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Gender and Science in Society**INTRODUCTION**

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Science in Society* in FP7.

A first section briefly points out the broad **relevance of gender within the field**. The toolkit continues with a more specific discussion of the topics which have been put forward by the European Commission in the field's work programme. This is followed by suggestions regarding gender-relevant issues which may be taken up by the research teams.

To illustrate how planned research in the field of *Science in Society* can be made gender-sensitive, **three real-life examples** of projects are included. Each case consists of a short text presenting the project and a discussion of the gender-relevant issues in relation to the planned work, both in terms of equal opportunities and in terms of the content of the work. These examples are based on project summaries as they can be found on the CORDIS FP7 website¹ and relate to different topics within the field's work programme.

Finally, a selection of **useful references** dealing with gender in the field of *Science in Society* is provided.



Science Museum - Valencia (Spain)

¹ http://cordis.europa.eu/fp7/projects_en.html

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Gender and Science in Society

GENDER AND THE SCIENCE IN SOCIETY FIELD

FP7 Science in Society objective

With a view to building an effective and democratic European knowledge-based society, the aim of the 'Science in society' research field is to stimulate the harmonious integration of scientific and technological endeavour and associated research policies into European society.

How is gender relevant to this field?

All activities under this theme are directly related to society. Human constructs, mechanisms and/or relations are the subject of the work. For this reason, there is a gender dimension to all activities and to all research that is undertaken in the Science in Society field.

Science in Society work programme

The initiatives undertaken in this field will provide support to:

A more dynamic governance of the relationship between Science and Society

- Better understanding of the place of science and technology (S&T) in society
- Broader engagement to anticipate and clarify political, societal and ethical issues
- Strengthening and improving the European science system
- The evolving role of universities

Strengthening potential, broadening horizons

- Strengthening the role of women in scientific research
- Supporting formal and informal science education in schools as well as through science centres and museums and other relevant means
- Reinforcing links between science education and science careers

Science in Society communication

- Encouraging a European dimension at science events targeting the public
- Science prizes

Transnational cooperation among National Contact Points (NCPs) for Science in Society.

How is gender relevant to these topics?

A more dynamic governance of the relationship between Science and Society

Efforts towards broader public engagement, stakeholder participation, deliberative processes, etc. should ensure that men and women have equal access to such processes, that there is a balanced participation of men and women, and that men's and women's concerns, needs and opinions are taken into consideration equally.

Ethics in science and technology: ethical considerations and decisions are underpinned by moral values and norms which are acquired, different in different societies, changing over the course of time, and which might differ for men and women. Ethical decisions concern women's and men's lives and due consideration of how ethical decisions affect these differently is needed. The composition of ethical committees can be subject to analysis: is there gender knowledge available in ethical committees? Is there a sex-balanced composition? Also the protocols following which ethical decisions are taken are likely to be gender-biased if gender issues are not formally addressed in the ethical considerations.

To strengthen and improve the European science system, the gendered nature of its architecture, structures, processes and underlying values deserves to be explored and addressed. Gender equity is a precondition for a strong European science system.

Through the reform and modernisation of universities, the role of women in building a strong knowledge-based society will be strengthened. In this process, their models of governance and decision-making, human resources management, accountability to society, social role and community engagement should be reviewed in light of improving gender equality.

The place of gender studies within universities and their close relevance to strengthening scientific knowledge are also a key issue in the context of the reform and modernisation of universities.

Strengthening potential, broadening horizons

All activities under this topic need to pay attention to the differential positions of girls and boys in education in general, and science education in particular; to the gendered image of certain scientific fields (where a degendering process should therefore be pursued); to breaking down stereotypical representations of the research profession; to fostering equal access of both sexes to all fields of science education and to accommodating both men and women in the profession so that both sexes can develop a scientific career without being hindered by 'glass ceilings', 'sticky floors', or 'glass walls'...

Science and Society communication

- *A particular effort should be made to ensure that in 'communicating science', gendered and stereotypical images of science and the research profession are broken down; communication about science and about research results can include relevant findings on sex and gender differences, and results of gender-specific research shall be communicated.*
- *Science prizes: the consideration of gender in a specific piece of research and the 'participation of women' in the research team should be criteria for the nomination and award of science prizes. Earlier research² has shown that where these are not considered, gender bias occurs in the award of prizes.*

² Mergaert, L. (2008), *Monitoring progress towards Gender Equality in the 6th Framework Programme - Synthesis Report: Science and Society, Citizens and governance in a knowledge-based society*, European Commission, Brussels.

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Gender and Science in society

THREE EXAMPLES

Case 1

Awareness of the marine environment

Project outline

More than 70% of the globe is covered by water, and Europe itself is bordered by four different water basins (the Atlantic Ocean/North Sea, the Mediterranean Sea, the Baltic Sea and the Black Sea). These have been shaping and influencing Europe's cultural, social and economic heritage since ancient times. Oceans are appealing and fascinating, and this makes them ideal tools for engaging and communicating with the public at large (irrespective of age), even on complex and distant themes.

The project's aims are:

- to ensure visibility and dissemination of research results to civil society
- to enable the public to express its views and concerns about science
- to promote science among the young
- to strengthen European citizens' sense of participation in Europe through their direct involvement
- to develop a European awareness of the marine environment, including cultural and technological aspects
- to promote a regional approach within the broader European context

Our consortium is composed of science museums/aquariums and research centres, located on the coasts of the four different European basins. Partners will act within a European network based on information and communication technologies.

Our project will undertake the following actions:

- selection of marine-related topics to be addressed by each partner taking into account both a shared/European and a specific/regional approach
- cooperation between science centres and science museums/aquariums to develop each topic and set up interactive exhibitions

- direct engagement of the public at large following a bottom-up approach to science communication
- broad-scale use of information and communication technologies to ensure connectivity in the network and openness to the widest possible audience
- museum exhibitions and marine-oriented external events, made available directly or on the web



Identification of relevant gender issues

Equal opportunities for women and men

It is important to ensure an acceptable gender balance in the project team, both overall and within each partner organisation involved. As women might be under-represented in these organisations, the project can offer an opportunity to question and address the reasons and mechanisms underpinning this under-representation.

Gender in the project content

Gender is relevant in different ways for this project. Considering the various aims of the project:

- **to ensure visibility and dissemination of research results to civil society:** the ways to best reach men might be different from those to reach women.
- **to enable the public to express its views and concerns about science:** the most appropriate ways to do so might be different for men and women; views and concerns about science differ according to gender.
- **to promote science to the young:** 'The young' consist of boys and girls and each group might have different views and opinions about science, which requires differentiated promotion strategies.

- **to strengthen European citizens' sense of participation in Europe through their direct involvement:**

The group of 'European citizens' consists of men and women. Overall there are significant differences in the rate of participation and involvement in Europe between men and women. For this objective to be realised, it is thus appropriate to take existing differences into account in the design of approaches for involving men and women respectively.

- **to develop a European awareness of the marine environment, including cultural and technological aspects:**

Here again, given the images of science that women and men have, it makes sense to consider these.

Below are some relevant questions in relation to the proposed actions:

- **selection of marine-related topics to be addressed by each partner taking into account both a shared/European and a specific/regional approach:**

It is important to ensure that the choice of topics is equally appealing to both men and women, so that the interest of both sexes is triggered. To realise this, it makes sense to unravel the mechanism of the process: who selects the topics, based on which criteria? Are women involved in this process?

- **cooperation between science centres and science museums/aquariums to develop each topic and set up interactive exhibitions:**

For the presentation of topics, as well as for the interactive exhibitions, care should be taken not to reproduce gender stereotypes or gendered images of science (e.g. visuals should include both men and women, language should be gender-neutral).

Presentations and exhibitions should address both men's and women's interests and questions, to address the public in its entirety.

- **direct engagement of the public at large following a bottom-up approach to science communication:**

The 'public at large' consists of men and women and it is likely that the readiness to engage in science communication differs between them. How will the project ensure that both groups engage in communication and that the contributions of both are equally considered?

- **broad-scale use of information and communication technologies to ensure connectivity in the network and openness to the widest audience:**

There are important gender differences in the use of ICT. By relying heavily on such technologies for communication with and dissemination to the target groups, the risk is real that women will be reached less. The means of dissemination thus contain a gender bias, seriously hindering the project from reaching the 'widest possible audience'.

- **museum exhibitions and marine-oriented external events, made available directly or on the web:**

Again, it is important to avoid a gender bias in the public attracted by the exhibitions and external events.

Case 2

Civil society involvement in sustainable development

Project outline

Although the participation of civil society is considered crucial for the implementation of ambitious sustainability strategies such as the EU Sustainable Development Strategy (EU SDS), many implementation programmes and activities do not yet consistently involve players from this field. Instead, they focus more on business actors or researchers.

This project will address this gap by designing deliberative processes on sustainable consumption and production in the demand areas of food, housing and mobility. This will allow civil society organisations to be actively involved in identifying research needs. Such deliberative processes can be defined as forums and mechanisms for involving stakeholders from civil society through information exchange, open discussions and continuous feedback on decision-making regarding research agendas and political actions in the areas of sustainable consumption and production.

The project will focus on three demand areas (food, housing and mobility) that are responsible for 70 per cent of environmental damage in the EU.

During the project, three workshops will be organised: one in each of the demand areas. There will also be an opening and a closing conference. An EU strategy workshop will involve personnel from the European Commission and from the European Environment Agency to draw conclusions and plan follow-up actions. An online platform will host an ongoing and open dialogue.

The project will last 18 months. The consortium consists of three internationally renowned research centres with expertise in the field of sustainable consumption and production.



Identification of relevant gender issues

Equal opportunities for women and men

Given the strong gender relevance of the planned work, the project would benefit from the involvement of a researcher with gender expertise.

Gender in the project content

A substantial body of knowledge exists on gender differences in the areas of food, housing and mobility. This knowledge can provide useful input to the planned work.

Indeed, as society attributes different roles to men and women, their needs and interests in the areas of food, housing and mobility are different and their respective 'research needs' are likely to be very different too. Deliberative processes designed to involve civil society stakeholders in the decision-making process regarding the research agenda on these themes should thus ensure that these differentiated needs of men and women are taken into consideration equally. It is important that the deliberative processes are set up in such a way that men and women can participate equally in them, that their participation is balanced and that their respective needs are equally identified and valued. Representatives from women's organisations should be actively involved in the consultation process.

Relevant **questions** for the project team are:

- *How will the consortium ensure that the civil society organisations that will be involved in the deliberative processes represent both men's and women's interests?*
- *Will gender differences be explicitly addressed in the discussions and during the workshops and conferences?*
- *Will the consortium achieve a balanced representation of men and women among the participants and speakers in workshops and conferences?*

It could be a very interesting idea to organise a workshop (or dedicate part of a workshop) to gender differences in the fields of food, housing and mobility, and the extent to which these are currently addressed by the research agenda.

Case 3

Multi-stakeholder dialogue on nanosciences and nanotechnologies

Project outline

The project will support the establishment of a multi-stakeholder dialogue on the regulation and governance of nanosciences and nanotechnologies (NS&T). It will seek to involve the scientific, institutional and industrial communities, as well as the general public, in the dialogue.

The aims of the project are to articulate consensus and absence of consensus between the various stakeholders, to sustain a European debate between them, and to foster the development of a shared frame of knowledge, objectives and actions so that constructive and practicable regulatory solutions can be defined toward the responsible development of NS&T.

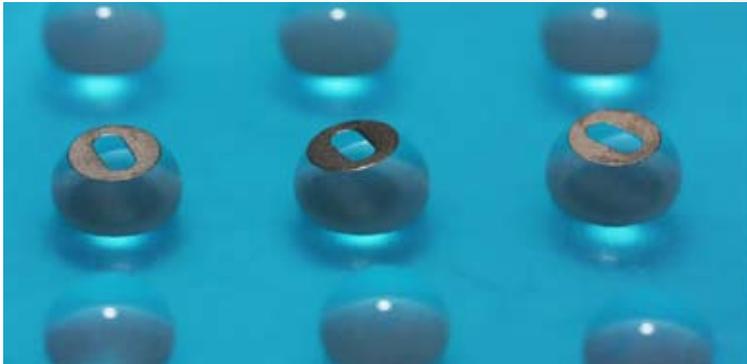
The activities of the project will be spread over 28 months and geared around four key actions:

- Analysis and review of existing and proposed regulatory processes, identification of stakeholders
- Collection and analysis of stakeholders' positions and needs
- Development of an appropriate proposal for a governance plan
- Communication and dissemination of information on the project and NS&T governance: a project website and newsletter, national workshops, a mid-term international workshop and a final international conference will be organised

Following a deliberative process, the action will lead to a proposal for a governance plan for the responsible development of NS&T at European level and beyond. The governance plan will include recommendations for future research, policy actions, and cooperative research processes for the next five years.

The project brings together six partners from six countries, covering all main European geographical areas (north, east, centre, south). Consortium partners have a long-standing experience in NS&T, in Science and Technology assessment, in consultation processes, in the analysis of technological and societal issues and in communication, and have already established relations with many relevant stakeholders.

The project will support the European Commission, EU policy-makers and stakeholders in designing a European model which ensures that the development of NS&T takes place responsibly and to the benefit of individuals and society.



Identification of relevant gender issues

Equal opportunities for women and men

Given the gender relevance of the planned work, it would be good to ensure the availability of gender expertise within the project. If gender expertise is not present in the partner organisations, involving an external expert could be considered.

Gender in the project content

The goal of the project is to involve all relevant stakeholders in the dialogue concerning governance in the field of nanosciences and nanotechnologies. To ensure that the governance plan that will be developed leads to equitable outcomes for all, the interests, needs and concerns of both sexes are to be valued and addressed equally. It is therefore important to ensure that men's and women's interests, needs and concerns can be expressed and are considered equally in such debates.

In this respect, the following questions can be asked of the project team:

- How will the team verify that the mechanisms set up for dialogue and debate have not built-in gender biases?
- How will the team seek and ensure the involvement of both men's and women's participation in the dialogues?
- Will there be criteria and indicators in place to monitor the respective stakeholders' participation in and contributions to the dialogue?

The team should be careful to avoid the debates themselves setting off from gender stereotypes or gendered assumptions, or even from the assumption that nanosciences and nanotechnologies are a 'gender-neutral' domain. It would even be a very good idea to openly seek to identify possible gender differences in needs, attitudes, etc. among the sexes towards the NS&T field. Addressing these explicitly in the governance plan would enhance its democratic value, while usefully contributing to the development of gender knowledge in NS&T.

While the dissemination actions that are planned are comprehensive, both men and women are to be reached equally through these actions. It is therefore important to carefully consider the channels that will be used to promote the website, newsletter, workshops and conference. The project may also contribute to breaking down gender stereotypes, e.g. by using gender-atypical visual materials in its publications.

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USEFUL READING

Adam, A. (2000), *Gender and computer ethics* in ACM SIGCAS Computers and Society, 30(4).

Bartsch, I., Lederman, M. (2000), *The gender and science reader*, Routledge, London.

Brooks, A., Mackinnon, A. (2001), *Gender and the restructured university, Changing Management and Culture in Higher Education*, The Society for Research into Higher Education & Open University Press, Buckingham.

Centre for Environmental Risk (2003), *Public perceptions of risk, science and governance*, <http://www.sci-soc.net/NR/rdonlyres/E8593E79-E645-4592-9EB2-72E71547DC5A/330/Mainreport.pdf> (6.04.2009).

Cukier, W., Shortt, D., Devine, I. (2002), *Gender and information technology: implications of definitions* in ACM SIGCSE Bulletin, 34(4):142-8.

Baker, D. (2002), *Where is gender and equity in science education?* in Journal of Research in Science Teaching, 39(8):659-63.

Frietsch, R., Haller, I., Funken-Vrohings, M., Grupp, H. (2009), *Gender-specific patterns in patenting and publishing* in Research Policy, 38(4):590-9.

Hamington, M., Miller, D.C. (2006), *Socializing care: feminist ethics and public issues*. Lanham: Rowman and Littlefield.

Heilman, M., Wallen, A.S., Fuchs, D., Tamkins, M. (2004), *Penalties for success: Reactions to women who succeed at male gender-typed tasks* in Journal of applied psychology, 89(3):416-27.

Hughes, G. (1998), *Marginalization of Socioscientific Material in Science-Technology-Society Science Curricula: Some Implications for Gender Inclusivity and Curriculum Reform* in Journal of Research in Science Teaching, 37(5):426 - 40.

Mergaert, L. (2008), *Summary Report: Science and Society - Monitoring progress towards Gender Equality in the Sixth Framework Programme*, European Commission.

Moerman, C.J., Haafkens J.A., Soderstrom, M., Rasky, E., Maguire P., Maschewsky-Schneider, U., et al. (2007), *Gender equality in the work of local research ethics committees in Europe: a study of practice in five countries* in Journal of Medical Ethics, 33(2):107-12.

Sadker, D. (1999), *Gender Equity: Still Knocking at the Classroom Door* in Educational Leadership, 56(7):22-6.

Valian, V. (1998), *Why so Slow? The Advancement of Women*, MIT, Cambridge Ma.

Valian V. (2009) *Beyond Gender Schemas: Improving the Advancement of Women in Academia*. Hypatia, 2005;20(3):198-213.



For further information and useful links, please consult the Gender in Research Toolkit and Training website under www.yellowwindow.com/genderinresearch.

