GenderSTE is the first of a series of policy driven networks set up by COST, the European Cooperation in Science and Technology[2]. COST is an intergovernmental program that includes 35 Member Countries in Europe and one Cooperating State (Israel). This allows researchers from these countries to embark upon networking opportunities by participating in science and technology network. COST Actions do not limit participation to scientists from COST Member Countries only but also from near-neighbor countries. In addition, COST holds reciprocal agreements with Argentina, Australia, New Zealand and South Africa for their institutions to participate in COST networks.

The main objective of genderSTE is to advance the state of the art in knowledge and policy implementation on gender and science and technological development through creating a network of policy makers and experts on gender, science and technology.

Fig 5. GenderSTE. A policy-driven COST network

Collaborative work is being developed in the following three aspects: i) contributing to/enhance implementation of policy measures geared towards structural change in science and technology institutions for a better integration of the gender dimension in career opportunities for women and men, building on the EC report "Structural change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation"; ii) dissemination and implementation of policy measures geared at integrating the sex and gender dimensions in the content of science and technology, building on the work of the Gendered Innovations Project; and iii) advance in the development of a better understanding of the sex and gender dimensions of technological development and innovation processes, with specific attention to the Grand Challenges identified in *Horizon 2020* and the various urban initiatives at EU level.

The network genderSTE aims to overcome two challenges. The first is the lack of implementation of previously-elucidated gender in science and technology roadmaps and best practice guidelines throughout many COST countries, in two specific and interrelated aspects: structural change of institutions for promoting women's careers; integration of sex and gender analysis in the content of research and technology. (Sex analysis refers to biological characteristics while gender refers to socio-cultural ones; often sex and gender interact; for detailed definitions see the section on 'terms' at wwww.genderedinnovations.eu). The second is the need to develop discipline-specific gender roadmaps and best practice guides for important fields for *Horizon 2020 Grand Challenges*.

The networking activities will bring together researchers and decision makers. Representatives from research and policy institutions that are less experienced/ advanced with regard to gender in science and technology will be exposed to representatives from institutions countries that are more experienced and/ or advanced in these issues. Current recommendations, information and resources will be consolidated and disseminated and new knowledge generated to fill gaps in key areas.

The European Commission publication "Structural Change in research institutions: Enhancing excellence, gender equality and efficiency in research and innovation" describes the cost of taking no action in this regard as: danger of flawed research or diminished relevance of results; missing innovation and market opportunities; unfulfilled use of human capital (women scientists) in a competitive global R&I economy; increased societal distrust of, and reduced support for, science and its institutions.

The Gendered Innovations Project asserts that analyzing sex and gender prospectively can serve as a resource to stimulate new knowledge and technologies. From the start, sex and gender analyses act as additional "controls" (or filters for bias) to provide excellence in science, health and medicine, and engineering research, policy, and practice. The methods of sex and gender analysis are one set of methods among many that a researcher will bring to a project. In this way Gendered Innovations:

- "Add value to research and engineering by ensuring excellence and quality in outcomes and enhancing sustainability.

- Add value to society by making research more responsive to social needs.
- Add value to business by developing new ideas, patents, and technology."

The target groups/ end users of genderSTE include science and technology policy, funding and performing institutions and stakeholders relying on the results of science and technology. GenderSTE will direct its activities to the first three groups and the results of the activities will result in better results for the end users. Specifically the network will focus on:

- Disseminating and implementing work on structural change to science policy and funding organisations, European-wide organizations, universities and research institutions, journals, individual researchers and other stakeholders.
- Disseminating and implementing work on gendered innovations to science policy and funding organisations, European-wide organizations, universities and research institutions, journals, individual researchers and other stakeholders.
- Completing a stocktaking of the current situation, developing a research agenda to identify main issues, and advance on the state of the art in the fields i) energy and climate change, ii) City development, and iii) transport from a gender perspective, and disseminating and implementing this to science policy and funding organisations as well as to researchers directly in order to feed into *Horizon 2020* and urban development related European initiatives. The state of the art is uneven in these three research areas, with very little work done on the first one, much more on the third one, and an in-between position of the second. This uneven degree of advancement in research is the reason of specifically devised types of activity proposed for each of these three subtopics.

Work is divided in three working groups, the third of them further subdivided in three subworking groups, and one task force. WG1 (Promoting Structural and institutional change) operates through disseminating and contributing to the implementation of structural changes of science and technology institutions in support of greater gender balance in science and technology careers. The network promotes a transfer of knowledge of the know-how existing in countries with greater experience into other COST countries. Its activities include: presentations at major science policy conferences; targeted information sessions in institutions in COST and Near Neighbor countries; exchanging information/ providing training to Action participants from countries that are more advanced in this area; seminars, workshops; short term scientific missions; toolkits.

WG2 (Promoting Gendered Innovations) will address mostly decision makers (policy and funding organisations) to improve the inclusion of sex and gender analysis into all stages of the research process (policy and research projects). GenderSTE will further disseminate the Gendered Innovations Project beyond its final presentation event at the European Parliament in July 2013. Its activities include: presentations at major science policy conferences; targeted information sessions in institutions in COST and Near Neighbor countries; exchanging information/ providing training to Action participants from countries that are less advanced in this area; seminars, workshops; short term

scientific missions; toolkits.

WG3 (Mapping Gender in environment-related Horizon2020 Grand Challenges) will spend the first 2-2.5 years stocktaking the current situation, developing a research agenda regarding sex and gender in research, and advancing the state of the art in the following fields: i) energy and climate change; ii) Cities and iii) transport; over the last 1.5-2 years of the Action it will disseminate and contribute to the implementation of this. Its activities include: meetings of experts on gender and policy makers in each of these fields, together with gender experts and with specific field experts; Short Term Scientific Missions for each of the fields; meetings with decision makers on European research on the three fields of climate change/energy, urban development, transport, presentations at major conferences specific to each of the three topics; a major international conference on Gender and Sustainable Development covering the three topics –energy and climate change; urban environment; transport.

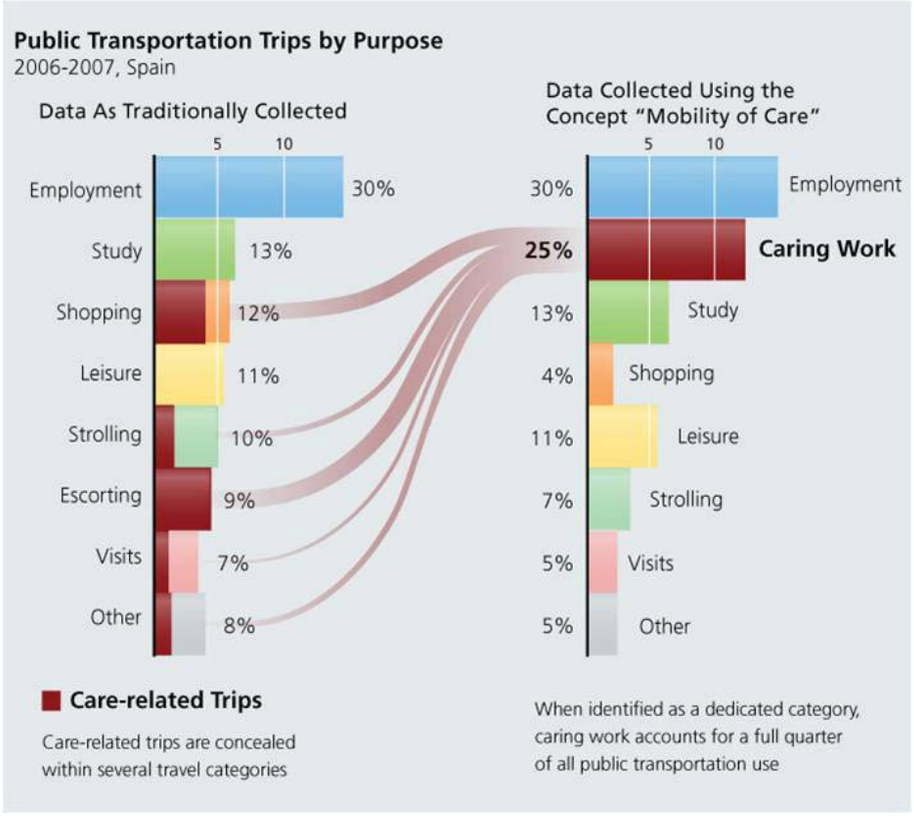

Fig 6. Transport is a field where proper integration of gender dimensions will lead to innovations and better policies. The innovative concept "mobility of care" proposed by this author.

Finally the Task Force on Innovation in Industry seeks to create awareness in industry for the innovation and business potentials of gender know-how within technology, products and services. Research has shown among other issues how men's and women's approach to technology differs: while women tend to be more interested in the (social) benefits of technology, many men focus on tech-performance and tech devices which are of interest for their own sake or as status symbols. To create valuable and sustainable research results and technologies for all people, women and gender perspectives should be included at all stages of the innovation process, in order to keep a strong focus on development of technology with meaning and innovation that implies real life benefits for most users.

Participation in the network *genderSTE*

GenderSTE establishes links and interacts with other research programmes. In particular, the European Commission is an observer in the Network, as genderSTE intends to contribute to the elaboration and implementation of EC upcoming Recommendation on Gender and Science. Collaborations will take place with ongoing and future European wide initiatives, such us: the gender focused era-net, Gender-NET; projects financed under the Structural Change EC call (supporting changes in

the organization of research institutions to promote Gender Equality); Responsible Research and Innovation toolkit; the Gendered Innovations Project; the Helsinki Group; the portal financed under the GenPort project coordinated by UOC (Spain), which will create the main European portal for information on Gender and Science; Urban Europe JPI and other EC city related European initiatives in order to promote gender mainstreaming of urban research in Europe; the European Gender Summit; the Conference on structural change promoting gender equality in research institutions organized by the different Presidencies, such as the one at the University of Vilnius in 2013 under Lithuanian Presidency.

The targets of genderSTE are: science policy agencies, science funding agencies, research institutions and researchers themselves. Dissemination methods will vary according to the target group and will include: papers in scientific journals; presentations at conferences; thematic/ scientific conferences, science policy and gender specific conferences; articles in the COST newsletter; best practice guide for COST actions; movies/ online training sessions that can be used in the future to ensure dissemination beyond the lifetime of the action; action website; toolkits.

GenderSTE was launched in November 2013 at the European Gender Summit in Brussels and will run for a period of four years. As of May 2013, it has 136 individual Members, of which 13.6% are men, and 40% are early stage researchers (less than 8 years after PhD). Country participation includes 32 of 35 COST countries (missing as of May 2013 are Macedonia, Turkey, and Luxembourg). Among those countries defined by COST as near-neighbor countries, Morocco is already a member and contacts has been established with a number of them, particularly those included in

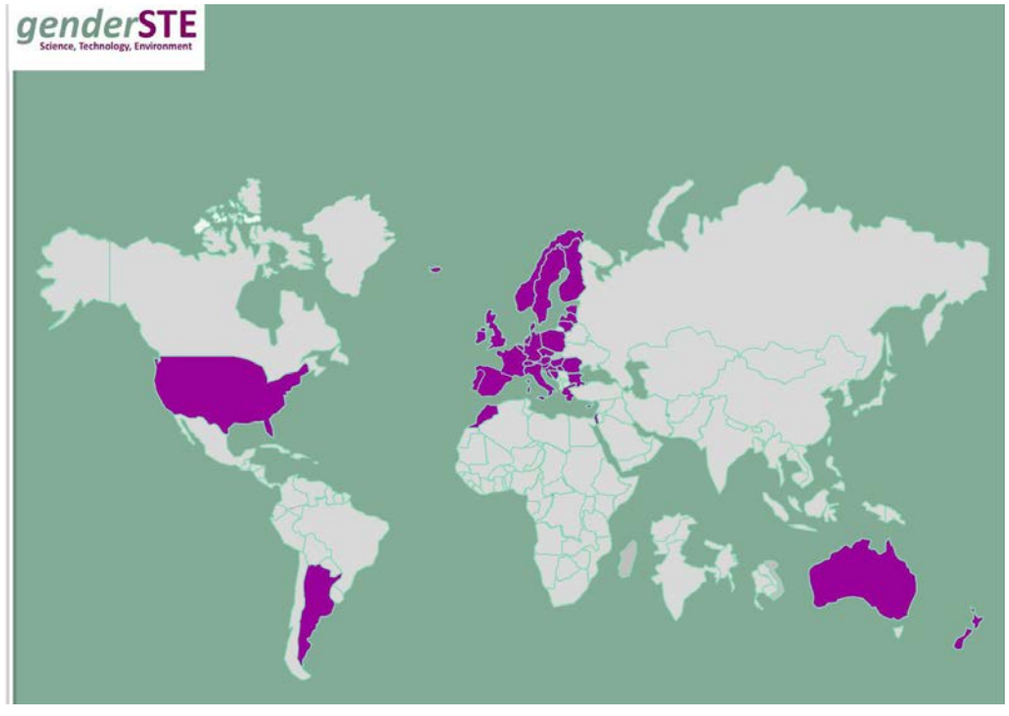

Fig 7. Countries participating in gender-STE.

the network *Shemera*, which, in an effort paralleling *She Figures,* seeks to establish sex disaggregated statistics in science in a number of countries from Northern Africa and the Middle East. Institutions from three of the 4 countries hold reciprocal agreements with COST -Australia, New Zealand and Argentina are participating in the network, as well as four international organizations: Marie Curie Fellows Association, the European Platform of Women Scientists EPWS, the European Center for Women in Technology ECWT, the International Council for Local Environmental Initiatives ICLEI. Finally, the US National Science Foundation NSF has confirmed interest in financing a number of North American institutions to participate in genderSTE activities.

Networking the way to equality in research and innovation

GenderSTE addresses as explained three issues of concern. Increasing female participation in the system through structural change is a goal shared by the EC and many scientific institutions in Europe, as demonstrated by the public consultation process started by the European Commission with the aim of defining the *Horizon 2020 Framework Programme for Research and Innovation*. The European Research Area Strategic Vision adopted in 2010 sets a target for half of all scientific personnel, in all disciplines and at all levels of the scientific system, to be women by 2030. How to implement structural change in institutions so as to improve the presence of women in the system is a first issue of concern addressed by genderSTE. «Thirty years of research have revealed that sex and gender bias in science and technology can be socially harmful and expensive». As the Gendered Innovations Project shows (Schiebinger et al 2011) between 1997 and 2000, 10 drugs were withdrawn from the U.S. market because of life-threatening health effects—4 of these were more dangerous to women. It is crucially important to identify gender bias and understand how it operates in science and technology. The second main issue of concern refers to the content of science and technology.

Beyond the social sciences and the humanities, sex and gender analysis are more developed in certain scientific and technological fields, such as health and medicine, and less in others such as city building, architecture, energy, transport, or environment. As the EC moves towards integrating a requirement for considering gender as a cross-cutting issue in the new research program, defining the state of the art in specific areas of interest to *Horizon 2020* will substantially contribute to gender mainstreaming European research. A third issue of concern refers precisely to mapping and advancing the state of the art in gender analysis in the fields of city building, transport, energy and climate change, all of them environmentally-related topics considered as Grand Challenges and as such priority areas for research within the new European framework programme. This will contribute to open new paths for promoting gender equality not only in science, but also in technological developments and in the policy outputs in these important areas of European public policy.

Footnotes

1 http://www.cost.eu/about_cost/governance/genderste; http://www.genderste.eu

2 http://www.cost.eu/. COST's 35 Member Countries are: Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, The Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and Former Yugoslav Republic of Macedonia. *Near Neighbour Countries* include Albania, Algeria, Armenia, Azerbaijan, Belarus, Egypt, Georgia, Jordan, Lebanon, Libya, Moldova, Montenegro, Morocco, the Palestinian Authority, Russia, Syria, Tunisia and Ukraine.

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