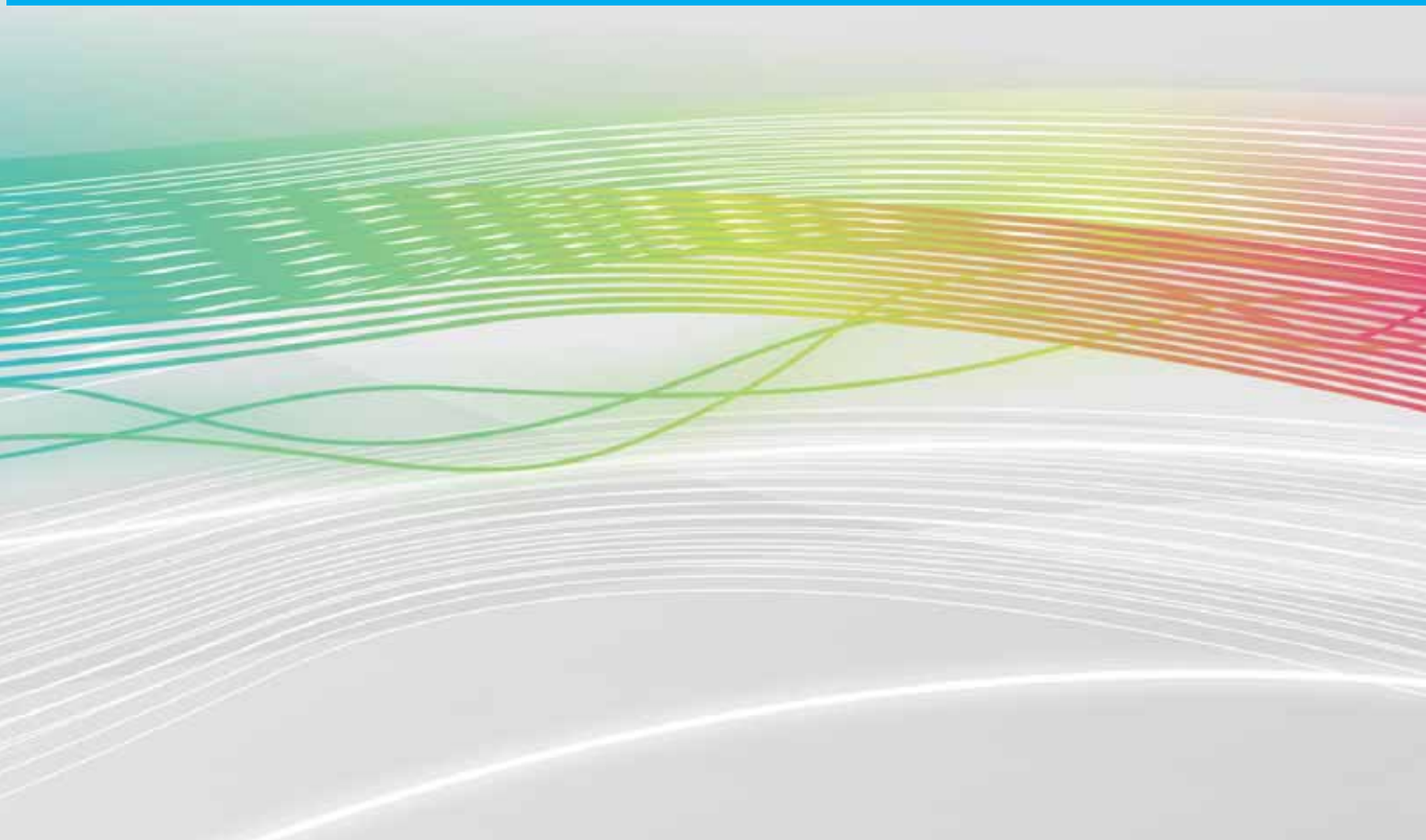
EUROPEAN COMMISSION / Research & Innovation

Toolkit Gender in EU-funded research



EUROPEAN COMMISSION

Directorate-General for Research and Innovation
Directorate B – European Research Area
Unit B.6 – Ethics and Gender

E-mail: rtd-womenscience@ec.europa.eu

Contact: Vera Fehnle

European Commission
Office SDME 03/03
B-1049 Brussels

Tel. +32 2 29 91643

EUROPEAN COMMISSION

Toolkit Gender in EU-funded research

Yellow Window Management Consultants
Engender
Genderatwork

Directorate-General for Research and Innovation
Capacities Specific Programme

2011

EUR 24840 EN

EUROPE DIRECT is a service to help you find answers

to your questions about the European Union

Freephone number (*):

00 800 6 7 8 9 10 11

(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed

LEGAL NOTICE

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information.

The views expressed in this publication are the sole responsibility of the author and do not necessarily reflect the views of the European Commission.

More information on the European Union is available on the Internet (http://europa.eu).

Cataloguing data can be found at the end of this publication.

Luxembourg: Publications Office of the European Union, 2011

ISBN 978-92-79-20432-6
doi 10.2777/62947

© European Union, 2011
Reproduction is authorised provided the source is acknowledged.

Printed in Belgium

PRINTED ON ELEMENTAL CHLORINE-FREE BLEACHED PAPER (ECF)

Toolkit Gender in EU-funded research

TABLE OF CONTENTS

Part 1 An overall introduction to gender in research

Introduction
Definitions and concepts
A legal obligation
Gender in research
Gender in FP7
Excellent research is gender-sensitive

Part 2 How to make research gender-sensitive

The gender-sensitive research cycle
Participation of women and men in research
Gender in research content
Checklist for gender in research
Further reading

Part 3 Gender and ...

health
food, agriculture and biotechnology
nanosciences, materials and new production technologies
energy
environment
transport
socio-economic sciences and humanities
science in society
specific activities of international cooperation

1

An overall introduction to gender and research

INTRODUCTION

Ever since the Treaty of Rome, the European Union has consistently advocated gender equality as one of its core policies. Yet the monitoring and assessment studies of FP5 and FP6 have shown that despite the efforts to promote gender in research, women remain under-represented and the issue of gender is far from being systematically addressed in research projects.

What's more, there are sound reasons for the research community to invest in a gender-sensitive research agenda. Investing in equal opportunities for men and women in research makes for teams that perform better and attracts top-level researchers. Similarly, investing in a gender-sensitive approach to the research content makes for higher quality and validity.

To further promote gender equality in research, the European Commission's Research DG has decided to develop a gender toolkit and training activities. These will provide the research community with practical guidance on how to integrate gender into research.[1] They will:

- help researchers to understand the "gender and science" issue and make them more sensitive towards the gender dimension of/in science;
- help researchers include the gender dimension throughout a research project;
- indicate how to design a more sensitive project;
- help to eliminate gender bias in research projects;
- enable researchers to write a more competitive proposal;
- show why it is important to create a gender-balanced research team;
- help make research results more relevant for society.

> "*Science is supposed to be the paradigm of objective, rational and critical thought. For many people it is still the ideal model of modernity, social progress and even of enlightened civilisation itself insofar as it confronts customary biases and superstitions. So its continued refusal to examine critically its own gender prejudices, where this occurs, damages that reputation these days.*"[2]

Project team
Yellow Window Management Consultants
Engender
Genderatwork

[1] Since the objective of this project is essentially pragmatic, the focus here is solely on gender. This is of course not to deny the importance of how other differences like race, age, sexuality, etc. might intersect with gender.

[2] Harding, S. (2001) "How can women's standpoint advance the growth of scientific knowledge?" in *Gender & Research, Conference Proceedings*, European Commission

2

An overall introduction to gender and research

THEORETICAL FRAMEWORK: DEFINITIONS AND CONCEPTS

Sex

Sex refers to the biologically determined characteristics of men and women in terms of reproductive organs and functions based on chromosomal complement and physiology. As such, sex is globally understood as the classification of living things as male or female.

Gender

Gender refers to the social construction of women and men, of femininity and masculinity, which varies in time and place, and between cultures. The notion of gender appeared in the seventies and was put forward by feminist theorists who challenged the secondary position of women in society. It departs from the notion of sex to signal that biology or anatomy is not a destiny. It is important to distinguish clearly between gender and sex. These terms are often used interchangeably while they are conceptually distinctive.

Gender equality

This term refers to the situation where individuals of both sexes are free to develop their personal abilities and make choices without the limitations imposed by strict gender roles.The different behaviours, aspirations and needs of women and men are considered, valued and favoured equally.

Equal opportunities for women and men

Equal opportunity indicates the absence of barriers to economic, political and social participation on the grounds of sex. Such barriers are often indirect, difficult to discern and caused by structural phenomena and social representations that have proved particularly resistant to change. *Equal opportunities*, which is founded on the rationale that a whole range of actions are necessary to redress deep-seated sex and gender-based inequities, should be distinguished from *equal treatment*, which merely implies avoiding direct discrimination.

Gender-sensitive research

In gender-sensitive research, gender is consistently taken into account throughout the research cycle.

Gender-specific research

Gender-specific research focuses on gender itself as a subject matter.

Gender-blind research

Gender-blind research does not take gender into account, being based on the often incorrect assumption that possible differences between men and women are not relevant for the research at hand.

Gender bias in research

Gender bias is the often unintentional and implicit differentiation between men and women by placing one gender in a hierarchical position relative to the other in a certain context, as a result of stereotypical images of masculinity and femininity. It influences both the participation of men and women in research (hence the under-representation of women) and the validity of research. An example of gender bias in research is research that focuses on the experience and point of view of either men or women, while presenting the results as universally valid.

3

An overall introduction to gender and research

A LEGAL OBLIGATION

Gender equality draws on a long history of policy development at European Union (EU) level, the origins lying in the EEC Treaty signed in Rome in 1957. Since then the European Union has adopted 13 directives in the field of gender equality, for instance those on equal pay and social security, protection of pregnant women and people on parental leave, and access to goods and services.

Following the Amsterdam Treaty of 1999, which established equality between men and women as a specific task of the Community and as a horizontal objective affecting all Community tasks, the European Commission (EC) formalised its commitment to advance gender equality in research in its Communication *Women and Science: mobilising women to enrich European research.*[1]

The decision on the 7th Framework Programme (FP7) states that "the integration of the gender dimension and gender equality will be addressed in all areas of research". [2]

4

GENDER IN RESEARCH

The European Commission pursues a systematic and visible strategy to promote gender equality in science and research.

This **strategy** recognises that the relationship between women and research is threefold:

- women's participation in science and research must be encouraged;
- research must address women's needs as well as men's;
- there should be research on the gender question itself, to enhance understanding of gender issues in science and research.

[1] European Commission (1999), *Women and Science: mobilising women to enrich European research.* Communication of the European Commission, Brussels: European Commission

[2] Decision n° 1982/2006/EC of 18/12/2006, OJ L 412, 30/12/2006, p.1

Gender in research therefore requires actions relating both to the participation of women in research and to the **gender dimension of research**:

Improving women's participation in research requires including female researchers in teams at all levels while offering gender-sensitive working conditions and culture. In all countries, despite very different education and employment systems, women disappear from the higher rungs of the academic ladder (a phenomenon called the "leaky pipeline"). To support gender equality, actions are necessary in recruitment, working conditions, monitoring and management.

Addressing the gender dimension of research implies that gender is considered as a key analytical and explanatory variable in research. If relevant gender issues are missed or poorly addressed, research results will be partial and potentially biased. Gender can thus be an important factor in research excellence. To support this process, it is also essential to devote research resources to specific gender research.

WHO

Equal opportunities for men and women in research

- Encourage equal participation of men and women in research teams at all levels
- Create working conditions and culture that allow men and women to have equally fulfilling careers

WHAT & HOW

Gender in research content

- Address both women's and men's realities
- Consider gender-specific research to fill knowledge gaps

5

An overall introduction to gender and research

GENDER IN FP7

FP7 seeks to support gender equality by:

> Actively promoting the role of women in science – a target of 40% women's participation at all levels has been set;

> Equally addressing women's and men's realities as an integral part of the research to ensure the highest level of scientific quality: *"Wherever human beings are involved in the research, for example as consumers, users and patients, or in trials, gender will be an issue and should be considered and addressed".* [5]

To **effectively implement** the commitments on gender equality in FP7, **actions** are expected at different levels of the programme and on the part of various actors at programme and project levels.

Research teams are encouraged to integrate gender and promote equality starting at the proposal stage. Gender aspects can be addressed in a specific work package or as a task within a work package.
In terms of promoting gender equality, subscribing to the principles[6] of the *European Charter and Code of Conduct for the Recruitment of Researchers* is good practice (e.g. open and impartial selection procedure and fair working conditions and culture).
The *FP7 Negotiation Guidance Notes* also give concrete examples of actions to be adopted by research teams and universities to support the commitment to gender equality.

At the end of projects, research teams have to report on workforce statistics and project holders have to submit a compulsory deliverable relating to awareness and wider societal implications including gender-related aspects.

[5] European Commission (2009), *FP7 Negotiation Guidance Notes – Collaborative Projects, Networks of Excellence, Coordination and Support Actions, Research for the benefit of specific groups (in particular SMEs)*, version 27 January 2009, Brussels: European Commission

[6] European Commission (2005), Commission Recommendation 2005/251 of 11 March 2005 OJ L75/67, 22/3/2005

6

An overall introduction to gender and research

EXCELLENT RESEARCH IS GENDER-SENSITIVE

There are sound reasons for the research community to invest in a gender-sensitive research agenda. These concern both the 'equal opportunities' aspect and the 'gender in research content' aspect.

Investing in equal opportunities for men and women in research makes for teams that perform better, and attracts top-level researchers

The best possible team

To achieve excellent research you need to constitute the best possible team. And the best possible team is a mixed team. Research has shown that mixed teams – if well-managed – are more efficient than single-sex teams: mixed teams are more creative, contain more diverse points of view and show an improved quality of decision-making. Also, in general, both men and women prefer working in well-managed mixed teams.

The best possible talent

To achieve excellent research you need to get the best talent from the entire potential talent pool. In order to do so, you need to create working conditions and culture that allow men and women to have equally fulfilling careers. This helps to attract and keep the best male and female talents and encourages and motivates women and men who want to combine work and private life in a satisfactory manner.

Investing in a gender-sensitive approach to the research content makes for higher quality and validity

The best possible research validity

Gender-sensitive research is qualitatively better and more valid: if research takes into account the differences between men and women in the research population, the results will be more representative. General categories such as 'people', 'patients' or 'users' do not distinguish between men and women. Research based on such categories may well draw partial conclusions based on partial data. For example, research on a new breast cancer treatment should include male patients, so as to draw a complete picture. Research on economic migrants cannot limit itself to male points of view if it wants to understand the whole migrant population.

The best possible research utility

Gender-sensitive research will reach a broader group of end-users in a more relevant way. Research that does not concern a human research population might still have human end-users. Again this population consists of men and women, with their different needs and aspirations. And these gender differences might very well influence the use of the research outcome. Taking gender into account and asking from the start who will use the results, when and how, can avoid an unintentional gender bias in the outcome.

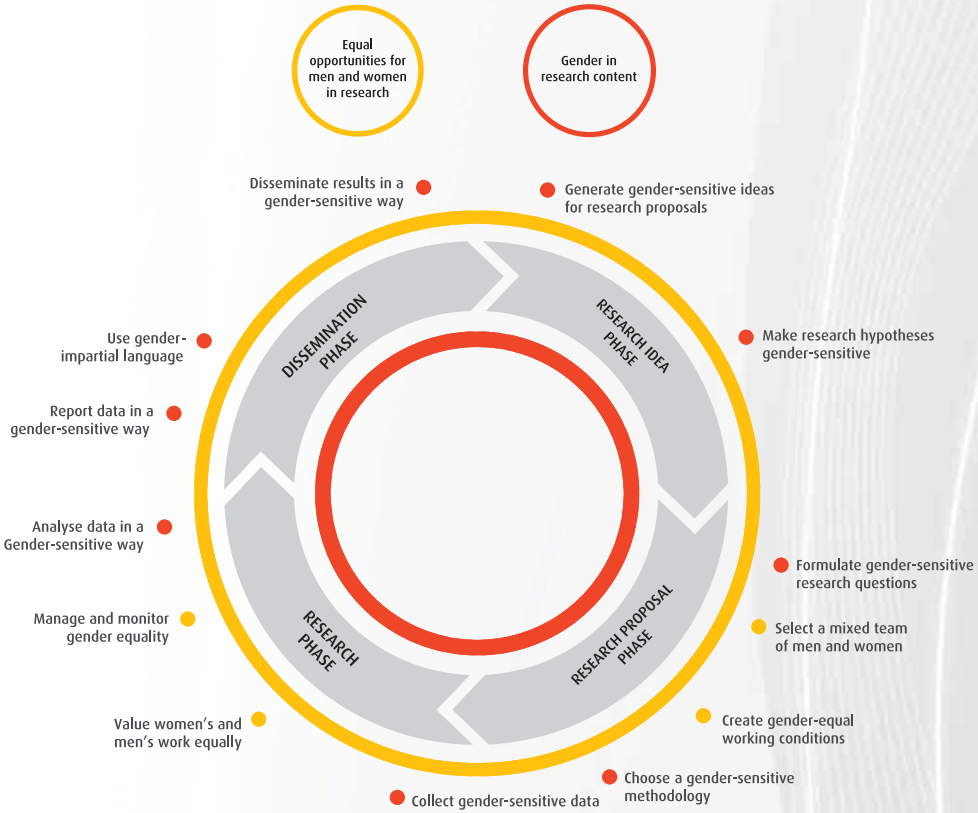
1

How to make research gender-sensitive

THE GENDER-SENSITIVE RESEARCH CYCLE

Take gender into account at all stages of the research cycle

Gender-sensitive research takes a twin approach: it pays attention to the participation of women and men, providing **equal opportunities** for all, **and** it integrates **gender into the research content** all the way from the initial research idea to the dissemination of results.



2

How to make research gender-sensitive

PARTICIPATION OF WOMEN AND MEN IN RESEARCH

Academic research on inequalities in the research sector and on the loss of women from the profession has shown that these are a consequence of an accumulation of many differences and biases. Some are small, while others are overt forms of discrimination and resistance. Many are implicit, unconscious, but often very powerful, biases in values, priorities and practices.

Selection and recruitment

There is evidence that men and women are not assessed on the same basis, and neither are their respective achievements. To avoid gender bias, it is important to:

- ensure open and impartial selection procedures: use mixed selection panels, train panel members on gender bias, advertise open posts widely, explicitly encourage women to apply, accommodate atypical career patterns;
- use explicit, precise and transparent selection criteria: set standards that are relevant to the pursuit of scientific knowledge, use appropriate indicators of performance that fit the life-cycle productivity of both men and women.

Working conditions and culture

The culture of the workplace influences whether women scientists, and increasingly also men, feel welcome. What is needed is a working culture that fosters equal working conditions (pay, opportunities for training, access to grants and funding), is aware of different possibilities in terms of geographical mobility, and accommodates private commitments or different career structures. This is also relevant within projects, for instance in scheduling and organising meetings or activities requiring mobility.

Monitoring and management measures

To improve equality it is important to acknowledge that bias and discrimination might indeed exist and to investigate what is going wrong. Reducing gender bias in research calls for the active involvement of all participants in the process, both men and women, at all levels. Actions may include: setting ratios for participation, putting in place monitoring systems, installing feedback mechanisms and appointing a trained gender equality officer.

3

How to make research gender-sensitive

GENDER IN RESEARCH CONTENT

Research ideas and hypotheses

The relevance of gender for and within the subject matter needs to be analysed and an assessment made of the state of knowledge in this respect. The formulation of hypotheses can draw upon previous research and existing literature. Indeed, the body of knowledge on gender issues has been steadily growing over recent decades, and can serve as interesting reference material to build new hypotheses for future research.

Project design and research methodology

While research methodologies may vary, they all strive to represent (aspects of) reality. Whenever this reality concerns humans, any scientifically sound methodology should differentiate between the sexes and take into account men's and women's situations equally. Groups such as 'citizens', 'patients', 'consumers', 'victims' or 'children' are therefore too general as categories.

Research implementation

Data collection tools (such as questionnaires and interview checklists) need to be gender-sensitive, use gender-neutral language, and should make it possible to detect the different realities of men and women. This will help to avoid gender bias. For example, answers to be provided by the 'head of household' are not necessarily valid for all household members.

Data analysis: In most research concerning human subjects, data are routinely disaggregated by sex, which would logically lead to analyses according to sex. However to date this is still not common practice. Systematically taking sex as a central variable, and analysing other variables with respect to it (e.g. sex and age, sex and income, sex and mobility, sex and labour) will provide significant and useful insights. Involving gender-balanced end-user groups in the course of the research is also a good way of guaranteeing the highest impact.

Dissemination phase – reporting of data

Collecting and analysing gender-specific data is not enough if they are omitted from the published results. Gender should be included in 'mainstream' publications as it is as much part of daily reality as any other variable studied.
Specific dissemination actions (publications or events) for gender findings can be considered. Institutions and departments that focus on gender should be included in the target groups for dissemination. Publications should use gender-neutral language.

4

How to make research gender-sensitive

CHECKLIST FOR GENDER IN RESEARCH

Equal opportunities for women and men in research

- [ ] Is there a gender balance in the project consortium and team, at all levels and in decision-making positions?
- [ ] Do working conditions allow all members of staff to combine work and family life in a satisfactory manner?
- [ ] Are there mechanisms in place to manage and monitor gender equality aspects, e.g. workforce statistics, as required by FP7?

Gender in research content

Research ideas phase:

- [ ] If the research involves humans as research objects, has the relevance of gender to the research topic been analysed?
- [ ] If the research does not directly involve humans, are the possibly differentiated relations of men and women to the research subject sufficiently clear?
- [ ] Have you reviewed literature and other sources relating to gender differences in the research field?

Proposal phase:

- [ ] Does the methodology ensure that (possible) gender differences will be investigated: that sex/gender-differentiated data will be collected and analysed throughout the research cycle and will be part of the final publication?
- [ ] Does the proposal explicitly and comprehensively explain how gender issues will be handled (e.g. in a specific work package)?
- [ ] Have possibly differentiated outcomes and impacts of the research on women and men been considered?

Research phase:

- [ ] Are questionnaires, surveys, focus groups, etc. designed to unravel potentially relevant sex and/or gender differences in your data?
- [ ] Are the groups involved in the project (e.g. samples, testing groups) gender-balanced? Is data analysed according to the sex variable? Are other relevant variables analysed with respect to sex?

Dissemination phase:

- [ ] Do analyses present statistics, tables, figures and descriptions that focus on the relevant gender differences that came up in the course of the project?
- [ ] Are institutions, departments and journals that focus on gender included among the target groups for dissemination, along with mainstream research magazines?
- [ ] Have you considered a specific publication or event on gender-related findings?

5

How to make research gender-sensitive

FURTHER READING

Bíziková, L., Sedová, T., and Szapuová, M. (2007), *Why Gendered Science Matters. How to Include Gender Dimension into Research Projects* (accessible at http://www.cec-wys.org/prilohy/aedc08b1/manual%20main%20body%20final.pdf).

CGIAR, *Gender & Diversity: Database of women scientists & professionals* (accessible at http://www.genderdiversity.cgiar.org/cast_the_net/default.asp).

European Commission (2000), *Science Policies in the EU: Promoting Excellence through Mainstreaming Gender Equality, ETAN Report* (accessible at ftp://ftp.cordis.europa.eu/pub/improving/docs/g_wo_etan_en_200101.pdf)

European Commission (2001), *Gender & Research, Conference proceedings* (accessible at ftp://ftp4.cordis.lu/pub/improving/docs/women_conference_proceedings_08112001.pdf#page=145).

European Commission (2001), *Gender in Research – Gender Impact Assessment of the specific programmes of the Fifth Framework Programme – Synthesis Report* (accessible at ftp://ftp.cordis.europa.eu/pub/science-society/docs/women_gender_impact_fp5_en.pdf).

European Commission (2002), *Women in industrial research: a wake up call for European industry* (accessible at http://ec.europa.eu/research/science-society/women/wir/pdf/wir_final.pdf).

European Commission (2003), *Waste of Talents: Turning Private Struggles into a Public Debate* (accessible at http://ec.europa.eu/research/science-society/women/enwise/pdf/enwise-report-02-intro.pdf).

European Commission (2004), *Gender and Excellence in the Making* (accessible at http://ec.europa.eu/research/science-society/pdf/bias_brochure_final_en.pdf).

European Commission (2005), *The European Charter for Researchers – The Code of Conduct for the Recruitment of Researchers* (accessible at http://ec.europa.eu/eracareers/pdf/am509774CEE_EN_E4.pdf).

European Commission (2005), *Women and Science – Excellence and Innovation – Gender Equality in Science* (accessible at http://ec.europa.eu/research/science-society/pdf/documents_women_sec_en.pdf).

European Commission (2006), *Women in Science and Technology – The Business Perspective* (accessible at http://ec.europa.eu/research/science-society/pdf/wist_report_final_en.pdf).

European Commission (2008), *Mapping the Maze: Getting More Women to the Top in Research* (accessible at http://ec.europa.eu/research/science-society/document_library/pdf_06/mapping-the-maze-getting-more-women-to-the-top-in-research_en.pdf).

European Commission (2008), *Gender equality report 6th Framework Programme*, http://ec.europa.eu/research/science-society/document_library/pdf_06/gender-equality-report-fp6-final_en.pdf (08/06/2009).

European Commission (2009), *The Gender Challenge in Research Funding – Assessing the European national scenes,* Office for Official Publications of the European Communities, Luxembourg.

European Commission (2009), *She Figures 2009 – Women and Science, Statistics and Indicators* (accessible on http://ec.europa.eu/research/science-society/index.cfm?fuseaction=public.topic&id=27).

European Commission (2009), *Monitoring progress towards gender equality in the 6th Framework Programme.*

Foschi, M. (2000), *Double Standards for Competence: Theory and Research,* Annual Review of Sociology, 26(1): 21-42.

UPGEM, Ed. (2008), *Draw the line! Universities as workplaces for male and female researchers in Europe*, Tartu University Press, Tartu (accessible at http://www.dpu.dk/Everest/Publications/subsites%5Cupgem/20080616093832/CurrentVersion/Table%20of%20contents%20&%20General%20Introduction.pdf?RequestRepaired=true).

Wenneras, C. and A. Wold (1997). *Nepotism and sexism in peer-review*, Nature 387/22(6631): 341-343 (accessible at http://dx.doi.org/10.1038/387341a0).

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

1

Gender and *Health*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Health* 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 *Health* 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 website[1] and relate to different topics within the field's work programme.

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

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

2

Gender and *Health*

GENDER AND THE *HEALTH* RESEARCH FIELD

FP7 *Health* objective

The overall objective of the Health theme is to improve the health of European citizens and increase the competitiveness and boost the innovative capacity of European health-related industries and businesses, while addressing global health issues including emerging epidemics. Emphasis will be put on traditional research (translation of basic discoveries into clinical applications including scientific validation of experimental results), the development and validation of new therapies, strategies for health promotion and prevention, child health and healthy ageing, diagnostic tools and medical technologies, as well as sustainable and efficient healthcare systems.[2]

How is gender relevant to this field?

In activities under this theme, applicants should consider the possibility of gender/sex differences in risk factors, biological mechanisms, causes, timing, clinical manifestation, consequences and treatment of disease and disorders.

Health work programme

In FP7 the research field of health will concentrate on biotechnology, translating research for human health and optimising the delivery of healthcare to European citizens through health policy-driven research.

The initiatives undertaken in this field will provide support to:

Biotechnology, generic tools and medical technologies for human health:

Developing and validating tools and technologies that will enable the production of new knowledge and its translation into practical applications in the area of health and medicine.

[2] Decision on FP7 programme

Translating research for human health: increasing knowledge of biological processes and mechanisms involved in normal health and in specific disease situations, and transposing this knowledge into clinical applications including disease control and treatment:

- integrating biological data and processes: large-scale data gathering, systems biology
- research on the brain and related diseases, human development and ageing
- translational research in major infectious diseases, to confront major threats to public health, e.g. HIV
- translational research in other major diseases such as cancer, cardiovascular diseases, diabetes and obesity

Optimising the delivery of healthcare to European citizens:

Developing new research methods and generating the necessary scientific basis to underpin informed policy decisions on health systems and more effective and efficient evidence-based strategies of health promotion, disease prevention, diagnosis and therapy.

How is gender relevant to these topics?

Biotechnology, generic tools and medical technologies for human health

- *The necessity when conducting clinical research to take sex differences into account in the research protocols, methodologies and analysis of results: this is important owing to the differences in the male and female body, for example the levels and composition of the hormonal system. Drugs can influence these systems quite differently.*

- *Addressing the gender balance in the research population: research into human health and the optimisation of healthcare can only be done effectively when taking the diversity of the European population into account.*

Translating research for human health

- *Distinguishing between sex and gender and investigating the impact each one has on health is becoming a priority for medical research.[3] Gender, which is a social construct, and sex, which is a biological construct, are distinct terms. Depending on the health problem being studied, either, neither, or both gender and sex may affect the risk of being exposed to an unhealthy situation and subsequently developing a health problem. Two different approaches to gender in relation to health and healthcare should be distinguished and considered in research. One approach – the most common – focuses on women's health needs, particularly the specific needs of women and girls as a consequence of the*

[3] Institute of Medicine (2001) '*Exploring the biological contributions to human health: does sex matter?*', in Journal of Women's Health & Gender-based Medicine 10(5): 433-439. Doyal, L., 2004 'Gender and the 10/90 gap in health research', in Bulletin of the World Health.

biology of reproduction and the implications of differences in the epidemiological profile between the sexes. The other approach focuses on gender equality and inequality, and is concerned with the role of gender relations in the production of vulnerability to ill health and disadvantage within healthcare systems, and particularly the conditions that promote inequality between the sexes in relation to access to and use of services.

- *Sex and gender 'mainstreaming' is a strategy for bringing equality into the 'mainstream' of activities rather than treating it as an 'add-on' to existing research goals. A mainstreaming approach does not focus only on women but conceptualises both men and women as actors and beneficiaries of scientific research.[4] Mainstreaming gender means analysing potential gender differences by asking such questions as the following and using the answers to shape planning and implementation:*

  - *How are the problems of men and women different? How might solutions be different?*
  - *How might contributions of men and women to programmes be different?*
  - *How might activities differently affect women and men?*

- *Health research has failed to adequately explore the combination of social and biological sources of differences in men's and women's health. Consequently, scientific explanations often proceed from reductionist assumptions that differences are either purely biological or purely social. Such assumptions and the models that are built on them have consequences for research, healthcare and policy. An understanding of the* ***interaction between sex and gender*** *in the development and management of health and disease can benefit both sexes in terms of intervention and outcome, as well as providing a deeper understanding for researchers, clinicians and policy-makers.*

- *While contracting infectious diseases is a function of the interaction of the biological and the social, the experience of the illness/disease is more socially determined. For example, biology may interact with social influences to exacerbate the risk of tuberculosis for women at certain points in their life cycle. Attention in research to the impact of exposure to infectious diseases on women and men in their life span is therefore important.*

- *Medical treatment is also gender-sensitive: for example men sometimes drop out faster from a long-term treatment scheme because they are more reluctant to queue at the health centre, a place associated with women and children.*

- *Medical and social scientists must take into consideration gender and its interaction with physiological/immunological factors, and how the outcome of that interaction can protect men and/or women from communicable diseases, or, conversely, place them at risk. For example, there are important differences between women and men in the underlying mechanisms of HIV/AIDS infection and in its social and economic consequences, stemming from biology, sexual*

[4] Fausto-Sterling, A. (2003), *Science matters: culture matters*, Persp. Biol. Med 46, pp.109-124;
Klinge, I. (2007), *Bringing gender expertise to biomedical and health related research*, Gender Med. 4, pp. S59-63, www.GenderBasic.nl;
Klinge, I. and Bosch, M. (2005), *Transforming research methodologies in EU life sciences and biomedicine*: gender sensitive ways of doing research. Eur. J. Women's Studies 12, p377.

behaviour and socially constructed "gender" roles and responsibilities, access to resources and decision-making power .[5]

Optimising the delivery of healthcare to European citizens

- *Healthcare and health sector reform should take into consideration gender issues and the potential impact of reforms on certain groups of men and women. Health and well-being are dependent on health-seeking behaviour. It is therefore important to look at the issue of access to appropriate care for all components of the population and be aware of the specificities and different realities of men and women. The gender dimensions of user fees, for example, have significant implications for healthcare policy and management: women, being the majority of the poor, are particularly affected by user fees.*

- *In communicating research results (reports, scientific papers and articles, etc.) any findings on sex and gender differences from the research should be included, so that the knowledge-base and thus the quality of healthcare provision is increased.*
  In engaging in dialogue with medical sectors and civil society (including the patients), all actors must keep in mind the need to respect gender equity in opportunities to voice positions, in participation in the policy debate, and in any (ethical or other) decisions that might stem from such dialogue. Health systems are observed to be gendered institutions.[6] *For example, the hierarchy among healthcare staff tends to place doctors, policy-makers and administrators (predominantly male) above nurses, paramedical staff and orderlies, who are more likely to be female, and day-to-day working relations between healthcare staff and patients tend to be predominantly between women.*

Developing science to meet current and future needs requires perceptions of research to be reframed within a culture of raised awareness of the influence of sex and gender on scientific knowledge, taking into account men and women as both generators and beneficiaries. To this end, men and women scientists need equal opportunities to establish a bridge to society which would enable the transfer of scientific knowledge and technology for the well-being and development of society. Thus, investing in a gender-sensitive approach to the research content makes for higher quality and validity.

[5] UNAIDS (2003), *Gender and HIV/AIDS*, Gender and Health Fact Sheet
[6] Mackintosh, M. and Tibandebage, P. (2004), '*Gender and Health Sector Reform: Analytical Perspectives on African Experience*', Working Document prepared for the UNRISD report Gender Equality: Striving for Justice in an Unequal World.

3

Gender and *Health*

THREE EXAMPLES

Case 1
Social networking for dietary guidance

Project outline

Combining work, social obligations and caring for a family in a balanced way has become an important worry for a growing number of European citizens. The project will offer European citizens consumer solutions for a hassle-free guidance towards a balanced lifestyle. The project focuses on methods for inferring eating habits in an unobtrusive way and seeks to use this information to provide situated feedback on meal planning and preparation. Throughout all phases of the project a process of user-centred development (UCD) will be adopted. Since the project aims to change people's behaviour, it is seen as vital to take user needs as the starting point for technology development. The main challenge will be to create solutions that give situated feedback in an enjoyable and engaging manner, leveraging social networking and the collaborative internet (i.e. Web 2.0) to affect behavioural change.

The knowledge exchanged and developed in the project will strengthen both the academic and industrial sectors by creating knowledge on nutrition assessment, situated assistance for meal planning and preparation and the use of social networking to promote healthy eating. The partnership will benefit from knowledge exchange in a number of fields of inquiry. Both partners have significant experience in developing technology, and this expertise is complementary, with one understanding consumer technologies (and the associated methods) and architectures for pervasive environments, and the other developing novel design methodologies and techniques to engage in experience-centred design and to exploit new findings in multimodal cognition. One partner will also contribute nutritional expertise, while external knowledge will be introduced to the partnership through the recruitment of an external expert in the social psychology of behavioural change.

Identification of relevant gender issues

Equal opportunities for women and men in research

The project presentation does not address the composition of its team(s). The project focuses on offering nutritional guidance to contribute to healthy lifestyles. Women still bear the brunt of food shopping and cooking responsibilities within households. A non-gender-sensitive strategy for health education may only serve to increase women's burden of guilt and stress rather than leading to a transformation of family eating habits.[7]

A gender-balanced team will perhaps help in integrating as early on as possible women's often unrecognised knowledge on food and nutrition. This might help the project to define adequately the issues "European citizens" face and that trigger their worry about a balanced lifestyle. Moreover, to approach the nutritional balance comprehensively, the project will have to consider how work and private life are combined, and here again, female team members might be valuable sources of information right from the start. A gender-balanced team could also be the project's first step into defining working conditions and culture which work for all its staff members, both female and male, and contribute "in situ" to a healthy balanced lifestyle.

The team will be multidisciplinary, with an external expert in the social psychology of behavioural change associated with the project. Adding gender expertise to the project would also be highly beneficial and might contribute to keeping a consistent gendered perspective on the whole enterprise. Finally, the project will be trying to provide solutions using social networking and the collaborative internet. If one can be optimistic as to the closing of a gender gap in women using ICTs (Information and Communication Technologies), women in computer science and engineering are still a tiny minority, and the situation does not appear to be improving.[8] Given the blatant gender dimension of the project, there might still be room to consider whether a female computer expert might not usefully complement the team, however rare female computer experts might be.

[7] Charles, N. and Kerr, N. (1986), *Issues of responsibility and control in the feeding of families* in Rodnell, S. and Watt, A. (eds), The politics of health education: raising the issues, London: Routledge and Kegan Paul.

[8] Sørensen, Knut H. and Stewart, James (eds) (2002), *Digital Divide and Inclusion Measures: A review of Literature and Statistical Trends on Gender and ICT*, Senter for teknologi og samfunn, Report 2002-59, December 2002, Trondheim: NTNU.

Gender in research content

Gender should be taken into account at every step of this project's methodology, since gender is a central variable in the issue at hand. The gendered division of labour in our societies implies that women still assume multiple roles (bread-winner, carer/parent, home/community "manager") more frequently than men, whose roles are more often restricted to professional activities. To assess the eating habits and dietary needs of the "citizens", the project will need to take these gender differences into account because they have gender-related impacts on female and male citizens' daily lives. Failing to collect gender-sensitive data will result in a skewed picture, and may threaten the success of the proposed technology. The project could build upon existing research, which has thoroughly explored the gender differences in difficulties people face in combining work and private life and their impacts on healthy lifestyles.[9] Although the majority of funded studies have taken place in the developing world, the advantage of using a gendered perspective in the success of these projects has been clear. A major multi-country study on gender and intra-household aspects of food policy, carried out by the International Food Policy Research Institute (IFPRI), provides evidence that increasing resources in the hands of women, both as researchers and consumers, is critical to improving project performance and attaining many important development outcomes.[10] This new understanding has been the catalyst for a host of innovative public policies for alleviating poverty and hunger, including microfinance directed to women, food for education, childcare programmes, and integrated health, nutrition, and education programmes.

There is no mention on how the process of the user-centred development (UCD) will be elaborated. Here again, to guarantee the success of the project, a gendered look at the "user" will be necessary. Male and female potential users will not face the same needs. Since these needs are claimed to be the starting point for the technology development, it seems paramount to define them accurately following a gendered axis (sex-disaggregated data).

A gender-sensitive perspective can only be accomplished if researchers themselves view this change as necessary, feasible and contributing to the quality of their research. Since gender is so central to this project, disseminating its approach, methodology and outcomes would be highly worthwhile as it would enrich gender expertise.

[9] Perrons, D. & al. (2007) *'Gender, social class and work-life balance in the new economy'* in Crompton, R., Lewis, S. and Lyonette, C. (eds) Women, men, work and family in Europe. Basingstoke, UK: Palgrave Macmillan, pp. 133-151.

[10] Jackson, C. (2005) *Strengthening food policy through gender and intrahousehold analysis: Impact assessment of IFPRI multicountry research*, IFPRI Impact Assessment Discussion Paper 23, Washington, DC: International Food Policy Research Institute.

Case 2
Mosquito immunity and reproduction

Project outline

Malaria, one of the world's most devastating diseases, is caused by protozoan parasites of the genus Plasmodium and is obligatorily transmitted to humans by anopheline mosquitoes. The African mosquito species Anopheles gambiae s.s. is the major vector of this disease. Current strategies aimed at tackling malaria rely extensively on the control of vector populations in the field, chiefly through the use of insecticides and insecticide-impregnated bednets. However, the insurgence of resistance in mosquitoes and the lack of novel insecticidal compounds constitute major hurdles to insecticide-based control methods. Novel alternative strategies are urgently needed to monitor risks and to roll back the disease.

This proposal aims to provide an integrated view of mosquito immunity and reproduction, the latter largely understudied in Anopheles, and to analyse how these two physiological processes are linked and jointly affect mosquito biology and its interactions with the malaria parasite.

Research groups from three European countries and two African teams will integrate their resources and scientific expertise in malaria research to expand knowledge of mosquito biology and of vector-parasite interactions, exploiting the opportunities provided by the recently available genome information and technological developments concerning mosquito vectors. The project consortium's joint scientific programme integrates for the first time three crucial aspects of the biology of An. gambiae – reproduction, immunity and population biology – with the ultimate aim of providing novel concepts and targets for malaria control.

The main activities will address:

- The molecular bases of the reproductive biology of the mosquito vector, and its effects on immunity and Plasmodium transmission;
- The molecular mechanisms which determine mosquito-immune statusand regulate Plasmodium sporogony and transmission, in both laboratory settings and natural populations;
- The role of genetic polymorphism in genes controlling reproduction and immunity on the structure of mosquito populations and malaria transmission in Africa.

In order to reach its objectives, the project will employ a number of concerted strategies in support of its three-year agenda. Special attention will be given to cutting-edge training opportunities and sharing of resources, by implementing interactive programmes for the training and exchange of personnel at all levels, and by rationalising and coordinating investment. The knowledge acquired in this project will have a strong impact on European scientific competitiveness.

The scientific activities of this project will identify the factors and pathways regulating immunity against Plasmodium parasites and provide molecular insights into the reproductive processes essential for the fertility and fecundity of the mosquito, the two crucial aspects of mosquito biology at the basis of developing transmission-blocking interventions. The knowledge gained will be instrumental in determining at the molecular level how the modulation of immune factors affects reproductive success in vector populations, and how reproductive efforts influence the immune status of mosquitoes and parasite development. Polymorphisms of key molecules regulating reproduction and immunity will be characterised in the natural populations across sub-tropical Africa, and the key factors that shape local vector populations will be identified. Data on the polymorphisms of key molecules regulating reproduction and immunity will generate new tools for genetic analyses of the population structure of An. gambiae and of the physiological/ecological/behavioural traits underlying it. Moreover, the knowledge developed within this project will enhance understanding of reproductive behaviour in other insect vectors such as tsetse and sand flies.

Identification of relevant gender issues

Equal opportunities for women and men in research

The project will bring together teams from three European and two African countries. Diverse teams have been shown to work better, when well managed[11],and this project certainly opens a window of opportunity to set up a diverse team, in terms of an acceptable gender balance but also in terms of ethnic background. FP7 will monitor the team composition, and reporting on its gender balance will gain the proposal a higher score.
The project foresees the sharing of resources, interactive training programmes and the exchange of personnel at all levels. The project would do well to examine its working conditions and culture, to guarantee that all staff members, men and women, European and African, are treated fairly and provided with support, should they need it, to benefit equally from the opportunities of exchange and training offered. For example, these might involve transcontinental travelling, which might have different consequences for male and female, European and African team workers.

[11] Katzenbach, J. and Smith, D. (1993), *The Wisdom of Teams*, Boston, MA: Harvard Business School Press.

Gender in research content

Since this project focuses on the reproduction of malaria flies, men and women have been known to play different roles in disease control. For example, women's and men's access to water, and use of water resources, where mosquitoes breed, might be different. Although malaria affects both men and women, vulnerability to malaria and access to treatment is often different for women and men and is greatly influenced by gender roles and issues. Women, particularly pregnant women, and children are at the greatest risk of contracting malaria in both high and low malaria endemic areas for both biological and social reasons. A careful gendered analysis of how the outcomes can be used to actually improve disease control will be necessary. The success of any disease control programme depends on a gender-sensitive approach, taking into account that if women are likely to be in charge of practical implementation requirements, they might not be present in local decision making circles.

Evidence worldwide show that women at community level have been at the centre of the fight against the disease that claims many lives each day. By the same token decisions are usually taken by men without much consultation with women.[12] There is an imbalance in the roles played by each group. In addition, socially determined gender norms often require women to undertake a 'double burden' of providing care to sick family members in addition to other household and income earning duties.[13] As men are also vulnerable to contracting malaria through occupational exposure, malaria programmes need to work on improving men's access to malaria prevention methods and treatment.[14] As the global strategy to roll back malaria charts the way forward to scale up efforts to reduce the mortality caused by the disease and improve health, there is a need for increased advocacy to accomplish this goal. The importance of integrating a gender-sensitive approach to dealing with malaria control has been emphasised.[15] A gender approach that analyses the impact of gendered norms and behaviour on vulnerability to malaria, as well as the gender-related dynamics of health seeking behaviour, is essential in the fight against malaria. Many strategies for malaria control and prevention have not been able to be sustained or implemented owing to the failure to incorporate an interdisciplinary and gendered perspective in the design of such programmes, coupled with insufficient consideration of the general social and cultural context of infection and disease.

[12] Tolhurst, R and Nyonator, F.K. (2005), *Looking within the household: gender roles and responses to malaria in Ghana,* Trans R Soc Trop Med Hyg. Oct 5.

[13] World Health Organization, *Information Sheet on Gender, Health and Malaria,* April 2006 working draft.

[14] Heggenhougen, K.H., Hackethal, V. and Vivek, P. (2003), *The behavioural and social aspects of malaria and its control: An introduction and annotated bibliography,* UNDP/WorldBank/WHO Special Programme for Research and Training in Tropical Diseases (TDR). TDR/STR/SEB/VOL/03.1., p 118

[15] Liverpool School of Tropical Medicine (2005), *Gender Perspectives in Malaria Management and Malaria Knowledge Programme at Liverpool School of Tropical Medicine,* accessible at http://www.healthlink.org.uk/PDFs/mkp_perspectives.pdf#

Case 3
Clinical decision-making and people with severe mental illness

Project outline

- **Background:** A considerable amount of research has been conducted on clinical decision-making (CDM) in short-term physical conditions. However, there is a lack of knowledge on CDM and its outcome in long-term illnesses, especially in care for people with severe mental illness. Thus, this project entitled "Clinical decision-making and outcome in routine care for people with severe mental illness" is proposed by participants in six European countries.

- **Methods:** First, the project will establish a methodology to assess CDM in people with severe mental illness. Specific instruments will be developed (and psychometric properties established) to measure CDM style, key elements of CDM in routine care, as well as CDM involvement and satisfaction from patient and therapist perspectives. Second, these instruments will be put to use in a multi-national prospective observational study (monthly assessments over a one-year observation period; N = 540). This study will investigate the immediate, short- and long-term effect of CDM on crucial dimensions of clinical outcome (symptom level, quality of life, needs) by taking into account significant variables moderating the relationship between CDM and outcome.

- **Expected results/impact:** The results of this study will make it possible to delineate quality indicators of CDM, as well as to specify prime areas for further improvement. Ingredients of best practice in CDM in the routine care for people with severe mental illness will be extracted and recommendations formulated. With its explicit focus on the physician perspective and the patient role in CDM, the project will also contribute to strengthening the service user perspective. Beyond dissemination of results in scientific journals, a number of steps to ensure swift transfer of the results to routine practice are proposed. Thus, this project will substantially add to improving the practice of CDM in mental healthcare across Europe.

- **Physician perspective:** In the past, psychiatrists, with the appropriate level of involvement from their patients, were the sole source of authority and legitimacy in the clinical decision-making process. Today, the psychiatrist–patient relationship is no longer uninfringeable by the outside world. Because there is variance in our practice, some of it unsupported by scientific evidence, the question is no longer whether there will be intervention in mental health services to assure quality but who will intervene and what methods will be used. If psychiatrists want to remain in control of their profession, they must have the motivation to track and evaluate mental health outcomes routinely. Further, psychiatrists are the only mental health professionals who can make a comprehensive biopsychosocial diagnosis. Psychiatrists need to be able to monitor their patients' treatment progress objectively by evaluating quantitative outcome data.

- **Patient perspective:** The patient perspective is even more important for outcome assessment, in part because many important outcomes (such as patient satisfaction, attitudes toward treatment, and quality of life) can be determined only by asking the patient. There is also growing recognition that patients, as consumers of care, are important healthcare partners. Several studies have noted a relation between treatment compliance and patients' understanding and awareness of their treatment progress.

Identification of relevant gender issues

Equal opportunities for women and men in research

There is no indication of the gender balance within the research team, although this information, and indication of its monitoring, would collect marks from evaluators. The project being a collaborative effort between partners spread over six countries, travelling might be required, and the project might be well advised to look into travelling requirements that still guarantee a healthy work/private life balance, as some team members, and more likely female team members, might be hard pressed to combine mobility requirements with family/home responsibilities.

Gender in research content

The research aims to delineate quality indicators of CDM in severe mental illness, integrating the psychiatrist's perspective as well as the patient's. In the case of severe mental disorders such as schizophrenia and bipolar depression, there do not seem to be sex-differences in prevalence. However, significant sex differences have been demonstrated in the patterns of development and symptoms of the disorders. Research suggests that, in relation to women's mental health, psychosocial factors are equally or more important than biological ones.[16] Life course developmental theories are supported by evidence from longitudinal studies, which show that differences in the mental health of boys and girls start to appear at the onset of adolescence, when social roles are adopted to a greater extent.[17]

For example, while the numbers of male and female Alzheimer patients are similar, women's living longer implies that more female patients will live longer with the condition. Hence what is needed is a greater contextualisation of mental health decisions within current social realities. Gender differences appear not only in relation to the kinds of mental health problems experienced by women and men, but also in their patterns of help seeking and treatment. For example, women are more likely to seek help from and disclose mental health problems to their primary care physicians, who, in turn are more likely to prescribe them drugs rather than refer them to psychiatric services. It is estimated that women are prescribed twice as many psychotropic drugs per head as men.[18]

The World Health Organization identifies three types of underlying factors which might explain gender differences:

- the interaction between biological and social vulnerability: for instance, it has been shown that marital disharmony, lack of social support and poverty increase the risk of postnatal depression;

- gender roles: studies have shown that in industrialised countries, low income and women's increased exposure to uncontrolled life events such as illnesses and deaths of family members, job insecurity and dangerous neighbourhoods translate into a significantly higher risk of depression; whereas in men, the same situations may be associated with alcohol or drug abuse, and violence;

- gender-based violence: there is a strong link between being sexually abused in childhood and the occurrence of multiple mental health problems later in life, and globally, girls and women experience more sexual violence than men. Still, studies in the USA and the Netherlands have reported that male victims of childhood sexual abuse later suffer worse and more complex problems.[19]

[16] World Health Organization (2001), *Gender Disparities in Mental Health*, Geneva.
[17] Kornstein, S.G. and Wojcik, B.A. (2002), *'Depression', in Women's mental health: a comprehensive textbook*, Kornstein, S.G. and Clayton, A.H., (eds), New York: The Guildford Press.
[18] World Health Organization (2001), *Gender Disparities in Mental Health*, Geneva,.
[19] World Health Organization (2002), *Gender and Mental Health*, Geneva.

To guarantee the validity of the project's approach and make sure its outcomes are effective for any patient, the gender delineation of severe mental illness will need to be precisely drawn. This implies that the research should systematically and consistently collect sex-disaggregated data, whenever the patient is concerned. But not only this: the history of the diagnosis of such disorders also preaches caution. We might be a long way from the diagnosis of "hysteria" in female patients requiring hysterectomies, but psychiatrists are still gendered beings whose gender stereotypes might perhaps bias their assessments. For example, studies in Germany and the USA have shown that elderly women might be more easily diagnosed with depression than men showing the same symptoms. The project aims to investigate the effect of CDM on crucial dimensions of clinical outcome by taking into account significant variables moderating the relationship between CDM and outcome. It ought to integrate from the start sex as a potentially significant variable that needs to be examined, with reference to both patient and doctor.

The project's ultimate aim is to improve mental healthcare in Europe. Since mental health problems are gendered, it follows that treatment programmes, service provision, and clinical decision-making and evaluation need to adopt a gendered approach in order to be effective.

At this point, it might also be useful to consider how realities for men and women might differ in terms of access to care, women's and men's vulnerability, the impact illness might have on families and, of course, who is likely to be the carer for patients of severe mental disorders (in most cases, women). All these elements might affect the patient's perspective and needs, which in turn will impact on the patient's response to their treatment.

4

Gender and *Health*

USEFUL READING

Bekker M.H.J., van Mens-Verhulst J.(2007), *Anxiety Disorders: Sex Differences in Prevalence, Degree, and Background, but Gender-Neutral Treatment*, The Official Journal of the Partnership for Gender-specific medicine at Columbia University, Special Edition, 4(Supplement B):178-93.

Dijkstra A.F., Verdonk P., Lagro-Janssen A.L.M. (2008), *Gender bias in medical textbooks: examples from coronary heart disease, depression, alcohol abuse and pharmacology*, Medical Education;42(10):1021 - 8.

DunnGalvin A. (2006), *Incorporating a gender dimension in food allergy research: a review in Allergy*, 61(11): 1336-1343.

Hamberg K. (2008), *Gender bias in medicine* in Women's Health, May 2008;4(3):237 - 43.

Hammarstroem A. (2007), *A Tool for Developing Gender Research in Medicine: Examples from the Medical Literature on Work Life* in The Official Journal of the Partnership for Gender-specific medicine at Columbia University, Special Edition, 4(Supplement B):123-32.

Holdcroft A. (2007), *Integrating the Dimensions of Sex and Gender into Basic Life Science research: Methodological and Ethical Issues* in The Official Journal of the Partnership for Gender-Specific Medicine at Columbia University, Special Edition, 4(Supplement B):64-74.

Huyer S.O., GeoffreyJeenah, Mohammed Naim, Tanveer (2004), *Understanding the gender dimensions of biotechnology research and development : consultative expert workshops; final technical report,* United Nations Commission on Science and Technology for Development University of Pretoria Pakistan National Commission on Biotechnology; 2004.

Klinge I. (2007), *Bringing Gender Expertise to Biomedical and Health-Related Research* in The Official Journal of the Partnership for Gender-specific medicine at Columbia University, Special Edition, 4(Supplement B):59-63.

Klinge I., Bosch M. (2001), *Gender in Research - Gender Impact Assessment of the specific programmes of the Fifth framework Programme- Quality of Life and Management of Living Resources,* European Commission, http://www.genderdiversiteit.nl/en/download/pdf/Gender%20in%20research.pdf (16.03.2009).

Lagro-Janssen T., Lo Fo Wong S., Muijsenbergh Mvd.(2008), *The importance of gender in health problems* in The European Journal of General Practice;14(1):33 - 7; 4(Supplement B):96-105.

Prins M.H., Smits K.M., Smits L.J. (2007), *Methodological Ramifications of Paying Attention to Sex and Gender Differences in Clinical Research* in The Official Journal of the Partnership for Gender-specific medicine at Columbia University, Special Edition; 4(Supplement B):106-10.

Verdonk P., Benschop Y.W.M., De Haes J.C.J.M., Lagro-Janssen A.L.M. (2008), *Making a gender difference: Case studies of gender mainstreaming in medical education* in Medical Teacher; 30(7):194 - 201.

World Health Organisation - *Gender and health information sheets on various health topics.* http://www.who.int/gender/documents/fact/en/index.html (13.03.2009).

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

1

Gender and *Food, agriculture and fisheries, and biotechnology*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Food, agriculture and fisheries, and biotechnology* 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 *Food, agriculture and fisheries, and biotechnology* 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 website[1] and relate to different topics within the field's work programme.

Finally, a selection of **useful references** dealing with gender in the field of *Food, agriculture and fisheries, and biotechnology* is provided.

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

2

Gender and *Food, agriculture and fisheries, and biotechnology*

GENDER AND THE *FOOD, AGRICULTURE AND FISHERIES, AND BIOTECHNOLOGY* RESEARCH FIELD

FP7 *Food, agriculture and fisheries, and biotechnology* objective

Building a European knowledge-based bio-economy by bringing together science, industry and other stakeholders, to exploit new and emerging research opportunities that address social, environmental and economic challenges:

- *the growing demand for safer, healthier, higher-quality food and for the sustainable use and production of renewable bio-resources;*
- *the increasing risk of epizootic and zoonotic diseases and food-related disorders;*
- *threats to the sustainability and security of agricultural, aquaculture and fisheries production;*
- *the increasing demand for high-quality food, taking into account animal welfare and rural and coastal contexts and response to specific dietary needs of consumers.*

How is gender relevant to this field?

In activities under this theme, applicants should consider gender differences and relations in productive processes, different uses of agricultural produce (food and non-food), roles, responsibilities and ownership, and sustainability in the production and management of resources, and of products and processes.

Food, agriculture and fisheries, and biotechnology work programme

The activities envisaged to be addressed during the lifetime of FP7 will be:

Sustainable production and management of biological resources from land, forest and aquatic environment

Fork to farm

- Food (including seafood), health and well-being
- Consumers
- Nutrition
- Food processing
- Food quality and safety
- Environmental impacts and total food chain

Life sciences, biotechnology and biochemistry for sustainable non-food products and processes

How is gender relevant to these activities?

- *The sustainability and security of European agriculture, forestry, aquaculture and fishing requires striking a balance between socio-economic goals and responsible natural resources management. Therefore an integrated approach making full use of all the major players involved (farmers, consumers, regulatory bodies and scientists) is necessary. It will be important to ensure that men and women are equally represented within groups of stakeholders and to ensure that their respective needs and interests (e.g. on novel food and food technologies, risks etc.) are taken into account. In this respect, it can be pointed out that 37% of the permanent workforce in European farming are women. They are more heavily represented in four types of farming (mixed livestock grazing, mixed crops, specialist horticulture and olive growing), while fewer women work on holdings specialising in cereals, oilseeds and protein plants, mixed cattle, sheep and goats and pigs and poultry.*[2]

[2] European Commission, Directorate General for Agriculture (2000), *Women active in rural development, Assuring the future of rural Europe*, http://ec.europa.eu/agriculture/publi/women/broch_en.pdf (26/05/2009).

Regarding farm ownership, one holding in five is managed by a woman. Holdings managed by women are noticeably smaller in economic size than those managed by men.[3] Finally, many women still work in family businesses and farms and lack professional status, independent remuneration or separate social security.[4]

- *Efficient and appropriate communication tools disseminating information and results to consumers should be developed taking into account gender differences. Consumer debate (e.g. on novel food and food technologies, risks, etc.) should be reported in a gendered way to take different needs and perspectives into account.*

- *In food and nutrition research, attention should be given to gender differences, such as socio-psychological reasons for eating disorders and addictions.*

- *Gender differences should be taken into account when constructing models to develop new sets of biomarkers to study the effects of relevant food compounds on body functions.*

- *In Europe, the food supply chain is quite complex and comprises many invisible intermediate points, which leads to agriculture and food being perceived as separate areas. However, the compulsory labelling of genetically modified foods, widespread food allergies, and the growing interest in organic products make it important to put forward the connection between nutrition and agriculture. In this respect, a holistic examination will require researchers to take a gender perspective on board: nutrition is still traditionally thought of as the women's responsibility in the household, as they are generally responsible for preparation the family's food. Women also seem to be an important driving force when it comes to converting to organic farms.[5]*

- *The gender implication of decisions concerning the use of agricultural products for non-food uses should be looked at carefully.[6] When doing research in the field of life sciences, biotechnology and biochemistry for sustainable non-food products and processes, researchers will need information on how processes of increasing commercialisation and economic growth impact differently on women's and men's access to the use and control of plant genetic resources and land as well as their respective roles in collecting, producing, distributing and consuming these resources and derived products.*

[3] European Commission, Directorate General for Agriculture (2002), *Agriculture, The spotlight on women*, http://ec.europa.eu/agriculture/publi/women/spotlight/text_en.pdf (26/05/09)

[4] European Parliament (2008), *Resolution of 12th March 2008 on the situation of women in rural areas of the EU*, http://www.europarl.europa.eu/oeil/FindByProcnum.do?lang=en&procnum=INI/2007/2117 (27/05/09).

[5] Röhr, U. (2004), *Towards Gender Justice in Environmental Policy. Implementing Gender Mainstreaming in Germany*, Life e.V. FrauenUmweltNetz, http://www.genanet.de/fileadmin/downloads/themen/GM_Environment_Germany.pdf (26/05/2009)

[6] Rossi, A., Lambrou, Y. (2008), *Gender and Equity Issues in Liquid Biofuels Production*, Food and Agriculture Organization of the United Nations, http://www.fao.org/docrep/010/ai503e/ai503e00.htm (06/04/2009).

3

Gender and *Food, agriculture and fisheries, and biotechnology*

THREE EXAMPLES

Case 1
Agri-food law

Project outline

In Europe, agri-food legislation has been substantially transformed between 2002 and 2007. The result is a legal metamorphosis that is taking place in the context of a global free-market economy, of European policies of public health and sustainable development, and of the legal regulation of global trade. This metamorphosis was rendered inevitable in order to respond to three essential concerns:

- developing economic activity based on a high level of food safety
- putting food law in step with the European sustainable development strategy
- including in the new agri-food law the environmental, cultural and social values Europe wishes to defend within international trade

This new law is extremely fragmented and incoherent, a fact that might hamper its being properly understood.

This is why there is a need to make the law formally and substantially homogeneous in order to continue to study it, to develop its study at universities, to make it more easily accessible to economic operators and to disseminate its contents to non-European countries wishing to have their food products accepted in Europe. This radical change in agri-food law has a particular importance since this law must take the perspective of sustainable development into account. It is therefore necessary to determine the content of the concept of sustainable development in relation to food legislation. Such a determination will help to clarify the shared and non-market-oriented values to which agri-food law is or should be a key contributor. Some of these values have roots which probably go back as far as when agriculture began, while others come from our social history. Beyond the search for the origins of these values, past or present, the effort is to envisage concretely how the cultural relations of man to soil and food are reconciled within European agri-food law and in various legal systems in the world. To do so, the project's multidisciplinary team will study historical texts and legal frameworks, and undertake anthropological research among farmers, farmers' organisations, etc. This will be done using focus group techniques.

Identification of relevant gender issues

Equal opportunities for women and men in research

The research will combine legal, anthropological, cultural, environmental and agro-economic aspects and rightly envisages a multidisciplinary team. Considering the multifaceted issue at hand, gender expertise would be beneficial to the project.

Research has shown that, in well-managed teams, not only multiple disciplines but also diversity in terms of sex, age, etc., can enhance the quality of the research output. Diversity provides a further opportunity to harness a wide range of life experiences and perspectives.[7] So the careful composition of a diverse team can improve the research even further.

In view of the fact that this project aims to look at cultural values concerning food and agriculture, the project might also consider its own cultural values related to work. Ensuring equal opportunities for all team members, by providing sustainable working conditions for all, will also contribute to the sustainability of the project. This might entail schemes for parental leave, child care provision, etc.

[7] Katzenbach, J. and Smith, D. (1993),- *The Wisdom of Teams, Harvard Business School Press,* Boston, MA.

1

Gender and *Nanosciences, nanotechnologies, materials and new production technologies*

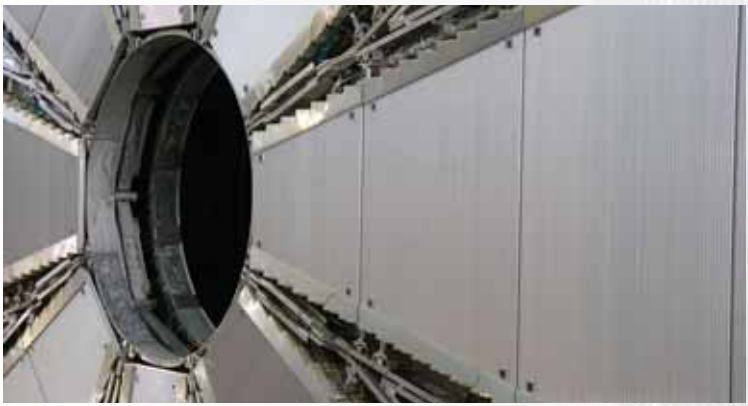
INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Nanosciences, nanotechnologies, materials and new production technologies* 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 *Nanosciences, nanotechnologies, materials and new production technologies* 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 website[1] and relate to different topics within the field's work programme.

Finally, a selection of **useful references** dealing with gender in the field of *Nanosciences, nanotechnologies, materials and new production technologies* is provided.



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

2

Gender and *Nanosciences, nanotechnologies, materials and new production technologies*

GENDER AND THE *NANOSCIENCES, NANOTECHNOLOGIES, MATERIALS AND NEW PRODUCTION TECHNOLOGIES* RESEARCH FIELD

FP7 *Nanosciences, nanotechnologies, materials and new production technologies* objective

The core objective of the 'Nanosciences, nanotechnologies, materials and new production technologies' theme is to improve the competitiveness of European industry and generate the knowledge needed to transform it from a resource-intensive to a knowledge-intensive industry.

NMP research also aims to strengthen the competitiveness of European industry by generating 'step changes' in a wide range of sectors and implementing decisive knowledge for new applications between different technologies and disciplines.

Funding the NMP research theme will benefit new, high-tech industries and higher-value, knowledge-based traditional industries, with a special focus on the appropriate dissemination of research results to SMEs.

How is gender relevant to this field?

The purpose of the NMP programme is to do research that fosters European competitiveness by creating products and technology applications that can satisfy a wide diversity of needs that citizens have, in their roles as producers, consumers, workers, or simply individuals. These needs include safety, comfort, health care, housing, mobility and satisfactory environmental quality.

We therefore need to keep an open mind, both as to the interests different people have, and to a wide spectrum of disciplines which include both natural and social sciences. One very powerful idea, for instance, is that of product customisation, which means paying more attention to the specific needs of each individual user. These individuals are not necessarily average white males, but can be women, children or people with disabilities, and can have all sorts of ethnic and genetic make-ups, cultural and social backgrounds, etc. They all still have the right to see their specific needs addressed.

The main difficulty seems to get the right message across, both to researchers and to Commission staff, by using the open definition of gender relevance.

This is not limited to strictly biological differences and discrimination at work, but takes social, cultural and biological diversity into account. It thus encompasses many more factors, thereby improving the quality of the technologies and of the product.

Nanotechnology is a subject of public debate. In order to foster dialogue in society, people must be informed about the advantages as well as the risks for health and environment with regard to diverse needs. Gender differences mean that communication and information must be formulated in a gender-sensitive way. Adequate dissemination of results helps to avoid gender-biased research policies.

Nanosciences, nanotechnologies, materials and new production technologies work programme

Emphasis will be given to the following activities:

- Nanosciences and nanotechnologies - studying phenomena and manipulation of matter at the nanoscale and developing nanotechnologies leading to the manufacturing of new products and services.
- Materials - using the knowledge of nanotechnologies and biotechnologies for new products and processes.
- New production - creating conditions for continuous innovation and for developing generic production 'assets' (technologies, organisation and production facilities as well as human resources), while meeting safety and environmental requirements.
- Integration of technologies for industrial applications - focusing on new technologies, materials and applications to address the needs identified by the different European Technology Platforms.

How is gender relevant to these topics?

In general, research results which focus on gender aspects in the field of nanosciences and nanotechnologies are rare. One reason for this may be that in many ***applications*** *nanotechnologies can be regarded as cross-cutting technologies. So gender aspects in applied nanosciences and nanotechnologies intersect with other research fields such as healthcare, food, agriculture and biotechnology as well as energy, information and communication. Also research on new production technologies focuses on a wide range of industrial sectors.*[2]

In dealing with ***nanomaterials****, it is the fields of health and environment that are mainly concerned. The possible toxicity of* ***nanoparticles*** *concerns women and men in different ways:*

- *Women and men are affected differently by the environment owing to their social and biological conditions;*
- *Women and men show different behaviour with regard to dealing with environmental problems and solutions;*
- *Gender-dependent user behaviour and circumstances of life may cause differences in material exposure.*

Implementing ***new technologies*** *should adopt the gender approach at a very early state of research in order to include a wide cross-section of society in discussion about acceptance and benefits. In order to increase female empowerment in research and technologies, energetic efforts must be made to encourage more women at all levels of scientific research.*

[2] Caprile, M., Sánchez, B., Vallès, N., Gómez, A., Potrony, J., Sixto, E., et al. (2008), *Synthesis Report: Aeronautics and Space - Nanotechnologies and nanosciences - Sustainable Energy Systems - Euratom - Sustainable Surface Transport.* European Commission.

3

Gender and *Nanosciences, nanotechnologies, materials and new production technologies*

THREE EXAMPLES

Case 1
Personalised skin care

Project outline

Recent years have seen an increasing interest in 'personalised health care', based on personalised diagnoses and treatments, especially concerning the biocompatibility of drugs. This evolution has been accompanied by the development of innovative technologies capable of identifying specific biomarkers.

Existing research shows that subjects diagnosed with the same skin syndrome respond differently to given treatments. As a result of the understanding of high skin type variation among the population, the possibilities of 'personalised skin care' are considered. The underlying idea is that each person should be treated based on his own "epidermal personality", defined by his unique and specific set of skin features, characteristics and conditions.

Recent molecular studies have provided evidence that specific biomarkers can be identified as molecular signatures associated with a certain skin syndrome. Characterising these molecular biomarkers per person should lead to a better diagnosis along with the selection and preparation of more effective treatments. The project aims to develop and implement such personalised skin therapy and will thus revolutionise skin treatment: for every individual client, the dermatologist will be able to identify the molecular-based skin specification, following which he can develop a unique remedy targeting the client's "one-man syndrome".

The project intends to develop and validate nano-chemical and biotechnologies to achieve an accurate matching of drugs, and drug delivery vehicles, for skin diseases and sub-pathogenic skin conditions in their individual context. Individual data on patients' histories, diagnoses and therapeutics will be considered for the development of a fully personalised skin treatment.

The project will design a novel generation of pharmaceutical products, as well as a system of consumer service personalised to fit each individual customer's needs. The development of personalised skin therapy protocols requires achieving an accurate diagnosis of skin condition and an extensive analysis of biological markers. Non-invasive methods as well as minimally invasive skin sampling will support the establishment of a range of biological profiles corresponding to skin diseases and skin sub-pathogenic conditions. Statistical processing of these data will allow biomarker patterns specifically associated with given clinical conditions to be defined.

A bio-informatics data mining protocol will be elaborated, together with multifunctional biomarker analysis software, to build a refined, personalised diagnosis method. Finally, the computer data analysis will yield a decision support system (DSS) to assist dermatologists, pharmacists and clients in the prescription of personalised treatment. This concept will be evaluated by a pilot study for a few selected skin diseases like psoriasis, contact dermatitis, and UV skin photo-aging. The pilot will also address customers' expectations regarding the marketing of the final product in terms of time of delivery, quantity, odour, package design and decoration. This stage will be accompanied by the development of personalised services and marketing strategies. The entire concept will be validated on volunteers with skin diseases and compared with conventional treatments and services.

The project consortium consists of 15 organisations and is based on a partnership between SMEs and research institutions.

Identification of relevant gender issues

Equal opportunities for women and men in research

It is important to ensure an acceptable gender balance in the project consortium and team, both overall and within each partner organisation. As women tend to be under-represented in biomedicine, it is likely they are under-represented in the consortium partners' organisations too. The project can offer an opportunity to question and address the reasons and mechanisms underpinning this under-representation.

Gender in research content

Both the concepts of sex and of gender are relevant to the planned work and the conceptual distinction between both is necessary, especially for disciplines like biomedicine and health sciences.[3]

[3] Klinge and Bosch (2005), Transforming Research Methodologies in EU Life Sciences and Biomedicine. Gender-Sensitive ways of Doing Research. State of the Art. EJWS 12(3): 377-395.

Sex, as a biological variable, should be addressed because the incidence of specific skin diseases among men and women may differ, as might their manifestation (symptoms), evolution and reactions to treatments. Lack of sex recognition during the research may lead to inequalities in the effectiveness of treatment, which would ultimately lead to unequal health outcomes for men and women and a poorer impact for the project. It is thus important that the samples of patients involved in the research have an adequate male-female balance, so that statistically relevant conclusions can be drawn for both sexes. Logically, all analyses will have to take the sex variable into account, so that significant differences can be identified. In the dissemination phase, relevant differences supported by disaggregated data should be reported.

The project outline notes that a pilot study will be run for a few selected skin diseases. To avoid a gender bias, these diseases will have to be selected gender-sensitively (i.e. taking into account possible differences in prevalence between men and women).

Gender is also relevant to the project work in different ways:

- the prevalence of certain skin diseases might differ between the sexes owing to different behavioural patterns of men and women (e.g. total lifetime exposure to harmful solar rays),
- skin diseases might on average be diagnosed at a later stage of their evolution in men than in women owing to higher uptake of medical services by women than by men.

In the literature, a multitude of influences are described to explain the higher uptake of medical services by women, such as the level of knowledge of the disease or awareness of associated services, the perceived risk and associated level of distress, health care seeking behaviour and/or attitude (e.g. acceptance) towards medical examinations of the patient. These factors, which depend to a considerable degree on the specific diseases as well as the population, deserve to be considered as they might have direct implications for the project (for example, in the response male and female patients might have to personalised treatments).

The project will analyse 'customers' expectations' regarding the marketing of the final product. These 'customers' will be men and women, who might have different preferences. It is therefore useful to arrange for an adequate balance also in this sample of respondents, so that the final marketing decisions that will be taken appeal to the highest possible number of future customers.
Gender-neutral marketing takes care of the design of packaging. This may already be important in the evaluation phase.

Finally, it is worth noting that the language used in the outline is not gender-neutral: both the person to be treated and the dermatologist are referred to as if they were male, by using the terms 'he' and 'his'. Also the phrasing "one-man syndrome" suggests that the possibility of women suffering from skin diseases may be ignored. The use of a gender-neutral formulation (s/he, his/her, etc.) will show the project's sensitivity to gender issues, thereby indicating its willingness to involve the population of stakeholders in its entirety.

Case 2
Medical imaging

Project outline

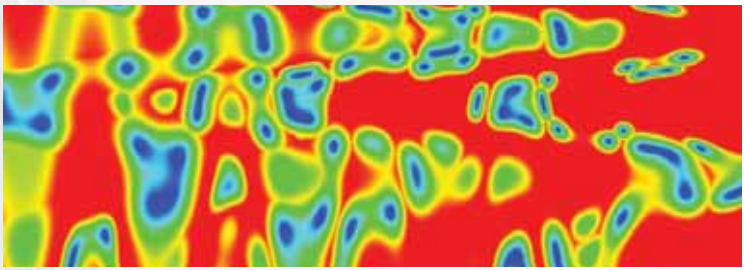
The project will develop an innovative medical imaging technology, based on magnetic nanoparticles combined with submicronic bubbles and dye.

The objective of the project consists in developing tailored biocompatible magneto-optical nanosystems based on magnetic iron oxide nanoparticles. The project will comprise the elaboration of the nanosystems and the characterisation of their structural, optical and magnetic properties. In vitro and in vivo tests will be carried out to test their biocompatibility.

The combination of magnetic and optical properties will be achieved through hybrid nanoparticles made of a magnetic iron oxide core on which an organic layer (dye) will be grafted through a dendrimer molecule and a phosphate entity. This grafting strategy will be extended to bubbles to which magnetic nanoparticles will be attached. The grafting sites will be controlled in order to design new geometries and architectures from rings up to submicronic magnetic spheres. Magnetic nanoparticles with monodisperse size between 2 and 100 nm will be elaborated in order to increase the possibility range of achieved properties.

The opto-magnetic nanoparticles will be tested in a medical application and a dedicated magneto-optical probe will be fabricated. Current methods for labelling the lymph node system use a dye (vital blue) or radionuclide injection detected through optical or gamma probes, respectively, or a combination of both types of markers.

Combining optical and magnetic labelling into a single biocompatible nanosystem will provide higher spatial resolution than presently, and will avoid using ionising radiation, thus improving patient safety and medical effectiveness. Stabilised submicronic bubbles labelled with the optical-magnetic nanoparticles will play the role of a contrast agent currently used in ultrasound imaging and will facilitate the uptake of the iron nanoparticle, therefore improving node imaging.



Identification of relevant gender issues

Equal opportunities for women and men in research

As women tend to be under-represented in the nanosciences and nanotechnologies, it is likely they are under-represented in the consortium partners' organisations too. The project can offer an opportunity to question and address the reasons and mechanisms underpinning this under-representation.

Gender in research content

The sex variable is especially relevant to the planned work, because male and female bodies might react differently to the substance that will be developed. The biocompatibililty of the solution, and thus its effectiveness, might be different for men and women. For instance handling iron oxide nanoparticles may cause health risks whose relevance can be sex-dependent.

It is important that the samples of patients who will be involved in the research have an adequate male-female balance, so that statistically relevant conclusions can be drawn for both sexes. Logically, all analyses will have to take the sex variable into account, so that significant differences can be identified. These differences should be reported in the dissemination phase, with supporting disaggregated data.

The project will undertake in vitro and in vivo tests, which will involve ethical decisions and considerations. Ethical considerations and decisions are underpinned by moral values and norms which might differ for men and women. Furthermore, ethical decisions concern women's and men's lives and due consideration of how the decisions affect these is needed.

Case 3
Customised production

Project outline

This project proposes to develop a system for the design, production and online commercialisation of customisable clothing items. It will develop and test a new production model based on decentralised networked SMEs.

This approach will not only interlink critical Mass-Customisation (MC) enabling services, it will also adapt these services to the specific needs and preferences of the target customer groups. It will enable and encourage end consumers to play an active role in designing customised items.

Garment design options will be provided in the form of 3D simulated dressed humans. Users will be able to choose a style, change texture and size and do some limited editing on the garment design. An application for users to virtually try on simulated garments will also be developed.

The selected product configuration will influence the production scenario. Central to this scenario is the concept of the Virtual Customer Advisor (VCA), which, depending on the profile of the customer, will recommend the optimum product configuration. This recommendation is based either on style preferences, functional requirements (e.g. for protective clothing or sportswear), or issues related to body morphology, physical disability or problem figures.

In the upstream part of the chain, this network will introduce the innovative organisational concept of the networked Micro-Factory (MF), directly linked to the concept of User-Centred Production Configuration. The MF concept promotes the idea of decentralised production close to retailers and consumers (giving a proximity advantage). MFs comprise networked small-sized but high-tech MC production sites, as well as sites equipped with automatic knitting machines, or even semi-automatic 3D assembly centres (single-ply cutter + sewing robots).

The knowledge-based web services will integrate style expertise, human body expertise and data, material and specific manufacturing knowledge.

Identification of relevant gender issues

Equal opportunities for women and men in research

SMEs are a target group that is quite difficult to reach with specific messages. The fact that the project will network a number of SMEs offers an opportunity for awareness-raising in these companies of the positive impact that diverse teams have on the quality of work. The project team leader can point out the need for a sex-balanced project team to the organisations that take part in the project.

Gender in research content

The outline does not specify whether the target customer groups will be both women and men or whether the service will be available to only one of the sexes.

In either case, the question can be asked whether the 3D simulated dressed humans' bodies will reflect the diversity of morphologies of the future clients who are likely to use the system – as this is precisely one of the added values of the system that are claimed. Also, it will be a challenge for the system not to build in (and thus to reproduce) gender stereotypes, notably in the styles, colours, textures, models and even in the types of garments themselves that will be offered to men and women respectively.

In summary, care should be taken that the choices that will be made available to men and to women do not reduce the future clients to the stereotypical man or woman but allow a variety of personalities to co-design the garment of their choice.

4

Gender and *Nanosciences, nanotechnologies, materials and new production technologies*

USEFUL READING

Caprile M., Sánchez B., Vallès N., Gómez A., Potrony J., Sixto E., et al. (2008), *Monitoring towards gender equality in the 6th Framework Programme* - Synthesis Report: Aeronautics and Space - Nanotechnologies and nanosciences - Sustainable Energy Systems - Euratom - Sustainable Surface Transport, European Commission.

Jackson J.K. (2008), *Gender, Mad Scientists and Nanotechnology in Spontaneous Generations*: A Journal for the History and Philosophy of Science, 2(1), http://jps.library.utoronto.ca/index.php/SpontaneousGenerations/article/view/3516/1907 (25.03.2009).

Lucht P. (2006), *Geschlechterforschung. Ein weisser Fleck auf der Nano-Landkarte* in Politische Ökologie 101: Nanotechnologie. Aufbruch ins Ungewisse, pp 30-32, Oekom Verlag, München.

Lucht P. (in preparation), *Nanotechnologie im Fokus sozialwissenschaftlicher Forschung*, Centaurus Verlag, Herbolzheim.

Lunnon J. (2008), *Strengthening women's role in nanoscience* in Materials Today, 11(1-2)

Samson A.E.S. and Symington A. (2004), *Gender equality and new technologies: Nanotechnology*, AWID, http://www.awid.org/eng/Issues-and-Analysis/Library/Nanotechnology/(language)/eng-GB (29/04/2009).

Van den Brandt E. (2006), *Ambition without Future? Obstacles and Stimuli in the Careers of Men and Women in Optics*, Centre for Gender and Diversity, Vrije Universiteit Brussel, http://www.equalisnotenough.org/followup/papers/ElkeVandenBrandt.pdf (25.03.2009).

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

1

Gender and *Energy*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Energy* 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 *Energy* 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 website[1] and relate to different topics within the field's work programme.

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

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

2

Gender and *Energy*

GENDER AND THE *ENERGY* RESEARCH FIELD

FP7 *Energy* objective

Adapting the current energy system into a more sustainable one, which is less dependent on imported fuels and is based on a diverse mix of energy sources, in particular renewables, energy carriers and non-polluting sources; enhancing energy efficiency, including by rationalising the use and storage of energy; addressing the pressing challenges of security of supply and climate change, whilst increasing the competitiveness of Europe's industries

How is gender relevant to this field?

The more technology-orientated research is, the harder it is to discover gender impacts – and the greater the efforts that must be undertaken because of lacking data and research. Gender aspects are to be found or can be assumed in access to energy technologies, perception of (risk) technologies, energy needs and use and in particular in the very small share of women in energy technology-related areas, resulting in an exclusion of their perspectives in research and development.

Energy work programme

Emphasis will be given to the following activities:

- **Hydrogen and fuel cells** – supporting EU fuel cell and hydrogen industries, for stationary, portable and transport applications.
- **Renewable electricity generation** – technologies to increase overall conversion efficiency, cost efficiency and reliability, driving down the cost of electricity production from indigenous renewable energy resources.
- **Renewable fuel production** – fuel production systems and conversion technologies for the sustainable production and supply chains of solid, liquid and gaseous fuels from biomass (including the biodegradable fraction of waste). Emphasis should be on new types of biofuels in particular for transport and electricity as well as on new production, storage and distribution routes for existing biofuels.
- **Renewables for heating and cooling** – technologies for cheaper, more efficient active and passive heating and cooling from renewable energy sources. The aim is to achieve substantial cost reductions, increase efficiencies, further reduce environmental impacts and optimise the use of technologies in different regional conditions where sufficient economic and technical potential can be identified.
- **CO2 capture and storage technologies for zero emission power generation** – technologies reducing the environmental impact of fossil fuel use aiming at highly efficient and cost-effective power and/or steam generation plants with near zero emissions, based on CO2 capture and storage technologies, in particular underground storage.
- **Clean coal technologies** – substantially improved power plant efficiency, higher reliability and lower costs through research, development and demonstration of cleaner coal and other solid fuel conversion technologies, also producing secondary energy carriers (including hydrogen) and liquid or gaseous fuels.
- **Smart energy networks** – increasing the efficiency, safety, reliability and quality of Europe's electricity and gas systems and networks in the context of a more integrated European energy market.

- **Energy efficiency and savings** – optimisation, validation and demonstration of new concepts, optimisation of proved and new concepts and technologies for buildings, transport, services and industry. Large-scale actions may be supported by innovative R&D addressing specific components or technologies. A key aim is the optimisation of the local community energy system, balancing a significant reduction in energy demand with the most affordable and sustainable supply solution, including the use of new fuels in dedicated fleets.

- **Knowledge for energy policy-making** – tools, methods and models to assess the economic and social issues related to energy technologies and to provide quantifiable targets and scenarios for medium and long-term horizons. Of particular importance is the impact of technological progress on Community policies. Activities will include scientific support for policy development.

- **Horizontal programme actions** – reinforcing the network of National Contact Points (NCPs).

How is gender relevant to these activities?

- *Access to and control over energy technologies by women and men are very dissimilar. This is due to different income levels of women and men, to gender stereotypes and society's attribution of assignments in the field of energy technologies and energy use, and to the low share of women in energy-related fields of work, in particular in technological professions.*

- *Energy needs are linked to gendered roles, responsibilities and identities as well. The question whether a new energy technology meets the needs and the interests only of those parts of societies who have power to define problems, design solutions and take decisions can be best solved by analytical approaches involving all stakeholders, including women and gender experts. Efficiency and effectiveness of energy technology and energy policy could be increased by reflecting on gender implications and taking participatory approaches.*

- *Women's and men's views about the researched technology options and features might differ. For example this is relevant to research in Carbon Capture and Storage (CCS) and clean coal. Whether or not to develop technologies which might entail risks and shift problems to future generations is one of the fields where gender-disaggregated data are available. They clearly point to a stronger rejection of these technologies by those people, mostly women, who are or feel responsible for childcare, and who have a high level of health awareness.*

- *Increase of biofuel production and use might affect the provisioning of food, in particular in the developing world. Because women are responsible for securing the food for their families in most regions of the world, increased biofuel production may have long-term impacts on gender relations. Plantations of energy crops, in particular for export use, may compete with cultivation of food crops for local use.*

- *Sustainable energy technologies must reflect gender issues in the whole process, from extraction of energy resources to waste disposal, in order to detect possible implications which might occur at each of the stages. For example a study from Eastern Europe clearly shows the gender impacts of oil extraction, which range from increased poverty and dependency on men's incomes up to sexual harassment. Mining of uranium is followed by environmental degradation and pollution, which have different impacts on women's and men's livelihoods and health.*

- *Integrating sustainable energy consumption into energy scenarios and forecasts is a prerequisite in order to address gender issues in future energy policy. Identifying gendered energy needs as well as gendered perspectives towards sustainable production and consumption patterns might help to define the factors determining future energy need.*

- *Energy efficiency and saving measures are closely linked to economic situations: the lower the income, the less the ability to afford energy-efficient appliances, build energy-saving houses or purchase electricity and heat produced from renewable sources. Income gaps, a high share of single parent households, higher life expectancy and low pensions are the reasons for the high share of women in low-income or poor households.*

- *A cross-cutting problem throughout all the issues addressed in the energy research field, is the very small share of women – in research and development itself, in policy-making and implementation, as well as in the energy industry and business. This is true for conventional energy production as well as for renewables. As a consequence of this low share, women's perspectives, perceptions and expectations related to energy technologies and energy policy are completely disregarded in research, planning, and decision-making. The perspectives of the (mostly male) energy experts are seen as gender-neutral and as the "standard", whereas women's perspectives are marginalised and externalised. To work towards gender equality and gender balance in research is important, as well as to discover the underlying structures and patterns, in particular androcentrism.*

3

Gender and *Energy*

THREE EXAMPLES

Case 1
Opportunities and needs in biofuels

Project outline

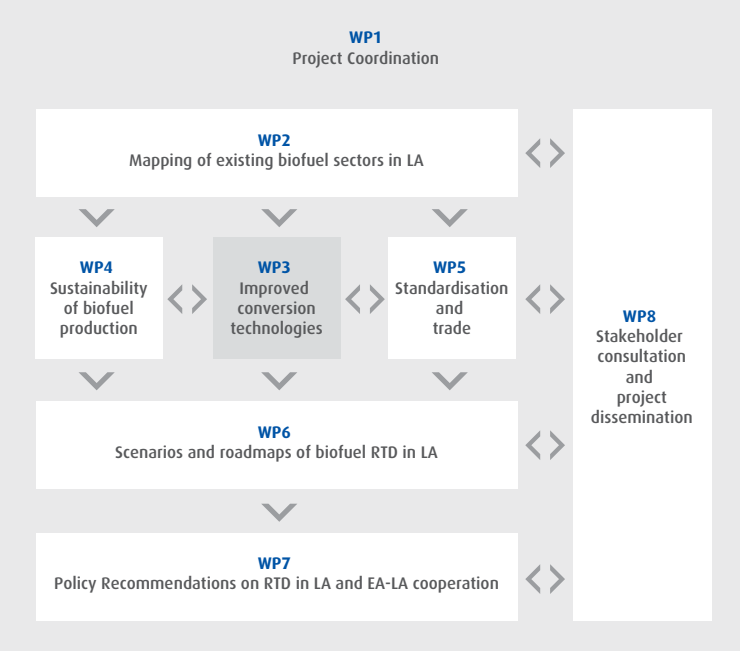
The overall objective of the project proposal is to identify technical opportunities and research needs for Latin America and to create and support specific RTD cooperation activities between Latin America (LA) and the European Union in order to maximize synergies in the biofuel sector.

The team will be an international consortium, covering the expertise needed, including seven male and two female researchers.

Specific objectives are:

- to provide a broad overview of the existing biofuel sector in all Latin American countries;
- to identify priorities, needs and opportunities in the field of RTD for sustainable biofuel production and biomass conversion technologies in Latin America;
- to inform European and Latin American actors in the biofuel sector of opportunities for collaboration and partnerships;
- to harmonise the agenda between Latin America and the EU on sustain able biofuel production;
- to facilitate and advance mutual knowledge and technology transfer between biofuel stakeholders in LA and the EU;
- to make recommendations on RTD and policies for the production and use of biomass conversion technologies.

This leads to the following work packages:



Identification of relevant gender issues

Equal opportunities for women and men in research

The debate and research on biofuels have neglected the competition between agro-fuels and food production for a long time. However, there is a close link to agriculture and food security, two fields where female representation is higher than in most fields of energy policy. This might help the project to avoid the shortcomings of the early times of biofuel policy and research. Special attention should be paid to the gender balance in both regions: Europe and Latin America.

Gender in research content

Biofuel production is a highly gender-relevant field. Worldwide, the majority of agricultural food for subsistence purposes is produced by women.[2] Use of forests and their products is essential for the survival of local communities, including women. In many countries women's access to land is limited.[3] Patrilinear inheritance customs regulate land ownership and property rights and thereby influence control over land and food sovereignty. At the same time, women make up half of the agricultural labour force worldwide, and significantly more in the developing world.
Biofuel production may affect food production, increase monoculture plantations and environmental degradation and thus have an impact on the livelihoods of local people. Because of gendered roles, it is mostly women who are responsible for the nutrition of their families and for food production for local markets, while men tend to carry out more of the crop production. Therefore, women and men might be differently affected by biofuel production: women might be disadvantaged due to reduced access to resources, while men might tend to benefit from new jobs.

When looking at the sustainability of the biofuel production sector, gendered impacts should be examined regarding the source of the fuel, the need to improve women's situation and to contribute to gender equality, and the participation of women at all levels of planning and decision-making.
Biofuel research and production is a highly male-dominated sector (as is the project team), though traditional use of biomass for energy purposes is often women's business. Therefore the project would benefit from integrating a gender expertise. Important questions to be raised are, for example, whose needs are taken into account, and whose experiences and concerns are considered – regarding both the production and consumption of biofuels as well as participation in the related labour markets.

When identifying the RTD needs and opportunities, gender issues should be integrated into each of the sections, in particular in standardisation and trade and in sustainability of the technologies. Both will be more effective if gender issues are taken into account. Gender equality is one of the essentials for sustainability, if the social dimension is to be taken seriously. Therefore, in the project, more importance should be attached to gender and social aspects in general.

The outreach of the project and the dissemination of results in both regions should be done in a gender-sensitive way, aiming to involve more women, in order to work towards a gender balance in the biofuel sector.

[2] Rojas, M.H. (2004), *Women make the difference.* Agriculture, IUCN Factsheet, http://generoyambiente.org/admin/admin_biblioteca/documentos/Agriculture.pdf

[3] World Bank, Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development (2008) *Gender in Agriculture Sourcebook*, http://www.ifad.org/gender/pub/sourcebook/gal.pdf

Case 2
Scenarios for the evolution of energy technologies

Project outline

The goal of the project is to devise robust scenarios for the evolution of energy technologies over the next 50 years. This will be achieved by means of a package of quantitative and analytical tools that are designed to produce the best possible forecasts based on different scenarios of future environmental and energy policies. Focused technological assessments will provide the necessary guidance for technology availability and competitiveness.

Given the long-term nature of the analysis, not to mention the many uncertainties surrounding the natural, technological and socio-economic determinants, the scenario development will be accompanied by probabilistic and stochastic modelling analysis to quantify the most determinant sensitivities. For this purpose, a range of state-of-the-art energy-economy-climate models will be brought together.

The model portfolio spans varieties of regional coverage, technological detail and economic interrelations. Dedicated integrated assessments will explore the technological options that are most likely to play a role over the time horizon under investigation, and the critical issues that are needed for their competitive deployment. The project will research the future of energy systems by examining environmental and energy policies at the European and global levels.

This project will also analyse the linkage between European and world perspectives on the future of energy technology, in particular in terms of issues such as economic competitiveness and the capacity to export clean technology.

Finally, the project will aim to broadly disseminate information and data on possible EU energy technology futures, by setting up a website that will present the different scenarios. A large number of stakeholders from science, industry, government etc. will be provided with peer-reviewed publications and a final general-audience conference will be organised.

Identification of relevant gender issues

Equal opportunities for women and men in research

Energy is a highly male-dominated field of research and policy, in particular as regards energy technologies. Special efforts are therefore required to include female researchers in such projects. Female and male researchers might have different approaches towards the modelling of scenarios, and different assumptions and parameters for sustainable energy technologies addressing future energy needs. Thus, the participation of women is essential in producing a more comprehensive project design.

Gender in research content

At first glance, it seems that scenarios are gender-neutral. But when one takes a closer look at them, it becomes obvious that in the field of energy technology, scenarios are highly gender-relevant. The prospects of various energy technologies are closely linked to (gendered) risk perception and (gendered) trust in technological solutions to global challenges. Women are in general much less likely to accept technological solutions than men. In particular women strongly reject high-risk technologies such as nuclear energy[4] or carbon capture and storage, owing to their higher regard for the precautionary principle, health, the safety of future generations etc.

Additionally, large-scale technologies often do not meet women's energy requirements, in particular in the developing world. Taking these aspects into account might help the project to design more comprehensive and therefore robust scenarios for future energy technologies.

Socio-economic parameters are probably the ones that are most uncertain, even though they have huge impacts on future energy requirements and, consequently, energy technologies. For example if, in the future, a better gender balance in decision-making is achieved, technological choices and policies might dramatically change, to the disadvantage of high-risk technologies. Anyway, it is essential to examine how structural changes will impact on future energy requirements in order to find adequate models.

Apparently, the project is focused on the supply side of energy technologies. However, in technology development (and technology transfer), the demand side plays a crucial role. For example taking technologies for demand side efficiency into account would help the project to become more gender-sensitive by covering the questions of needs, acceptance, and additional work burdens. Moreover, it would also lead to a more comprehensive approach in terms of sustainable development.

Because, currently, there is little gender research or appropriate gender-disaggregated data available, it is suggested that the project should install a gender board, which should train the partners and assess methodologies and results.

[4] Röhr, U. (2006), *Women Against Nuclear Power Data, Facts and Arguments.* In: Röhr, Ulrike/genanet (ed.), Women active against nuclear energy – from rage to visions. 20 years Chernobyl. Frankfurt http://www.genanet.de/fileadmin/downloads/themen/Themen_en/Chernobyl_en.pdf;
Finucane, M.L. and Slovic, P. (2000) *Gender, race, and perceived risk: the white male effect.* In: Healthy Risk and Society, Vol.2 No 2/2000:159-172.

Case 3
A common method for gathering biomass information

Project outline

The main objective of the project is to develop a common methodology for gathering information on biomass potential using terrestrial and earth observations. Several types of satellite are currently being extensively used for assessing land cover and corresponding biomass potential.

This objective will be achieved by implementing a systematic assessment workplan and will result in the establishment of a harmonised approach and an e-training tool for dissemination. The e-training environment will be an important instrument for achieving European harmonisation, which is greatly needed, while a stakeholder platform will facilitate access to reliable common datasets on biomass potential. It will enable the more efficient use of the available European biomass feedstock and the better monitoring of sustainability as well as competitiveness aspects.

The project thus intends to provide services and products that are combined, customised, and supplemented by various information elements to create deliverables designed to meet specific policy-makers' needs and user requirements. Based on the identified user requirements and the methods available for combining earth observation and terrestrial inventory data, a concept for a harmonised approach for biomass assessment will be developed.

The project will:

- Develop a common methodology for gathering information on biomass potential using terrestrial and earth observation;
- Disseminate information, best practices and methodology on the use of earth observation in the assessment of biomass potential;
- Use e-technologies to disseminate information and best practices on the use and applicability of the harmonised methodology developed.

Identification of relevant gender issues

Equal opportunities for women and men in research

As in the other areas, a gender-balanced team would be of importance not only in terms of gender equality and work-life balance for males and females, but also for the outcomes of the project. It might be helpful to involve networks like the Earth Science Women's Network[5] in order to identify female researchers in this field.

Gender in research content

Terrestrial and earth observation systems generally face the problem of providing a knowledge base in which all social dimensions are excluded, which is "faceless and placeless" [6], and abstracted from people, their living conditions and experiences "on the ground". Data collected via satellites are seen as neutral, and not based on the subjectivity of the researchers and the (power) structures they are part of.[7] This is of particular concern in a project examining the potential of biomass, which depends on the people living in the areas in which it grows.

Integrating a gender perspective would mean addressing the problem of interpreting data and transforming them into knowledge, in all its stages. How is the biomass potential deduced from the observed data? Are gender differences in knowledge and land use considered? How are women and men involved in the development of conclusions and datasets?

Particular attention should be paid to the "rebound" of data collected by earth observation systems and traditional information systems and knowledge bases. They need to be linked to "bottom-up" data about land use (agriculture, forestry, gathering etc.) and ownership structures. Both – land use and the ownership – are extremely gender-biased. Women might collect food and medical plants in areas which, looked at from above, might appear to be unused. Their lack of access to land ownership in many regions of the world will impact on their say in the issues at hand.

The gender aspects should be taken into account in setting up the stakeholder platform too – there should be stakeholders involved representing women and gender concerns.

[5] http://www.sage.wisc.edu/eswn

[6] W. Sachs, cited in: Schultz, I., Hummel, D., Hayn, D. and Empacher, C. (2001), *Gender in Research - Gender Impact Assessment of the specific programmes of the Fifth Framework Programme - Energy, Environment and Sustainable Development - Environment and Sustainable Development sub-programmes*, Brussels, European Commission

[7] Litfin, K.T. (1997), *The Gendered Eye in the Sky: A Feminist Perspective on Earth Observation Satellites.* In: Frontiers. A Journal of Women Studies, Volume XVII. No 2: 26-47

4

Gender and *Energy*

USEFUL READING

Caprile, M., Sánchez, B., Vallès, N., Gómez, A., Potrony, J., Sixto, E., Herrera, D., Oleaga, M., Amate, M. and Isasa, I. (2008), *Synthesis Report: Aeronautics and Space - Nanotechnologies and nanosciences - Sustainable Energy Systems* - Euratom - Sustainable Surface Transport, European Commission, Brussels, http://ec.europa.eu/research/science-society/document_library/pdf_06/synthesis-report-aeronautics-and-space-nanotech-and-nanoscience-sustainable-energy-transport-euratom_en.pdf (20/04/2009).

Carlsson-Kanyama, A. and Räty, R. (2008), *Kvinnor, män och energi: makt, production och använding,* FOI, Stockholm, http://www2.foi.se/rapp/foir2513.pdf (20/04/2009).

Cecelski, E. (2004), *Re-thinking gender and energy: Old and new directions.* ENERGIA/EASE Discussion Paper, http://www.energia.org/pubs/papers/cecelski2004_rethinking-ge.pdf, (20/04/2009).

CEE Bankwatch Network/Gender Action (ed) (2006), *Boom time blues. Big oils gender impacts in Azerbaijan, Georgia and Sakhalin.* Prague/Washington, http://www.genderaction.org/images/boomtimeblues.pdf (21/04/2009).

Clancy, J. , Cornland, D. and Gregory, J. (2001), *Gender in Research - Gender Impact assessment of the specific programmes of the Fifth framework Programme- Energy, Environment and Sustainable Development* - Energy sub-programme, European Commission, Brussels.

Clancy, J., Opparoacha, S. and Röhr, U. (2004), *Gender Equity and Renewable Energies. Thematic Background Paper,* Bonn, http://www.renewables2004.de/pdf/tbp/TBP12-gender.pdf (20/04/2009).

Johnsson-Latham, G. and Sundström, H. (2007), *A study on gender equality as a prerequisite for sustainable development,* Stockholm Environment Advisory Council, http://www.genderandenvironment.org/admin/admin_biblioteca/documentos/rapport_engelska.pdf (26/03/2009).

Röhr, U. and Ruggieri, D. (2008), *Erneuerbare Energien - ein Arbeitsmarkt für Frauen!,* Berlin: LIFE, http://www.life-online.de/download/publication/erneuerbare_broschuere_web.pdf (26/03/2009).

Röhr, U. (2001), *Gender and Energy in the North. Background Paper for the Expert Workshop "Gender Perspectives for Earth Summit 2002: Energy, Transport, Information for Decision-Making",* Berlin, http://www.earthsummit2002.org/workshop/Gender%20&%20Energy%20N%20UR.pdf (20/04/2009).

Röhr, U. / genanet (ed) (2006), *Women active against nuclear energy – from rage to visions.* Frankfurt, http://www.genanet.de/fileadmin/downloads/themen/Themen_en/Chernobyl_en.pdf (28/04/2009)

Rossi, A., Lambrou, Y. (2008), *Gender and Equity Issues in Liquid Biofuels Production. Minimizing the Risks to Maximize the Opportunities,*. Food and Agriculture Organization of the United Nations (FAO), Rome, ftp://ftp.fao.org/docrep/fao/010/ai503e/ai503e00.pdf (20/04/2009).

UNDP/ENERGIA/SIDA (2004), *Gender and Energy for Sustainable Development: A Toolkit and Resource Guide*, New York.

United Nations Economic and Social Council (2006), Discussion papers submitted by major groups. *Contribution by women to CSD 14: Energy, Climate Change, Air Pollution, Industrial Development*, New York.

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

1

Gender and *Environment*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Environment* 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 *Environment* 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 website[1] and relate to different topics within the field's work programme.

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

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

2

Gender and *Environment*

GENDER AND THE *ENVIRONMENT* RESEARCH FIELD

FP7 *Environment* objective[2]

The objective of the Environment theme is to promote sustainable management of the natural and human environment and its resources by advancing our knowledge of the interactions between the biosphere, ecosystems and human activities.

This research field also aims to develop new technologies, tools and services, in order to address global environmental issues in an integrated way.

Emphasis will be put on predicting changes in climate, ecological, earth and ocean systems, and on tools and technologies for monitoring, preventing and mitigating environmental pressures and risks, including those on health and for the sustainability of the natural and man-made environment.

How is gender relevant to this field?

Gender roles and identities play a crucial role in sustainable management and in all human activities. Perceptions, needs and use of technologies, tools and services, as well as risk perception and impacts, are gendered.

[2] European Commission (2008), *Work Programme 2009 – Cooperation Theme 6: Environment (including Climate Change)*, http://cordis.europa.eu/fp7/wp-2009_en.html (accessed 15/05/2009)

Environment work programme

The initiatives undertaken in this field will provide support to:

Climate change, pollution and risks

- Pressures on the environment and climate: integrated actions for understanding, analysing and predicting climate change and its impacts, with emphasis on abrupt changes and extreme events.
- Environment and health: health effects of climate change in Europe as well as globally, in particular in low-income countries. Research on health effects of environmental stressors other than climate change will continue to be supported, with particular attention paid to those of continued (ambient air pollution and chemicals) or increasing importance (electromagnetic fields).
- Natural hazards: research on climate/meteorology-related hazards, such as wild fires and drought in a changing climate and urban floods as an emerging policy need to support the Flood Directive. Seismic vulnerability of buildings will be studied in the context of European Construction Technology Platform. Societal impacts and economic costs of climate/meteorology-related hazards and disasters will be addressed to enable better diagnostics and effective design of future prevention strategies.

Sustainable management of resources

- Conservation and sustainable management of natural and man-made resources and biodiversity: to ensure expected impacts in terms of contribution to the European Research Area (ERA) and to related environmental policies and strategies. In addition, the aim is to build up innovative methods for protecting and managing resources in a changing environment, taking into account the impacts of climate change and biodiversity loss in particular.
- Management of marine environments: to reconcile the short-term objective of exploiting marine resources with the long-term objective of protecting the seas and the oceans, including their biodiversity, and their capacity for providing expected goods and services.

Environmental technologies

- Environmental technologies for observation, simulation, prevention, mitigation, adaptation, remediation and restoration of the natural and man-made environment: to address the issue 'preventing and protecting from extreme events and risks', which will be articulated around several subjects related to extreme hydro-meteorological events and other risks such as coastal erosion, coastal floods and chemical/pollution risks.

- Protection, conservation and enhancement of cultural heritage, including human habitat: improved damage assessment on cultural heritage aims to protect cultural assets from extreme events and risks resulting from natural hazards, especially earthquakes, storms and fires.

- Technology assessment, verification and testing: to deal with new computational methods for assessing chemical hazards. Moreover, it is foreseen to promote research on methodological developments to improve life cycle impact assessment (LCIA) methods.

Earth observation and assessment tools

- Earth and ocean observation systems and monitoring methods for the environment and sustainable development: integration of European earth observation research relevant to the Global Earth Observation (GEO) and contribution to the ERA through structuring measures; covering GEO-related areas such as Environment and health, Seismogenic hazards, and Mineral resources in support to the EU Technology Platform on Sustainable Mineral Resources, and enhancing earth observation capacity building in developing countries.

- Forecasting methods and assessment tools for sustainable development taking into account differing scales of observation: aims to improve the effectiveness of different policy instruments in order to better understand the interplay between the socio-economic and environmental systems. Will also put emphasis on research concerning the economic valuation of biodiversity. Impact would be analysed according to the three pillars of sustainability: economic, environmental and social.

How is gender relevant to these activities?

Climate change, pollution and risks

- *Because climate change, pollution and related risks are caused by human activities, gendered roles and responsibilities modify the driving forces of emissions. For mitigation activities to be targeted and effective, they therefore need to take these roles and responsibilities into account. The impacts of climate change and air pollution affect the poorest most, because they are the most vulnerable and tend to live in polluted areas. The share of women among the poorest is disproportionally high. According to ISDR (International Strategy for Disaster Reduction), it is a well-known prediction that women in the developing world will suffer the most from the effects of climate change.*[3]

- *The health effects of climate change and environmental stressors can be of two types: they can show gender aspects relating to the sexes' different roles in society, and different impacts on women and men because of their physical differences. Gender aspects can be found in the exposure to the stressors, the response to them, their impacts on care activities, and awareness of health-related issues in general. Sex-related differences are differences in the physical systems of the body, the most obvious being related to reproductive health.*

- *In the area of natural hazards it is obvious that the poorest are the most vulnerable, thus women with their lower income are disproportionally affected. Additionally, cultural, societal and economic constraints may restrict women's adequate responses and their access to warning systems and relief.*

Sustainable management of resources

- *Gendered responsibilities, experiences and knowledge in the field of natural resources and biodiversity impact on people's perception, acceptance and preferences regarding environmental policies and strategies. Understanding the differences in the way men and women often manage, use and control natural resources is a prerequisite to gain significant research results. Conversely, designing policies with a lack of gender knowledge might result in a lack of support from significant parts of society for innovative methods and policy responses.*

[3] UN/ISDR (2008), *Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation*, Geneva, Switzerland.

Environmental technologies

- *Access to, perception of and confidence in technologies are highly gendered owing to roles and responsibilities in society and related identities. Involving female researchers in these male-dominated areas is a prerequisite of a broader and more robust approach towards technologies.*

- *Gendered needs and handling of technologies are not very well researched yet, but several consumer and product development research projects provide indications for a gender dimension. These gendered practices may result in different expectations or requirements regarding user interfaces. Taking these into account would improve the usability of technology.*

- *Technology assessment and evaluation are linked to the perception – outspoken or tacit – of risks and ethical values. Both are based on a gendered division of labour and responsibilities, and attitudes to care and precaution. Integrating women's and men's risk perception and values in assessment methods and verification would help to make them more equitable and increase acceptance of technologies.*

Earth observation and assessment tools

- *One of the crucial points in earth observation is the interpretation of data. Gender-sensitive standards and (gender-balanced) participatory approaches to developing these standards would support a more comprehensive and qualified interpretation.*

- *Forecasting methods and impact analyses based on the three pillars of sustainability need to take gender equality into account as a crucial part of the social dimension. To fully understand the interplay between socio-economic and environmental systems and to translate the knowledge into policy instruments will not work without recognising the different roles of women and men, and their access to and use of resources and biodiversity.*

3

Gender and *Environment*

THREE EXAMPLES

Case 1
Determining air pollution distribution and change around hotspots

Project outline

The project will determine the air pollution distribution and change in and around hotspots over the last decade from extensive satellite and in-situ observations, using a series of different scale models. The focus is on ozone and particulate matter with chemical and physical characterisation, and their precursors.

The purpose is to analyse the impacts of air pollution hot spots on regional and global air quality, including potential future changes for various climate scenarios.

A set of chemical transport models which connect all the most important spatial and temporal scales will be developed and used to quantify how the observed air pollution arises. The models and emission inventories will be evaluated, and errors identified and remedied, on the urban, regional and global scales.

Climate change may cause changes in air pollution in and around hotspots, and hotspot pollution can change precipitation and temperature/albedo. These feedbacks will be studied in scale-bridging model systems based on global climate model scenarios, and in a coupled high-resolution chemistry-climate model.
The Eastern Mediterranean (Istanbul, Athens, Cairo), the Po Valley, the Benelux region, the Pearl River Delta in China (with megacities Guangzhou and Hong Kong) and the hot and polluted European summer 2003 have been chosen for intensive case studies.

The model systems evaluated in the project will be applied to analyse mitigation options in and around hotspots, also taking into account climate change.

Best available technologies and sectoral changes will be studied. Several partners have key roles in the technical underpinning of policy. They will ensure that the improved emission inventories, scale-bridging model systems and systematic observational evidence will have a significant, broad and lasting impact.

The consortium includes groups from China, Turkey, Greece and Italy, in addition to France, Germany, the UK and Norway, with experts on observations, emission data and models.

Identification of relevant gender issues

Equal opportunities for women and men in research

Presenting an acceptable gender balance within the project team, at the consortium level as well as within each partner organisation, will not only reinforce women's participation in decision-making at all levels within the project but will lead to the project proposal scoring higher when it is evaluated. Additionally, a balanced approach might raise awareness within the organisations on how equal opportunities and fair working conditions contribute to a satisfying balance between work and private life.

Gender in research content

So far, little regard has been paid to examining the social implications of climate change impacts and the way these affect men and women, or the way in which mechanisms and measures to mitigate climate change might impact on women and men differently and affect gender relations. A careful review of the existing literature on gender and climate change[4] might open new research perspectives that could contribute to enriching the knowledge on the issue and broaden the international response to climate change implications. Additionally, there is evidence for impacts of air pollution and particulate matters and industrial chemicals such as those that disrupt hormonal systems, on reproductive health[5]. Apart from the greenhouse gasses included in the Kyoto protocol, a major source of climate warming is black carbon originating from incomplete combustion of biomass and fossil fuels. More than 3 billion people especially in the developing countries use traditional solid fuels for cooking and domestic heating resulting in high indoor pollution levels, leading to high exposure of primarily women and small children. This could cause an increase in diseases such as asthma or even cancer. This could be taken as an opportunity to tackle under-researched territory, an option that would most likely require a multidisciplinary team.

The research aims to analyse the environmental, socioeconomic and health impacts of air pollution hot spots, developing a set of models to examine mitigation options in and around hotspots, taking climate change into account. Understanding gender-specific access to resources and resource use patterns[6], and their environmental impacts could contribute to defining a comprehensive methodology. Also, mitigation options are most likely to be understood as gender neutral. They might in reality affect one gender negatively or bypass one to focus on the other altogether. Adopting an approach that envisages how the outcomes can affect the different daily realities of women and men could yield a qualitative improvement in climate change measures.

Should a gender angle be treated systematically and rigorously throughout the research cycle, a gender-focused research publication should be considered.

[4] Literature database at www.gendercc.net/resources/database-literature.html

[5] Rich, D.Q., Demissie, K., Lu, S.-E., Kamat, L., Wartenberg, D. and Rhoads, G.G. (2009), *Ambient air pollutant concentrations during pregnancy and the risk of fetal growth restriction.* In: Journal of Epidemiologic Community Health.

[6] Johnsson-Latham, Gerd (2007), *A report on gender equality as a prerequisite for sustainable development.* Report to the Environment Advisory Council, Sweden.

[7] Carlsson-Kanyama, A. and Räty, R. (2008), *Kvinnor, män och energi: makt, production och använding,* Stockholm, FOI.

Case 2
Sustainable consumption policies

Project outline

The project aims to increase knowledge about the impact of sustainable consumption (SC) policies on consumption patterns and on sustainability. This objective will be achieved by the following steps:

- A conceptual model will be developed as a framework for the whole project. Embedded in a broader overview of general SC strategies and instruments, research will focus on the need areas of food and housing. For these areas, sustainability potentials will be quantified in order to identify the potential that SC policies may tap.

- The impacts that food- and housing-related SC instruments have on consumption patterns throughout Europe will then be explored at macro and micro levels (impact assessment).

Instruments to be looked at encompass regulatory and economic instruments, including fiscal and procurement policies, as well as communicative instruments, procedural regulation and societal self-regulation. The conditions of success and failure of these instruments will be identified.

The impact assessment is based on the analysis of statistical data, expert interviews, focus groups with consumers and workshops with public procurers. Having explored the impact of SC instruments on consumption patterns, a material flow analysis will be carried out to assess their impact on sustainability, including at international level. Options to enhance sustainable consumption patterns will be explored, especially with regard to designing, implementing and transferring effective SC instruments. On the basis of the project results, policy recommendations will be developed to be fed into the Marrakech process.

The project is relevant to the work programme because it identifies the impact of different types of policy instruments at disaggregated level, evaluates the conditions of success and failure of SC strategies in an interdisciplinary effort, develops links between the economy, environment and society and presents innovative policies to make consumption more sustainable.

Identification of relevant gender issues

Equal opportunities for women and men in research

Equal representation of women and men within the project team should be looked into carefully and monitored: there is a clear interdisciplinary dimension to this project and a good gender balance might contribute to keeping gender at the core of the project.

Gender in research content

Consumption is heavily gender-related in the sense that women's and men's behaviour is strongly influenced by the division of labour and the roles that society attributes to each gender. Moreover, women generally earn less than men and therefore have less money to spend. Women are generally more likely to buy the cheaper more essential goods like food, clothing and household articles. Men tend to spend more than women, generally on more expensive technical items (houses, cars, electronic equipment etc.). While women make 80% of consumer purchasing decisions, men spend about 80% of household income, although these proportions change as women's income increases.[7]

Additionally, research shows that women are more sustainable consumers.[8] They are more likely to recycle, buy eco-labelled products, use environment-friendly transport and pay attention to ethical issues and sustainable livelihoods. These consumption patterns not only reflect different financial levels, they also translate women's assertion of their reproductive role and their concern about the long-term well-being of children and families.[9]

The project aims to identify the conditions of success and failure of sustainable consumption policies, and gender might indeed be a good place to start, especially since the project focuses on food and housing. Gender should be a core dimension in all aspects of the project's methodology, and a core variable in all data collection. To integrate gender[10] into the impact assessment of SC instruments will help to identify gender impacts at an early stage of the project. The ultimate objective is to put forward policy recommendations quantifying sustainability potentials that policies may tap. The project should also take a "gendered" look at the impact the policies recommended might have, since women make up the majority of the poor and are much more frequently the heads of one-parent households (the vast majority of one-parent households are headed by women). They might easily be disproportionately affected by fiscal measures and bans, while needing more support to change their lifestyles and habits.

[7] Yaccato, J.T. (2007), *The 80% Minority: Reaching the Real World of Women Consumers*
[8] Johnsson-Latham, Gerd (2007), *A report on gender equality as a prerequisite for sustainable development.* Report to the Environment Advisory Council
[9] OECD, (2008) *Gender and Sustainable Development*
[10] A Gender Impact Assessment for the Environment'. In: LIFE (2004):*Towards Gender Justice in Environmental Policy.* www.gendercc.net/resources/gender-tools/analysis.html

Case 3
Highland aquatic resources

Project outline

The project partners will complete a detailed multidisciplinary situation analysis of highland aquatic resources, focusing on values, livelihoods, conservation issues and wise-use options at five sites in Asia (Guangdong, China; Uttarakhand and West Bengal, India and northern and central Vietnam).

Factors assessed will include biodiversity and ecosystem services, including provisioning, regulating, supporting and cultural services. Livelihood strategies of households dependent on ecosystem services derived from highland aquatic resources, in particular poor, food-insecure and vulnerable people, will be assessed within a framework of sustainable livelihoods and opportunities to enhance such livelihoods.

Institutional features, including local, national and international policy and legislation, trajectories of change, stakeholder values associated with highland aquatic resources and areas of conflict will be assessed. Stakeholder participation will be critical to ensure new knowledge is accessible for collective decision-making and development of policies for equitable use and conservation. Methods and indicators for participatory monitoring and evaluation of ecosystem services and biodiversity will be developed.

Action plans will then be formulated with stakeholders to: monitor the health of highland aquatic resources; develop and promote wise use, and where necessary livelihood diversification, to enhance poor livelihoods and conservation; integrate sustainable and wise use, livelihood diversification and conservation with watershed management priorities throughout the region.

Action plans will be implemented by stakeholders at four sites in Asia displaying high biodiversity, and the ecosystem, livelihoods and institutional impacts will be assessed through participatory monitoring and evaluation. Best practices in conserving biodiversity and sustaining ecosystem services will be communicated to potential users to promote uptake and enhanced policy formulation.

Identification of relevant gender issues

Equal opportunities for women and men in research

It has been shown that diverse teams, when well managed, function better[11]. Attention should be paid to building teams that are balanced between the sexes. This is of particular importance because gender equality is an important goal in development cooperation. Therefore, to have a gender-balanced team is a prerequisite for credibility.

Gender in research content

Agenda 21, a comprehensive and global plan of action to be taken in all areas where human activity impacts on the environment, which was adopted in Rio de Janeiro in 1992 and reaffirmed in Johannesburg in 2002, calls for strategies that will strengthen women's involvement in national ecosystem management and control of environmental degradation.[12] The Gender Plan of Action under the Convention on Biological Diversity[13] provides a strategy for mainstreaming gender into commitments and measures, which might be helpful for the research project too.

Clearly, gender differences in the cultural and legal situation and the gendered division of labour impact on the use and benefit of resources: men's and women's roles in family and community in terms of labour, property rights and decision-making processes translate into varying degrees of knowledge about biodiversity and ecosystems and varying skills in association with biodiversity. Ignoring gender-based knowledge can therefore lead to the erosion of knowledge for sustainably managing resources. To avoid this, understanding differences in the way men and women often manage, use and control agricultural and forest resources is mandatory, an approach that will surely yield not only greater equity but also more efficient and further reaching results.[14]

The project has selected a multidisciplinary team, which suggests that a preliminary socio-economic analysis focusing on a gender analysis of aquaculture in the five sites can be undertaken. A lot of knowledge is available on the gendered use of and access to water,[15] so it might be of help to include gender and water experts in particular phases of the project. Both women and men are probably involved in aquaculture, possibly at different stages of the fish production cycle. The study should aim to identify the cultural constraints on women's participation, to unravel how decisions are taken and by whom, and to find out who has access to which resources, information and training, and who defines the rules and norms.

[11] Katzenbach, J. and Smith, D. (1993), *The Wisdom of Teams*, Harvard Business School Press, Boston, MA.
[12] United Nations (1993), *Agenda 21: Earth Summit* – The United Nations Programme of Action from Rio
[13] UNEP/CBD COP9 (2008), *The Gender Plan of Action under the Convention on Biological Diversity.* UNEP/CBD/COP/9/INF/12, www.cbd.int/meetings/cop/cop-09/information/cop-09-inf-12-rev1-en.doc (accessed on 02/04/2009)
[14] Convention on Biological Diversity (undated), *Gender and the Management of Agricultural Biodiversity*, http://www.cbd.int/doc/bioday/2008/ibd-2008-factsheet-04-en.pdf (accessed on 02/04/2009)
[15] Gender and Water Alliance, www.genderandwater.org

The project will take a close look at livelihood strategies directed at insecure and vulnerable people. Here again, a gender lens is necessary. As 80% of the world's poor are women, they are more likely to be represented among the targeted households. Therefore, the possibility of the project presenting an opportunity to improve women's economic situation in the five areas should be explored.

The project foresees a participative approach to developing policies for the equitable use of aquatic resources and conservation: in all groups and collective decision-making activities, equal participation of men and women should be striven for, and men's and women's interests and opinions should be valued equally. When setting up the groups, the project could also benefit from considering different categories of male and female participants such as single, married, widows, younger, older, etc. and more specifically for women who are breast-feeding or pregnant. Owing to the cultural situation at the sites, sex-separated group discussions should be considered, as these might reveal more about different needs, requirements and perceptions.

So far, little has been done to explore the question of how aquaculture affects the status of women and gender relations in the household and the community. An event on this topic, presenting the project's approach and results, could therefore arouse a keen interest, as would their publication in journals focusing on gender issues.

4

Gender and *Environment*

USEFUL READING

Enarson, E., Fotherhill, A., Peek, L. (2006), *Gender and Disaster: Foundations and Directions* in Handbook of Disaster Research. H. Rodriguez, E.L. Quarantelli, R. Dynes (Eds.), pp 130-146, New York.

Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development (2008), *Gender in Agriculture Sourcebook,* World Bank, World Bank Publications, http://www.ifad.org/gender/pub/sourcebook/gal.pdf (21.04.09).

ISDR – International Strategy for Disaster Risk Reduction (2008), *Gender Perspectives: Integrating Disaster Risk Reduction into Climate Change Adaptation. Good Practices and Lessons Learned.* Geneva, Swizerland, http://www.unisdr.org/eng/about_isdr/isdr-publications/17-Gender_Perspectives_Integrating_DRR_CC/Gender_Perspectives_Integrating_DRR_CC_Good%20Practices.pdf (20.04.09).

LIFE/FrauenUmweltNetz (2004), *Towards Gender Justice in Environmental Policy. Implementing Gender Mainstreaming in Germany.* Frankfurt, www.gendercc.net/resources/gender-tools/analysis.html (20.04.09).

Organisation for Economic Co-operation and Development (2008), *Gender and sustainable development : maximising the economic, social and environmental role of women,* Organisation for Economic Co-operation and Development (OECD), http://www.iiav.nl/epublications/2008/gender_and_sustainable.pdf (26.03.09).

Röhr, U. and Hemmati, M. (2008), *Solidarity in the Greenhouse: Gender Equality and Climate Change* in. V. Grover (ed), Global Warming and Climate Change - Ten Years after Kyoto and Still Counting, Chapter 35, pp 779-804 and 1079-1083, United Nations University, Hamilton, Ontario, Canada.

Schultz, I., Hummel, D., Hayn, D. and Empacher, C. (2001), *Gender in Research - Gender Impact Assessment of the specific programmes of the Fifth Framework Programme - Energy, Environment and Sustainable Development - Environment and Sustainable Development subprogrammes,* European Commission, Brussels.

Spitzner, M. (2008), *Sustainability and Societal Gender Relations – Problems of and Alternatives to androcentric Concepts of Sustainability and the Dimensioning of Economy, Ecology, Institutions and Sociality,* Münster: Westfälisches Dampfboot.

UNEP/WEDO (2004), *Women and the Environment.* Nairobi, Kenya, http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=468&ArticleID=4488&l=en, (20.04.09).

United Nations Economic and Social Council (2008), *Discussion papers submitted by major groups. Contribution by women to CSD 16: Agriculture, Rural Development, Land, Drought, Desertification, and Africa,* New York, http://daccess-ods.un.org/TMP/2169643.html (22.04.09).

World Rainforest Movement (2005), *Women, forests and plantations. The Gender Dimension.* Montevideo, Uruguay, www.wrm.org.uy/subjects/women/text.pdf (21.04.09).

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

1

Gender and *Transport*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Transport* 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 *Transport* 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 website[1] and relate to different topics within the field's work programme.

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

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

2

Gender and *Transport*

GENDER AND THE *TRANSPORT* RESEARCH FIELD

FP7 *Transport* objective

The central objective of transport research under FP7 is to develop safer, 'greener' and 'smarter' pan-European transport systems that will benefit all citizens, respect the environment, and increase the competitiveness of European industries in the global market.

How is gender relevant to this field?

Transport policies and provisions have a direct social impact in the sense that they touch on how different groups of citizens access particular and essential facilities and services such as employment, care, education, health and political processes.

Gender is highly relevant to the transport field: not only are there clear and persistent gender differences in the use of the transport system, but the transport sector is also an overwhelmingly male-dominated sector, characterised by masculine values and practices.[2]
Men consistently travel further than women and are more likely to travel by car. Women, on the other hand, make journeys disproportionately more frequently on foot, by bicycle and public transport,[3] and more often combine different transport modes. Women's trips tend to be more local and often combine different destinations (e.g. home - childcare - work). This means that men and women make different uses of a shared system of transport.
These differences are rooted in a gendered system, which casts women and men in different positions on the labour market, in various roles within the family and the community, as well as in different spaces in urban structures.

Worldviews guiding perceptions of transport are also gendered. Research shows how both car travel and the ideas of freedom and movement associated with the car are persistently linked to masculine identity, and that in adverts, images, film and literature, men are disproportionately more represented as travellers.[4]

So far, despite significant gender differences, transport research and policies remain highly androcentric, focusing on men's travel patterns and interests.[5]

[2] Transgen Project Team (2007), *Gender Mainstreaming European Transport Research and Policies; Building the Knowledge Base and Mapping Good Practices.* Copenhagen
[3] Genanet Fact Sheets No. 4: *Gender issues in mobility* (accessible from: http://www.genanet.de/fact_sheets.html?&L=1)
[4] Transgen, ibid.
[5] See the study realised for the European Parliament on "Women and Transport" by The University of East London (UK) and the Wuppertal Institute for Climate, Environment and Energy (DE).

Transport work programme

The activities envisaged to be addressed during the lifetime of FP7 will be:

Aeronautics and air transport

- the greening of air transport
- increasing time efficiency
- ensuring customer satisfaction and safety
- improving cost efficiency
- protection of aircraft and passengers
- pioneering the air transport of the future
- cross-cutting activities

Sustainable surface transport - rail, road and waterborne

- the greening of surface transport
- encouraging modal shift and decongesting transport corridors
- ensuring sustainable urban mobility
- improving safety and security
- strengthening competitiveness
- cross-cutting activities

Support to the European global satellite navigation system – Galileo and EGNOS (navigation and timing services, efficient use of satellite navigation)

How is gender relevant to these activities?

As the work programme for the transport field calls for activities to improve the safety of transport systems and vehicles, attention needs to be paid to real and perceived safety and security issues for women and men. These are linked to different ergonometric standards, mobility needs, user behaviours, etc. For example, women and children need grab bars at lower heights than men in public transport vehicles.

A high quality, sustainable transport system accessible to all can only be developed when all users' needs and expectations are taken into account equally. Consequently, the research should duly integrate a collection and analysis of this crucial information, using gender-sensitive methods. For example, the urban public transport systems designed to connect city centres with surrounding areas as efficiently as possible during peak hours ignore women's different transport needs (combining destinations, accompanying children to their leisure activities, more frequently undertaking journeys outside peak hours, etc.).

Mainstreaming gender equality into transport research implies considering how transportation affects women and men, taking into account accessibility and mobility. Thus, developing transport systems to meet present and future needs demands the integration of a gendered users' perspective while seeking to guarantee equal opportunities for women and men in the sector. A continuous awareness of creating and maintaining equal opportunities, and a working climate in which women feel welcome as professionals too, will result in more women in the sector, which in turn will promote women's values and experiences, ultimately leading to more socially sustainable transport systems.

3

Gender and *Transport*

THREE EXAMPLES

Case 1
Avionics for small aircraft

Project outline

This project will focus on developing a future avionics architecture for small aircraft, which will provide easy and safe control of the aircraft. The project aims to significantly reduce pilot workload and to increase safety during all phases of flight and ground operations, including take-off and landing.

In order to achieve this, the project will provide the aircraft with easy handling characteristics and flight envelope protection at all times. The pilot flies the aircraft mainly via a stick controller and throttle lever. Switching between flight control and flight guidance modes will be performed automatically by the system – transparently for the pilot.

Advanced ATC and even ATM will be supported by maximum on-board automation. In the long term, four-dimensional flight vectoring, as a result of the on-board ATM/FM, will be executed automatically. In the midterm, four-dimensional flight vectoring is expected to come from ATC via ADS-B. After being checked by the pilot via display, the project will provide the capability for automatic execution of the flight vectoring (flight trajectories) following engagement by the pilot.

The objective of the project is to keep the aircraft's handling characteristics as easy as possible under all modes of control, i.e. manual control, control via flight guidance and control via flight management, in combination with ATC or ATM. Additionally, growth potential for autonomous emergency flight procedures in cases of sudden pilot illness or incapacitation, or total loss of engine power, will be provided.

The base for the implementation of the concept's functions will be an advanced safety-critical, fault-tolerant fly-by-wire platform applicable to small aircraft. The platform will comprise computing resources, a human-machine interface, a mainly satellite-based fault-tolerant attitude/navigation system and a safety-critical electric power supply with all-electric actuators.

Identification of relevant gender issues

Equal opportunities for women and men in research

It is valuable to ensure an acceptable gender balance in the project team, both overall and within each partner organisation involved, for several reasons: it will reinforce women's participation in decision-making at all levels within the project, it might raise awareness within the organisations on how equal opportunities and fair working conditions and culture contribute to a satisfying work / private life balance, it will lead to the project proposal scoring higher on evaluation. Moreover, as women might be under-represented in the organisations involved in this project, this might be an opportunity to question and address the reasons and mechanisms underpinning this under-representation.

Gender in research content

It is not specified here if and how the involvement of potential users is foreseen at any stage of the project. Male and female pilots might have different needs in avionics architecture, and different perceptions or requirements in terms of user-friendliness of controls. Aviation is a vastly male-dominated sector: in 2005, 6% of licensed pilots in the UK were female, and only half of them were active professionally.[6] These figures alone show that it is unlikely that any aviation design project invests much resources in investigating the potential contribution of female pilots. Still, this project would benefit from an approach that treats male and female pilots alike: this would guarantee that the project meets its objectives of improved safety and reduced workload for all pilots, be the pilot male or female. Moreover, an inclusive approach to all pilots' needs may hinder a further marginalisation of women in this profession.

[6] BBC (2005), *Why are so few women taking to the skies?*, http://www.bbc.co.uk/radio4/womanshour/2005_35_mon_02.shtml (accessed on 02/04/2009).

Case 2
Transport research and tourism

Project outline

Tourism is a key driver of economic growth and employment and plays a significant role in achieving the Lisbon Strategy's objective of making the EU a more competitive and dynamic economy. The recent communication *A renewed European Union Tourism Policy: Towards a stronger partnership for European Tourism* introduces a strategy to be pursued in order to better exploit the growth and employment potential of the tourism sector in a sustainable way. It also indicates how stakeholders can be involved in EU activities.

This project will develop a horizontal activity (support action) aiming to create synergies between transport research and tourism services in Europe, in order to improve competitiveness, encourage co-modality and focus on the subject, regardless of which DG's programme is concerned. The overall objective is to propose new concepts guiding tourists through "all stages of their travel itinerary". In addition the project intends to support EU policies to improve tourism competitiveness by considering emerging needs and tourism demand through acting on the main aspects affecting the tourism market (e.g. intermodality, information, ticketing).

In this project the tourism market and transport supply are considered as an integrated environment. The project starts from the assumption that the local community is the key element to a successful tourism destination, as the people living in the community are guardians of the local resources and provide services for paying guests. The project will identify policy-driven solutions to remove barriers, creating the conditions for a value-added transport services provision (e.g. institutions/instruments facilitating co-ordination between governmental departments in the planning phase, tourism travel plans, pricing policies and technical standardisation).

The project focuses on transport as a lever/opportunity and not as barrier to sustainable development and competitiveness. It takes relevant key factors into consideration, such as: improvement of socio-economic benefits, site attractiveness, reduction of adverse environmental/social impacts and guaranteed fair/equal access to tourism for all.

Identification of relevant gender issues

Equal opportunities for women and men in research

All questions pertaining to equal opportunities are of course relevant here (gender balance, working conditions and culture, monitoring of gender equality) but given the strong need for a gender analysis in this project, the involvement of a researcher

with gender expertise would be highly beneficial in guaranteeing a sound research methodology, notably in trying to identify emerging needs, which might be different for male and female tourists.

Gender in research content

The project aims to improve European tourism competitiveness by offering an integrated transport supply, while better exploiting the potential for employment and sustainable growth in the tourism sector.
Tourism is a labour-intensive industry and is particularly important for women. Women make up almost half of the workforce in the tourism sector, a proportion which is higher than in the workforce in general, and they typically earn on average 80% of a male's wage. Another characteristic of the tourism industry that is commonly overlooked is its informal sector, which plays a considerable role in income generation for women.[7]

Despite being more represented than in other sectors, by and large, women face the same horizontal and vertical segregation as in the labour market in general: on the horizontal axis, women are found more in cleaning, waitressing and caring occupations, while vertically they are concentrated in the lower levels, with few career development opportunities, while key managerial positions are dominated by males. Moreover, as gender roles usually assign more family and community responsibilities to women, they are more likely to take up part-time positions in order to accommodate those various roles, thereby earning less and having less potential for advancement.

Since the project aims to create synergies between tourism services and transport research in order to improve competitiveness, it would greatly benefit from a gender analysis of the labour force and its socio-economic dimensions. Collecting sex-disaggregated data, looking into why these are not available when this is the case and investigating gender-related employment issues systematically will not only guarantee equal opportunities for female and male workers, it will also generate a higher impact for the project as it will address all workers in the sector.

The overall objective of the project is to propose new concepts guiding "tourists" through all the stages of their travel itinerary. Here again, the traditional division of labour that casts women in different roles from men, and a gendered social system that has been slow to address violence against women, are likely to determine different travelling habits and needs for female tourists. There is a direct impact on their access to various transport systems, as these have overwhelmingly been designed for male patterns of mobility. Since the project will be examining emerging needs involving stakeholders in the project, it should be careful to involve male and female tourists equally and to value their inputs equally. The same approach should also apply when the project looks at the response that the transport system can put forward: intermodality, ticketing and information responses are more likely to be successful in improving the sector's competitiveness if they attend to the needs of all users.

Organising an event or devoting part of an event to the gender aspect of this project, presenting all the data collected and its gender analysis, would greatly advance knowledge in the field of gender and tourism.

[7] United Nations Environment and Development UK Committee (UNED-UK) (undated), *Gender & Tourism: Women's Employment and Participation in Tourism,* http://www.earthsummit2002.org/toolkits/women/current/gendertourismrep.html#sum (accessed on 02/04/2009).

Case 3
Indicators of transport accessibility

Project outline

FP7's Transport programme highlights the importance of developing pan-European transport systems for the benefit of all citizens, with reference to European transport policy. Despite the recent progress that has been made, many European citizens are still experiencing barriers and reduced accessibility to transport. The overall objective is to contribute to developing inclusive urban transport systems with better access for all citizens.

The project is a coordination and support action and the project objective is to establish a common European methodology for assessing, describing and measuring accessibility to transport. The project will assist public authorities and transport operators in achieving **equality of access** by identifying indicators for describing accessibility, providing a self-assessment methodology for measuring accessibility, making comparisons with good practice solutions, exchanging knowledge among stakeholders involved and disseminating results.

The project consists of eight partners and will actively involve a network of public transport operators and local authorities, an end user platform (including people with disabilities, older people, and people facing barriers to transport), industry, and experts in the field of accessibility, at each stage of the process. This will ensure that all stakeholders are involved in providing input and facilitating dissemination in a European context.

The project is expected to have an impact on developing more inclusive urban transport systems with better access for all, establishing common European standards, and European cooperation. A common European methodology for assessing, describing and measuring accessibility of transport is dependent on a European approach.

Identification of relevant gender issues

Equal opportunities for women and men in research

All equal opportunities aspects as mentioned in the checklist are relevant. The involvement of a researcher with gender expertise would be highly beneficial.

Gender in research content

Major differences in the mobility needs of men and women are grounded in the gender-based division of labour. In the UK, research has shown that men and women made roughly the same number of journeys per year, but if the indicator was distance travelled rather than trips, a very different picture emerges: over all ages and all modes, the average trip length was 7.4 miles for men and 5.3 miles for women, i.e. 40 per cent more for men (1995-1997 figures). As women tend to perform triple roles as income earners, home earners and community managers, they tend to take shorter, more dispersed and more frequent trips, carrying shopping loads and accompanying children or elderly relatives. Another noticeable gender difference is in the times when men and women travel: because women are far more likely to be part-time workers, they travel more often off-peak than men; while because of their fear of violence and aggression, women are far less willing than men to travel after dark.[8]

Since the project is concerned with equality of access, it will have to carefully design gender-sensitive indicators to correctly reflect the gender gaps present in public transport. Addressing women's vulnerability and their specific needs in each of the user groups (e.g. female disabled/elderly might have different requirements and face different obstacles from male disabled/elderly) in public transport should also be a key to the project's success if it wants to improve access for all. A gender audit of identified good practices should also be central to the selection process, for comparative purposes.

The gender balance within the project team should be looked into and monitored. The same applies to the end user platform, the representatives of the industry and the accessibility experts. As far as possible, all groups should be split evenly between men and women. Women are likely to be scarce among the transport industry representatives and accessibility experts, but striving for an acceptable gender balance will bring a further guarantee that women's voices as users are heard and valued. If despite all efforts, women remain under-represented in a group, this should be reported, and possibly explained: this will be the first step in addressing the issue of female under-representation.

[8] University of East London (2002) *Women and Transport – The Research Report,* http://www.uel.ac.uk/womenandtransport/gender.html (accessed on 02/04/2009).

4

Gender and *Transport*

USEFUL READING

Bomar, M. (2004), *Technology as a Strategy for addressing Personal Security Concerns of Women on Public Transit*, Conference: Research on women's issues in Transport Chicago: Transportation Research Board of the National Academies.

Caprile, M. & al. (2008), *Monitoring progress towards gender equality in the Sixth Framework Programme: Synthesis Report for Aeronautics and Space - Nanotechnologies and nanosciences - Sustainable Energy Systems - Euratom - Sustainable Surface Transport*, European Commission, http://ec.europa.eu/research/science-society/document_library/pdf_06/synthesis-report-aeronautics-and-space-nanotech-and-nanoscience-sustainable-energy-transport-euratom_en.pdf (28.04.2009).

Clifton, K. and Dill, J. (2004), *Women's Travel Behavior and Land Use: Will New Styles of Neighborhoods Lead to More Women Walking?*, Conference: Research on Women's Issues in Transportation, Volume 2: Technical Papers Chicago Transportation Research Board of the National Academies, http://onlinepubs.trb.org/onlinepubs/conf/CP35v2.pdf (17.03.2009).

Clifton K. J., Burnier, C. and Kreamer, K. (2004), *Women's Involvement in Pedestrian-Vehicle Crashes: Influence of Personal and Environmental Factors, Research on women's issues in Transport*, Transportation Research Board of the National Academies, Chicago, http://onlinepubs.trb.org/onlinepubs/conf/CP35v2.pdf (17.03.2009).

Hamilton, K., Jenkins, L., Hodgson, F. and Turner, J. (2005), *Promoting gender equality in transport*, London Equal Opportunities Commission.

Hamilton, K., Turner, J. and Spitzner, M. (2006), *Women and Transport*, European Parliament, Brussels, http://www.europarl.europa.eu/activities/committees/studies/download.do?language=en&file=17229 (17.03.2009).

Hamilton, K. and Jenkins, L. (2000), *A Gender Audit for Public Transport: A New Policy Tool in the Tackling of Social Exclusion*, Urban Studies 37 (10), pp 1793 - 1800.

Hjorthol, R. J. (2000), *Same city-different options - An analysis of the work trips of married couples in the metropolitan area of Oslo*, Journal of Transport Geography 8 (3), pp 213 - 220.

Jarvela, M. T. and Lyback, K. T. (2002), *Ecosocial City Transport: Perspectives of Sustainable Urban Mobility*, Conference: International Sociological Association, 15th World Congress of Sociology, International Sociological Association.

Matthies, E., Kuhn, S. and Klöckner, C. A. (2002), *Travel Mode Choice of Women: The Result of Limitation, Ecological Norm, or Weak Habit?*, Environment and Behaviour 34 (2), pp 163 - 177, http://eab.sagepub.com/cgi/content/abstract/34/2/163 (17.03.2009).

Polk, M. (2005), *Women´s and men´s valuations of road system infrastructure in Sweden*, Göteborg Göteborgs University, http://www.vv.se/fud-resultat/Publikationer_000001_000100/Publikation_000010/FINAL%20QUEST%20%20to%20VV.pdf (17.03.2009).

Priya Uteng T., Tim Cresswell (Edts) (2008), *Gendered Mobilities*, Ashgate Publishing Farnham, http://www.ashgate.com/pdf/SamplePages/Gendered_Mobilities_Ch1.pdf (16.03.2009).

Schmucki, B. (2002), *On the trams: women, men and urban public transport in Germany*, The Journal of Transport History 23 (1), pp 60 - 72, http://journals.mup.man.ac.uk/cgi-bin/pdfdisp//MUPpdf/JTH/V23I1/230060.pdf (17.03.2009).

Siren, A. (2005), *Older women's mobility and transportation issues*, University of Helsinki, Helsinki http://ethesis.helsinki.fi/julkaisut/kay/psyko/vk/siren/olderwom.pdf (17.03.2009).

Transgen Project Team (2007), *Gender Mainstreaming European Transport Research and Policies; Building the Knowledge Baseand Mapping Good Practices*, Copenhagen http://www.sociology.ku.dk/koordinationen/pdf_filer/transgen/EU-rapport-Transgen.pdf, (16.03.2009).

Viano, D. C. (2003), *Seat Influences on Female Neck Responses in Rear Crashes: A Reason Why Women Have Higher Whiplash Rates* Traffic Injury Prevention 4 (3), pp 228 -239.

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

1

Gender and *Socio-economic sciences and the humanities*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *Socio-economic sciences and the humanities* 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 *Socio-economic sciences and the humanities* 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 website[1] and relate to different topics within the field's work programme.

Finally, a selection of **useful references** dealing with gender in the field of *Socio-economic sciences and the humanities* is provided.

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

2

Gender and *Socio-economic sciences and the humanities*

GENDER AND THE *SOCIO-ECONOMIC SCIENCES AND THE HUMANITIES* RESEARCH FIELD

FP7 *Socio-economic sciences and the humanities* objective

Funding 'Socio-economic sciences and the humanities' (SSH) will contribute to an in-depth, shared understanding of the complex and interrelated socio-economic challenges confronting Europe.

Research in this theme will help us study and provide answers to questions related to:

- growth, employment and competitiveness;
- social cohesion, social, cultural and educational challenges in an enlarged EU;
- sustainability, environmental challenges, demographic change, migration and integration, quality of life and global interdependence.

How is gender relevant to this field?

All activities under this theme are directly related to society. The social and economic systems are human constructs. These constructs, their mechanisms and the relations at play within these constructs 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 'Socio-economic sciences and the humanities' field.

Socio-economic sciences and the humanities work programme

The initiatives undertaken in this field will provide support to:

Growth, employment and competitiveness in a knowledge society – the European case:

- changing role of knowledge throughout the economy
- structural changes in the European knowledge economy and society
- strengthening policy coherence and coordination in Europe

Combining economic, social and environmental objectives in a European perspective:

- paths towards sustainable development
- socio-economic development trajectories
- regional, territorial and social cohesion

Major trends in society and their implications:

- demographic changes
- societal trends and lifestyles
- cultural interactions in an international perspective

Europe in the world:

- interactions and interdependences between world regions and their implications
- conflicts, peace and human rights

The Citizen in the European Union:

- participation and citizenship in Europe
- diversities and commonalities in Europe

Socio-economic and scientific indicators – the development, use and value of indicators in policy-making at macro and micro levels

Foresight activities – the future implications of global knowledge, key challenges, risk and the emerging domains in research and science

Strategic and horizontal activities – including research for policy support, dissemination of research results and international cooperation

How is gender relevant to these topics?

- **Growth, employment and competitiveness in a knowledge society:** Equal participation of and equal opportunities for men and women in the labour market are crucial for the attainment of Europe's ambitions in this area. The reconciliation of private and professional life must be accommodated for both sexes. Gender de-stereotyping of educational fields and equal access to education in all fields for boys and girls are prerequisites.

- **Combining economic, social and environmental objectives in a European perspective:** Social, economic and environmental objectives are interlinked and are as a whole highly gender-sensitive. Gender as a relevant variable therefore needs to be addressed in all research addressing this topic.

- **Major trends in society and their implications:** Trends in society result from human (inter-)actions, roles and behaviour, and have therefore by definition a gender dimension.

- **Europe in the world (covering among other things migration, poverty, conflict and human rights):** The role and place of Europe in the world is determined by human interactions, relations and constructs. Both sexes play very distinct roles in society, and 'live' these roles very differently. Women, more than men, are vulnerable to poverty, are victims of gender-related violence and trafficking, and play very different roles in conflict situations. These issues need to be duly considered in all research on these topics.

- **The citizen in the European Union:** There is no such individual as a 'gender-neutral citizen'. Europe's citizens consist of men and women. Research on democracy, citizenship or culture which ignores the gendered dimension is likely to overlook important aspects of the research subject, miss the opportunity to identify structural inequalities, and thus contribute to letting these be reproduced.

- **Socio-economic and scientific indicators:** It is of the utmost importance that sex-disaggregated statistics are collected and published, so that the knowledge base on sex- and gender-relevant issues is enhanced, meaning that gender inequities can be identified and addressed.

- **Foresight activities, such as working on the future implications of global knowledge, key challenges, risk and the emerging domains in research and science:** In considering emerging issues of potential relevance for policy-making, gender equity concerns require the permanent attention for (possible) sex and gender differences which might need to be addressed as an issue in their own right.

3

Gender and *Socio-economic sciences and the humanities*

THREE EXAMPLES

Case 1
The acquisition and loss of nationality

Project outline

The project will provide a comprehensive comparison of rules regulating the acquisition and loss of nationality in the EU Member States.
This will be achieved by collecting information on current legislation and the development of nationality law since 1985, by analysing statistical data on naturalisation, acquisition of nationality at birth, and loss or renunciation of nationality, and by investigating administrative practices in the implementation of nationality laws.
The project will also examine statuses of quasi-citizenship for third country nationals that are granted in several Member States on the basis of long-term residence or to nationals of certain countries or people with certain ethnic backgrounds.
Apart from providing country reports on these questions, the project's main goal is to develop a systematic framework for comparing specific aspects in the regulation of nationality and citizenship across countries. The goal is to find out in which areas there are trends of long-term convergence or persistent divergence between Member States.
This will serve as the basis for a broad evaluation of Member State policies in this area and for policy recommendations addressed to both Member State governments and the EU.
The main focus for the evaluative part will be on the question of how policies concerning access to citizenship and nationality contribute to or hinder the integration of immigrants.
Special emphasis will be placed on dual nationality and the assessment of the impact of recent policy changes towards broader toleration or restrictions in this matter.

Identification of relevant gender issues

Equal opportunities for women and men in research

Given the gender relevance of the subject considered, involving a researcher with gender expertise would undoubtedly add value.
The composition of the research team is not mentioned, but the project would benefit from having a multidisciplinary and mixed team, in terms of sex, ethnicity and age. It would help to understand the different realities and experiences of people subjected to the different rules regulating the acquisition and loss of nationality. To improve its performance, the project might look into the working conditions and culture it favours and whether those are equitable to all its members and inductive to a satisfying work/life balance.

Gender in research content

Immigration, integration and legislation concerning nationality acquisition have different impacts on men and women, because of the different roles they still play in society and because of the difference in these roles from one country to the next.
Legislation can lead to a de facto different situation in rights between women and men, and it is highly relevant to verify whether this is the case. For example, in countries where obtaining nationality is conditional on successfully passing a (language or other) test, this might prevent some groups of women from obtaining nationality because they have less access to classes or courses.

As the project aims to assess how citizenship and nationality policies ease or hinder the integration of immigrants, covering the whole population of migrants should be a clear concern. Conditions under which migration is authorised and nationality can be attributed can have important gender aspects, for instance marriage as a ground for migration or having a formal diploma to get a work permit (women are less literate than men as they have less access to education). Checking whether the legislation explicitly defines specific rules applying to (certain groups of) men or women is valuable.

Any statistical data collection should seek to provide sex breakdowns: sex-disaggregated data analysis allows the identification of gender differences and gender inequalities. Where sex-disaggregated data are not available, it is very useful to indicate such gaps in data availability. Identifying such gaps is the first step towards solving the problem of missing data. In particular, the analysis should pay attention to possible gender differences in:

- the burdens of 'administrative practices', which may be significantly different between women and men
- the policies, which may have significantly different impacts between men and women

The results of the gender analysis should be reported upon: the gender differences and inequalities should be highlighted and the mechanisms explained. Where no gender differences are identified, this should be reported too. In the policy recommendations that will be produced, it would be useful to formulate corrective measures that may be required where gender inequalities exist.

Case 2
European social model

Project outline

The overall objective of the project is to strengthen the emerging European social model (ESM) by contributing to the development of policies for the public and private sectors, based on a scientific assessment of the impact of privatisation and liberalisation in the EU upon the functioning of this social model.

Sub-objectives of the project are:

- to advance knowledge on the configuration of private and public services that is most conducive to the sustainable development of European societies;
- to organise interdisciplinary communication between different scientific centres, social groups and political actors;
- to contribute to the ongoing discussion about the role of the public sector in the development of the ESM.

These objectives will be pursued in three phases.

- In phase 1, a state of the art stocktaking of the literature on the history and theory of liberalisation and privatisation and the European social model takes place;
- In phase 2, interdisciplinary analyses of the impact of liberalisation and privatisation on economic performance, social cohesion and political structures will be undertaken;
- In phase 3, conclusions from the results of the previous work will be drawn and policy proposals will be formulated.

To do so the project envisages organising ten workshops and five international conferences and participating in several joint conferences with other partners as well as in other events. This should result in a substantial contribution to the scientific and political debates about strategies to enhance and strengthen the European social model.

Participants in the project consortium come from different disciplines and from countries with different social and political traditions. The project involves 14 partners from Austria, France, Germany, Greece, Hungary, the Netherlands, Poland, Slovenia and the United Kingdom, including 23 male and three female experts. They will, throughout the duration of the project, organise discussions with external experts from the scientific community and from political actors and other stakeholder groups.

Identification of relevant gender issues

Equal opportunities for women and men in research

It is positive that participants in the project consortium come from different disciplines and from countries with different social and political traditions. This diversity will reflect positively in the planned work. However, given the significant underrepresentation of women in the team (only three out of 26 experts are female), the team can still be considered as insufficiently diverse. Achieving an equal balance between women and men can be a key point in choosing and communicating with partner organisations: the project could make a point of the importance of equal opportunities by requesting the partners, as far as possible, to establish well-balanced teams to work on the project.

Social models have a very different impact on men and women owing to the different roles they play in society. As the planned work is highly gender-relevant, it seems indispensable 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 research content

Women and men (still) play different roles in society, and their respective participation rates in the economic sectors most affected by privatisation and liberalisation differs significantly. It is therefore more than likely that women and men will be affected differently by the changes in the European social model that come about as a consequence of liberalisation and privatisation.
For example, the effects of public transport liberalisation on service delivery are likely to affect women more than men as women are more frequent users of public transport, whereas men are more likely to be affected by company restructuring.

It is positive that the project will start with a literature review. However, the project team should keep in mind that any research might have been gender-biased or gender-blind. Equally, it cannot be assumed that the European social model is a gender-neutral system. The literature review should explicitly identify existing knowledge on gender differences in relation to liberalisation, privatisation and their effects on the social model. It is also important to look at the mechanisms that include or exclude some groups from this social system/model.

Especially in the light of the current economic and financial crisis, an encompassing analysis is needed, taking a gender perspective and making full use of available gender knowledge. While the crisis has a serious direct impact on employment in some large male-dominated industries, it also has a severe impact on women in economic activities linked to these large industries, notably in the service sector and in small and medium-sized companies.

More than half of the population consists of women, and their views, concerns and situations must be addressed in the (re-)construction of a sustainable European social model. For their views to be reflected, their participation and contribution is paramount. The project must therefore ensure women's participation in and contribution to the debates and planned activities – in the workshops and in the international conferences alike.

The policy proposals that will follow from the planned debates and exchanges should address structural inequalities and include suggestions on remedial measures relating to both the public and private sectors.

Case 3
Corporate social responsibility

Project outline

The research project aims to improve understanding of the role of corporate social responsibility (CSR) instruments, their effect on the practices of companies and the benefits for society.

The project will thus address two key questions:

- How effective are CSR instruments in making companies and societies more sustainable?
- To what extent do CSR instruments really contribute to sustainable development, and especially to public policy goals that pertain to sustainable development?

Systematic CSR knowledge is limited and mainly specific, i.e. it does not combine and analyse evidence from different policy fields and sectors. The project will improve knowledge by combining theoretical and practical analysis to result in new high-quality research.

The theoretical analysis will cover different conceptions and instruments of CSR and develop a sound theoretical and methodological foundation for 'measuring' and explaining the rhetorical and real impacts of CSR instruments, such as codes of conduct and reporting standards, on corporative strategies and behaviour.

The empirical analysis tackles the impact of CSR on the company, societal and political levels:

- On the company level this will include impacts of CSR instruments on business development, competitiveness and accountability;
- On the societal and political levels it will focus on the contribution of CSR to achieving political goals defined at the EU level in the policy fields of resources management, gender equality and countering bribery.

The project programme thus includes:

- understanding and researching CSR
- developing a CSR impact assessment tool
- analysing and researching CSR regarding three areas of concern, each falling within the remit of a different policy field: environment and resources management, gender equality and countering bribery
- surveying CSR in three business sectors: the oil industry, the banking sector and the fisheries and fish processing industries
- researching and developing four in-depth case studies on CSR impact: for each of the 'sustainability areas of concern'

- carrying out an SME study
- assessing the political and public policy dimensions of CSR

Outputs of the project will include policy recommendations for companies, national governments and the EU. A book with the core results of the project will also be published.

The project will be carried out by a multidisciplinary team of researchers, scientists and consultants from seven leading research institutions from across the EU and is composed of seven women and nine men.

Identification of relevant gender issues

Equal opportunities for women and men in research

The diversity within the project team is a strength: the team is multidisciplinary and shows a good gender balance.
It is not clear from the project description whether there is gender expertise available in the team. However, given the different positions of women and men in most companies and society at large, the planned work has an important gender relevance, and such expertise will be indispensable.

Gender in research content

Companies and societies are human constructs, in which the role and rate of participation of men and women differ, as underpinned by structural and historical inequalities. The relations between the sexes and their respective roles thus show gendered patterns and it is indeed appropriate for CSR efforts to aim to redress inequalities where these exist.

It is positive that the project will focus on how CSR contributes to gender equality. However, the fact that the project will do so in a case study seems to suggest that the cross-cutting nature of the gender dimension is overlooked. Gender issues permeate all aspects of the functioning of society and are relevant also for the other sustainability concerns that will be studied: resources management and bribery. These other case studies should therefore also look into gender issues in relation to their respective topics. The project would benefit from a clear articulation of which aspects of gender equality will be examined, to guarantee a sound methodological approach and delineation between the cases.

It is positive that the project will undertake a comparative analysis of the impact of CSR in three different economic sectors. However, a number of comments can be made in relation to this analysis:

- The project does not seem to include a baseline assessment, while such analysis is likely to reveal that the various concerns, including gender equality, apply differently in the different sectors. Such a baseline assessment would help to explain differentiated impacts of CSR in the various sectors. Indeed, where the situation is worse, there is more to redress and more impacts can be realised.
- All three sectors chosen have a gendered architecture, either because they are male-dominated (fisheries, oil) or because the top positions are nearly exclusively held by men (banking). For comparative purposes, it would be very interesting to include in the analysis a sector with a higher women's participation rate, so that the differential impact of CSR caused by the rate of women's participation in the respective sectors can also be revealed.

Given the overall gender relevance of the work, it is important to produce gender-specific policy recommendations. Apart from that, all policy recommendations that will be produced should address the gender dimension systematically.

4

Gender and *Socio-economic sciences and the humanities*

USEFUL READING

Braithwaite M. (2001), *Gender in Research - Gender Impact Assessment of the specific programmes of the Fifth Framework Programme- Improving Human Research Potential an the Socio-economic Knowledge Base Society*, European Commission.

Folbre N. (1993), *How does she know ? Feminist theory of gender bias in economics* in History of Political Economy, 25(1):167-84.

Galligan Y, Clavero S. (2008), *Researching Gender Democracy in the European Union. Challenges and Prospects*, www.reconproject.eu/projectweb/portalproject/RECONWorkingPapers.html (29/04/2009).

Jean Emigh R., Szelényi I. (2001), *Poverty, Ethnicity, and Gender in Eastern Europe during the Market Transition,* Greenwood Publishing Group, Santa Barbara.

Kabeer N. (2007), *Marriage, Motherhood and Masculinity in the Global Economy: Reconfiguration of Personal and Economic Life*, IDS Working Paper, (290):69, http://www.ids.ac.uk/ids/bookshop/wp/wp290.pdf (19.02.2009).

Kofman E. (2000), *The invisibility of skilled female migrants and gender relations in studies of skilled migration in Europe* in International Journal of Population Geography 6(1): 45-59.

Lister R., Williams F., Anttonen A., Bussemaker J., Gerhard U., Heinen J., et al. (2007), *Gendering citizenship in Western Europe*, The Policy Press, Bristol.

McCabe C.A., Ingram R., Conway Dato M. (2006), *The Business of Ethics and Gender,* Journal of Business Ethics, 64(2):101-16.

Mergaert L. (2008), *Monitoring progress towards gender equality in the Sixth Framework Programme. Executive Summary: Science and Society - Citizens and governance in a knowledge-based society,* European Commission.

Nelson J.A. (1996), *Feminism, Objectivity and Economics,* Routledge and Kegan Paul, New York.

Oppenheim Manson K. (1997), *Gender and Demographic Change; What do we know?* in Jones G, W., Douglas R.M., Caldwell J.C. (eds). *The continuing demographic transition*, Oxford University Press, Oxford.

Pascall G., Lewis J. (2004), *Emerging Gender Regimes and Policies for Gender Equality in a Wider Europe* in Journal of Social Policy, 33(03):373-94.

Peterson N.A., Lowe J.B., Aquilino M.L., Schneider J.E. (2005), *Linking social cohesion and gender to intrapersonal and interactional empowerment: Support and new implications for theory* in Journal of Community Psychology, 23(2):233 - 44.

Roth S. (ed.) (2008), *Gender Politics in the Expanding European Union*, Berghahn Books, Oxford.

Spitzner M. (2008), *Sustainability and Societal Gender Relations – Problems of and Alternatives to Androcentric Concepts of Sustainability and the Dimensioning of Economy*, Ecology, Institutions and Sociality in Spangenberg E.J. (ed) (2008), *Sustainable Development – Past Conflicts and Future Challenges - Taking Stock of the Sustainable Discourse*, pp 198 – 221, Westfälisches Dampfboot, Münster.

Verloo M. (ed.) (2007), *Multiple Meanings of Gender Equality. A Critical Frame Analysis of Gender Policies in Europe*, Central European University Press, Budapest.

Walby S. (2002), *Gender and the New Economy: Regulation or deregulation?,* Conference paper, ESRC seminar "Work, life and time in the new economy", London, http://wwww.lse.ac.uk/collections/worklife/Walbypaper.pdf (06/04/2009).

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

1

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 website[1] 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

2

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 differ ent 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 research[2] 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.*

3

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.

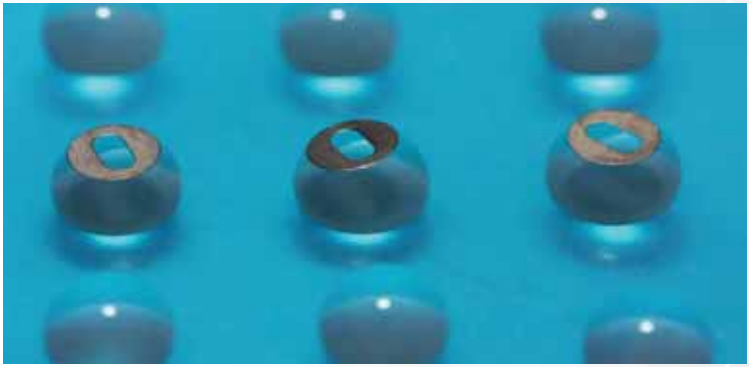
The activities of the project will be spread over 28 months and geared around four key actions:

- 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.

4

Gender and *Science in Society*

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-Vrohlings, M., Grupp, H. (2009), G*ender-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.

1

Gender and *International cooperation*

INTRODUCTION

In this part of the toolkit, we take a closer look at how gender is relevant in the specific field of *International cooperation* 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 teams.

To illustrate how projects in the field of *International cooperation* 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 website[1] and relate to different topics within the field's work programme.

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

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

2

Gender and *International cooperation*

GENDER AND THE *INTERNATIONAL COOPERATION* FIELD

FP7 and *International cooperation*

In FP7, international cooperation aspects form part of three programmes: Capacities, Cooperation and People. Theme-oriented international cooperation actions will be carried out under the Cooperation programme, international actions in the area of human potential will be carried under the People programme and horizontal support actions and measures with a focus other than a specific thematic area will be implemented under the Capacities programme.

Objectives of International cooperation under the FP7 Capacities programme :

To become more competitive and play a leading role at world level, the European Community needs a strong and coherent international science and technology policy. This international policy has three objectives:

- To support European competitiveness through strategic partnership with third countries in selected fields of science and by engaging the best third-country scientists to work in and with Europe;
- To enhance the production of knowledge and scientific excellence by enabling European universities, research institutions and firms to establish contact with partners in third countries, thereby facilitating access to the research environment outside Europe and promoting synergies on a global scale;
- To address specific problems that third countries face or that have a global character, on the basis of mutual interest and benefits.

How is gender relevant to this field?

Activities within the Capacities programme are about human networking and working cooperation and as such are gender-relevant, particularly in terms of equal opportunities.

International cooperation – Capacities work programme

The activities undertaken in this field will support:

- **Bi-regional coordination of S&T cooperation including priority-setting and the definition of S&T cooperation policies**
  Supporting bi-regional dialogue that will:
  - Promote and structure the participation of third countries in the activi ties of FP7;
  - Promote regional integration and lead to the identification and prioritisa tion of common research areas of mutual interest and benefit;
  - Facilitate the uptake and use of common research areas identified, and the monitoring of performance and impacts of international S&T coopera-tion across the specific programmes of FP7.

  The aspects of dialogue, implementation, dissemination, monitoring and review should be considered as complementary.

- **Bilateral coordination to enhance and develop S&T partnership that will:**
  - Improve the process of providing information on programmes and funding designed to promote the cooperation of third countries in FP7;
  - Better identify and demonstrate mutual interest and benefit in S&T coop-eration between the EU and specific third countries;
  - Share best practices via joint fora.

- **Supporting the coordination of the national policies and activities of Member States and Associated States in international S&T cooperation.**

- **Other activities, such as evaluation and supporting transnational cooperation among NCPs.**

How is gender relevant to these topics?

- *When collaborating across EU borders, researchers should be aware of how gendered (cultural and economic) differences between consortium partners may influence their perspectives on capacity building, networking, the potential research question(s) and methodologies.*

- *In FP7 special attention will be given to bi-regional coordination of S&T cooperation including priority-setting and definition of S&T cooperation policies; bringing together policy-makers, the scientific community, civil society and private-sector stakeholders from the EU and third countries to identify priorities and define policy orientations; implementing specific activities dedicated to strengthening participation from targeted countries and regions in FP7, including support for information points in the third countries. This means that policy-makers and civil society will be involved. These two actors can be very influential in empowerment and in changing existing gender structures, mechanisms, roles, etc. Researchers should therefore be aware of how gender is relevant in their research content so to make recommendations that help raise gender awareness and stimulate empowerment policies.*

- *Women and men use different techniques and strategies for networking. Virtual computer networks have a gender dimension: access to and control over the network, the role of the 'gatekeeper(s)' and all stakeholders involved are gender constructs. Ensuring equal access to all is important.*

3

Gender and *International cooperation*

THREE EXAMPLES

Case 1
S&T dialogue between the EU and Latin America

Project outline

The project is a four-year coordination action whose main goal is to strengthen bi-regional dialogue on S&T between EU Member States (MS), Associated States (AS) and Latin American Partner Countries (LAPC) at policy, programme and institutional (research entities) level, thus contributing to a threefold objective:

- promote the joint identification, setting up, implementation and monitoring of priorities of mutual interest for future work programmes across the specific programmes of FP7
- jointly define S&T cooperation policies
- support and stimulate the participation of LAPC in FP7

The project will establish a coordination platform bringing together the key EU and LA policy-makers and programme managers, as well as representatives of research entities, universities and the private sector, eminent researchers and representatives of civil society, to set up dialogue fora at different levels, leading to the identification of S&T policies and priorities and defining specific activities to promote, support and stimulate the participation of LA researchers in FP7 and to strengthen international S&T cooperation. These activities will be aimed at strengthening the EU–LA Knowledge Area.

As political background, the project will consider and develop the ongoing EU–LA dialogue on S&T, since the Río Summit in June 1999, the ALCUE's Brasilia Action Plan for S&T Cooperation, the Guadalajara Declaration to set up the EU–LA Knowledge Area and finally the Vienna Summit in 2006 and the conclusions of the preparatory senior officials' meeting in Salzburg, taking it as a basis to go further in the practical implementation and updating of the existent policy guidelines.

The project will also consider the achievements of existing cooperation programmes. In this respect, major objectives are:

- Facilitating a bi-regional (and in the case of Mexico, Central America and Andean Countries, a complementary bilateral sub-regional) dialogue, involving stakeholders from policy-making, the science community and industries. The dialogue will address each other's S&T potentials, policy goals and demands to define common priorities and to develop joint scenarios and implementation strategies for strengthening S&T cooperation both at sub-regional and bi-regional levels;

- Facilitating the recommendations of the Brasilia Action Plan reiterated by the Salzburg senior officials' meeting;
- Implementing strategic analysis based on evaluation, impact assessment and scenario studies, in order to provide a knowledge base for the bi-regional/ bilateral dialogue and to support priority-setting and scenario development;
- Strengthening the participation of LAPC in the 7th EU Framework Programme with emphasis in the "Cooperation" part of the programme;
- Supporting the coherence and coordination of S&T cooperation activities with other EU policies (external, environmental, innovation etc.) concerning the LAPC, with an emphasis on the EU–LA dialogue on S&T to set up the EU–LA Knowledge Area and the Education Policy (Lifelong Learning Programme);
- Ensuring sustainability of the coordination and cooperation activities and building of joint ventures between MS, AS and LAPC;
- Setting up S&T-related activities addressing the challenges of the globalisation of research and achieving the global Millennium Goals.

In a concern to increase efficiency, to avoid duplication, to ensure the sustainability of successful activities of the past, and to learn lessons, the project will consider relevant previous and ongoing activities both inside and outside the EU RTD Framework Programme, as well as links with other EU policies.

The consortium is composed of relevant stakeholders that have worked in recent years on several actions aiming to analyse and support European Union–Latin American Scientific Research and Innovation Cooperation.

The coordination action is structured around a number of work packages (WPs) (= on-line workgroups).

WP1 Analysis, monitoring and review	**WP4** Bi-regional scienceÐindustry relationships
WP2 Strengthening the participation of LA in FP7	**WP5** Raising awareness and dissemination activities
WP3 Bi-regional policy dialogue	**WP6** Project management

Identification of relevant gender issues

Equal opportunities for women and men

This project aims to set up a platform to support and encourage joint research, so equal opportunities for men and women in this platform are very relevant.

It can be assumed that the coordination platform will have different management levels, so not only do we need to make sure that both women and men participate in the platform, but also participation of both men and women should be encouraged whenever possible at all levels of decision-making. For example, when organising meetings, each organisation can be asked to appoint one female and one male delegate as its nominated representative and his/her deputy.
By ensuring a balanced participation by men and women at all levels in the project, the conditions are created for higher gender-sensitiveness of the work that will be performed, which will in turn improve the quality of the project's outcomes.

Since the project will involve a lot of countries, it would be interesting to exchange equal opportunity good practices among these countries.

It is clear from the summary that this network will build upon a lot of previously made cooperation agreements. It would be interesting to examine how gender-sensitive these agreements are with regards to equal opportunities issues.

Gender in the project content

The central task of the coordination platform will be to set up research priorities of mutual benefit and interest. The research priorities should be developed in a gender-sensitive manner, taking into account both men's and women's research needs. It can also include gender-specific topics: setting up a research agenda is an ideal opportunity to incorporate gender topics that have not yet been studied.

The literature in the field of gender theory developed in the EU Member States and in LA countries respectively might give useful inspiration for joint further research, which would usefully complement the existing knowledge base. Such research would furthermore make the link with the EU gender equality policy. The following may be interesting topics for analysis and debate in the project: gender and networking strategies, gender and research topics, gender and (research / industry) workforce statistics.

One of the work packages is dedicated to dissemination, an activity where it is important to reach men and women equally by using dissemination methods that are not gender-biased, to address men's and women's concerns and needs equally, and to produce publications that do not contain gender-stereotypical representations (e.g. pictures of 'scientists' should show both men and women, and not only men). It might also be a good idea to organise a specific event on gender in research.

Case 2
ICT cooperation among the EU, Eastern Europe and Central Asia

Project outline

The project, based on the sound outcomes of and lessons learnt in the previous project implemented in Russia in 2006–2008, will expand the experience to the Eastern Europe & Central Asian countries, identifying and promoting the visibility of mutual RTD potential and collaboration opportunities.

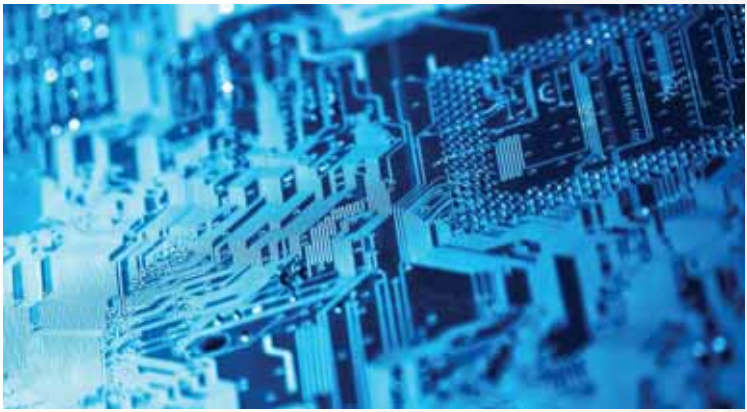
The project will:

- promote the EU ICT programme and raise awareness of the benefits of mutual collaboration;
- identify the potential for R&D ICT collaboration between the European Union and nine countries of Eastern Europe and Central Asia;
- expand the EU-Russian ICT research community to four targeted countries (Ukraine, Belorussia, Armenia and Kazakhstan) through the opening of a competence platform and implementing pilot actions such as networking and brokerage events and assistance with integration into the European Technology Platforms and Networks of Excellence;
- provide support to research teams from the targeted countries with the goal of increasing the number of ICT FP7 partnerships between researchers from Europe and targeted countries.

The project activities will be carried out in collaboration with national stakeholders and other relevant cooperation projects with a view to exploiting synergies and maximising impact.

Several ICT projects will be started deploying the Grid technology. Grid technologies and supercomputing help structure the scientific community and therefore play a key role in the construction of an efficient research and innovation environment.

As an example, the 'health grid' is an innovative way to support broad access to rapid, cost-effective and high-quality healthcare. In particular, the areas of health-care provision and research that can be beneficially affected by Grid technology include: medical imaging and image processing; modelling the human body for therapy planning; pharmaceutical research and development; epidemiological studies; genomic research and treatment development.



Identification of relevant gender issues

Equal opportunities for women and men

The project outline does not provide details of the composition of the project team. Since it can be understood that organisations from the EU, Eastern Europe and Central Asia will be networked in the context of this project, it makes sense to draw participants' attention to the importance of a balanced involvement of men and women in the project's activities as well as in future research activities.

The historical backgrounds of the countries involved in terms of gender roles and the combination of family and work are very different. An exchange on these issues, including on the respective policies in the various countries, would probably be helpful to clarify the existing situation and to identify the problems that need to be addressed.

In order to promote equal opportunities and balanced participation, it would therefore be a good idea to provide for a distinct activity in the project, including an exchange of good practices regarding equal opportunities in the workplace.

Since this project builds upon the experience of a previous project, it would be good to look at the workforce statistics of that project and see if there is an evolution on the number of males and females participating according to rank and type of job.

Gender in the project

The project's focus is on the promotion of the EU ICT programme, through all types of activities.

Gender is very relevant in ICT, and much research has been done on this theme which can provide useful input for the planned work. Among the general public, there exist gender differences in computer literacy, in access to ICT, in its use and in its perceived usefulness. And not only are there such gender differences, these are to an important extent subject to other variables: employment status, level of education, income, age, etc. For example, the rate of computer illiteracy is higher among unemployed women than among employed women. It would be laudable if the project undertook specific actions to close (part of) these ICT gender gaps, for example by stimulating projects focusing on such topics. Improving women's access to, knowledge of and use of ICT are important ways to empower them.

Another relevant dimension is women's under-representation in the ICT sector, a sector which is typically regarded as 'male'. This gendered image is explained by the stereotypical association of technology with men. This is a well-known phenomenon which not only has been researched, but has also triggered efforts to attract more women to enter ICT professions. Such initiatives were oriented for example towards convincing more girls to study ICT, or to changing the masculine image of the sector. In light of women's low rate of participation in the field of ICT, it is important to consider the interrelations between gender, work, time and technology. Efforts to redress existing imbalances should thus take into account this broader context and also address the standard gendered patterns, roles and relations.

It would be very interesting and useful if a specific event were organised on 'gender and ICT'. Such an event would not only raise awareness of these important issues, but could also trigger gender-specific ICT initiatives which could be funded through the EU RTD Framework Programme.

Case 3
Research cooperation between Europe and Australia

Project outline

Objectives and approach

The project is dedicated to facilitating effective research cooperation between Europe and Australia. It serves the entire Australian research and innovation community, and plays an active role in facilitating European-Australian research and innovation cooperation.

The overall objectives of the project are to maximise the likelihood that:

- opportunities for attractive and feasible research cooperation are exploited effectively
- Australian researchers can exploit attractive and feasible cooperation opportunities with the far larger European research, development and demonstration effort

This particular project is pioneering the application of a suite of methods and technical tools designed to lead to more effective decision-making. This includes carrying out analyses using quantitative indicators of research and innovation performance, in order to map collaborative activity and to inform the policy community of the benefits arising from support for international research collaboration.

The underpinning rationale for the project is that research and innovation cooperation between Europe and Australia will be enhanced by providing evidence-based answers to the following questions:

- Why collaborate? – Defining collaboration value propositions
- What to collaborate in? – Defining thematic priorities for collaboration
- How to collaborate? – Assessing and recommending strategies and tactics
- Who should collaborate? – Providing advice appropriate to different career stages

Implementation and dissemination activities

Key aspects of the implementation of the project are:

1. Making Australian R&D capability visible and known:
   - Providing key information on those aspects of major thematic areas in which the Australian R&D capability is competitive at a global level.
   - Increasing the likelihood of competitive Australian capabilities being recognised and involved in EU FP7 R&D.
   - Providing sufficient resources to enable effective outreach, information and communication.

2. Promulgating best practice strategies and tactics:
   - Maximising the benefits and minimising the risks associated with European-Australian R&D cooperation by disseminating appropriate decision-support information for academia and industry.

3. Support activities:
   - Developing a website with timely information on EU RTD cooperation opportunities.
   - Developing an online database of collaborative projects.
   - Providing helpdesk support.
   - Planning and delivering collaboration agenda-setting workshops in response to emerging opportunities.

4. Developing a software-based impact monitoring system:
   - Developing a software-based method for tracking research engagement across the full life cycle from initial concept/opportunity through to collaboration outcomes.
   - Providing an auditable means of demonstrating the project's added value.

As regards dissemination, experience has shown that the most effective means of disseminating information is via opinion pieces written by the Executive Director and placed in national newspapers and professional periodicals. Newspapers and periodicals are keen to publish such pieces provided that they address topical issues. It is usually possible to link a discussion of a particular topical issue with a more general discussion pertinent to enhanced Australian-European research and innovation collaboration.

Significant findings from the project's work on quantitative research and innovation performance indicators will be reported in working papers aimed at the policy community and in relevant peer-reviewed academic journals.

Expected impact

The expected impacts of the project are:
- improved S&T cooperation between Europe and Australia by providing information and by identifying priorities and best partners for collaboration;
- a measurable increase in the number of effective collaborations;
- improvements in mutual understanding of the research systems in Europe and Australia, and in the reciprocal benefits to be obtained from cooperation.

Identification of relevant gender issues

Equal opportunities for women and men

Since this is an ambitious and large-scale project in which a lot of people will be involved, special attention will need to be paid to providing equal opportunities for men and women.

The international mobility of researchers is an important issue that needs to be addressed, especially in the light of the EU-Australian collaborations which the project is pursuing. Different career stages involve different opportunities and constraints regarding mobility, and there are important gender differences in this respect. Consequently, it is important to take these into account and to accommodate a satisfying work-life balance for all, so that male and female researchers can equally contribute to and benefit from the possibilities offered by EU-funded research.

As the project aims to reach many EU and Australian researchers, it might become a platform for exchange on initiatives fostering equal opportunity in the research community.

Gender in the project content

There are four sets of activities in this project: communicating about research and research opportunities, identifying and disseminating best practices, support activities and an impact monitoring system.

In view of the fact that this project promotes collaboration between the EU and third countries, it is especially important to communicate the gender equality objectives in the EU RTD Framework Programme. Concerns about the participation of women in research and the gender dimension in the content of work should thus be explicitly addressed.

Setting up cooperative research projects involves important choices and decisions. The thematic priorities and the composition of the team are two such decisions. Both have a gender dimension which should be communicated and explained to the research community which the project seeks to engage in EU-funded research.

As regards the choice of the thematic priorities, the research community is recommended to reflect critically on the different ideas:

- How do the priorities relate to women's and men's lives respectively, and whose needs do they seek to address?
- May the results of the collaborative action favour one sex more than the other, and if so, can this be justified?
- Does the body of existing knowledge about the possible future thematic priority subject contain references to gender? If not, this might be a prompt towards novel and highly relevant future research.

The management of diverse teams is a challenge, and can constitute a specific issue on which good practice can be identified.

The outline mentions that 'collaboration agenda-setting workshops' will be organised. It is important that both men's and women's interests and research needs are considered in such workshops, and that men and women can contribute equally in them. Moreover, 'gender in research' could be a specific theme of such workshops.

The impact monitoring system that will be set up should track women's participation in research (ideally distinguishing among the different academic levels), as well as identifying those research projects which contribute to building knowledge on gender issues, so that the added value of the project in terms of promoting gender equality can be demonstrated.

4

Gender and *International cooperation*

USEFUL READING

Ashworth G. (1996), *Gendered governance: an agenda for change*, United Nations Development Programme, http://nird.ap.nic.in/clic/rrdl100.html (30/04/2009).

Barry J., Honour T and Palnitkar S. (1998), *Women, urban governance and the public service ethos*, in Crime, Law and Social Change, March 29(2-3).

Bridge (2007), *International and regional databases of gender statistics*, http://topics.developmentgateway.org/gender/rc/ItemDetail.do~1110538?intcmp=700.

Derbyshire H. (2002), *Gender manual: a practical guide for development policy makers and practitioners*, DFID.

Hausmann R., Tyson L. D. and Zahidi S. (2006), *The Global Gender Gap Report 2006, World Economic Forum*, http://www.weforum.org/en/initiatives/gcp/Gender%20Gap/GenderGap (30/04/2009).

Huyer, S. and Westholm, G. (2007), *Gender indicators in science, engineering and technology: an information toolkit*, UNESCO, Paris.

International Bank for Reconstruction and Development/World Bank (2007), *Global Monitoring Report 2007*. Millennium Development Goals: Confronting the Challenges of Gender Equality and Fragile States.

Kabeer N. (2007), *Marriage, Motherhood and Masculinity in the Global Economy*: R*econfiguration of Personal and Economic Life*, IDS Working Paper, (290):69.

Moser C. and Moser A. (2005), *'Gender mainstreaming since Beijing: a review of success and limitations in international institutions'*, in Gender & Development, July 2005;2(13).

Mukhopadhyay M. and Meer S. (2004), *Creating voice and carving space: redefining governance from a gender perspective*, Royal Tropical Institute, Amsterdam.

Ostergaard L. (1992), *Gender and development*, Routledge, London.

Schiebinger L. (2008), *Gendered Innovations in Science and Engineering*, Stanford University Press.

Sen A. (1990), *More Than 100 Million Women Are Missing*, New York Review of Books, 37, December 20.

United Nations Economic Commission for Europe (UNECE) (2008), *Statistical database, comparable data for Europe, North America and Central Asia*, http://w3.unece.org/pxweb/Dialog/ (30/04/2009).

World Bank (2009), *Gender Equality as Smart Economics: A World Bank Gender Action Plan.*

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

European Commission

EUR 24840 — Gender in EU-funded research

Luxembourg: Publications Office of the European Union

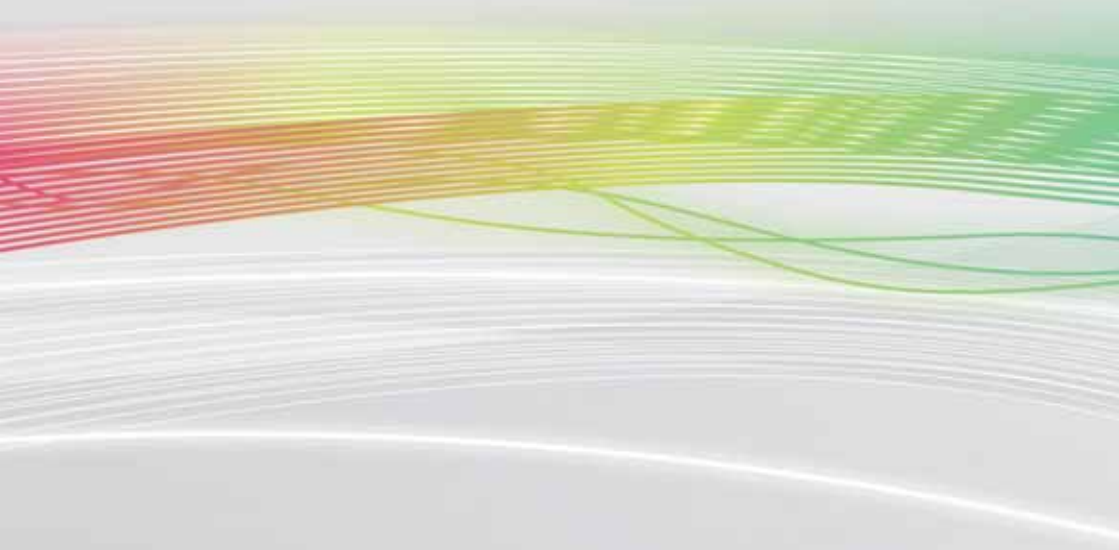
2011 — A5 - 14,58 x 21 cm

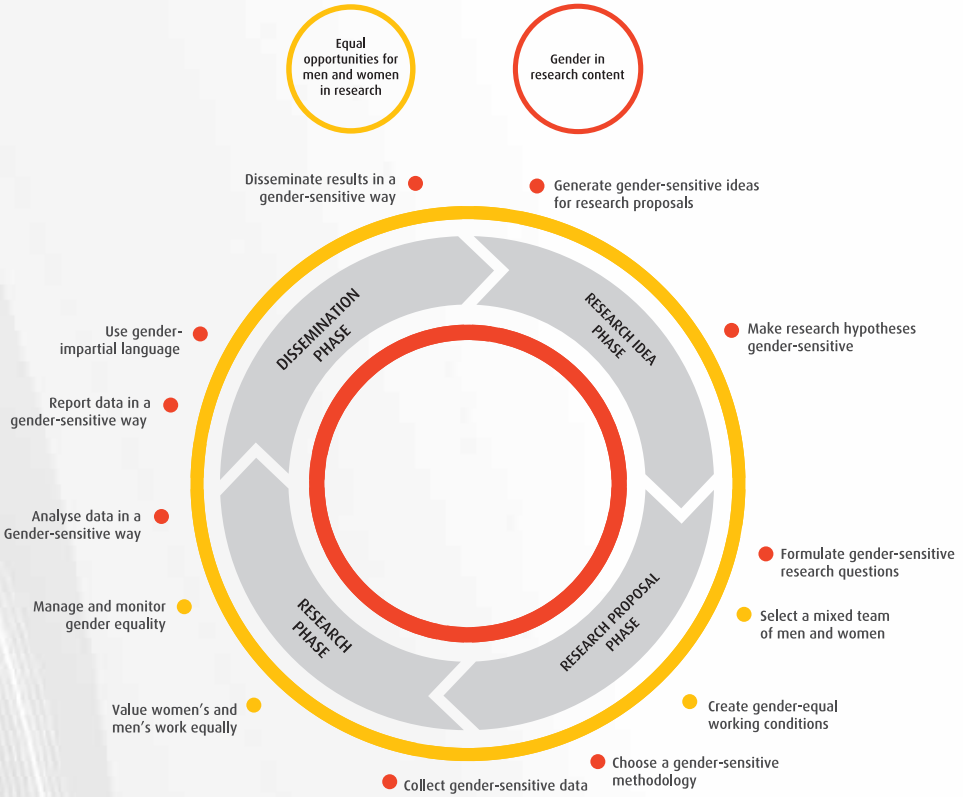
ISBN 978-92-79-20432-6
doi 10.2777/62947

KI-NA-24840-EN-C

Publications Office

Gender in EU-funded research Checklist





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

CHECKLIST
FOR GENDER IN RESEARCH

Equal opportunities for women and men in research

- [ ] Is there a gender balance in the project consortium and team, at all levels and in decision-making positions?
- [ ] Do working conditions allow all members of staff to combine work and family life in a satisfactory manner?
- [ ] Are there mechanisms in place to manage and monitor gender equality aspects, e.g. workforce statistics, as required by FP7?

Gender in research content

Research ideas phase:

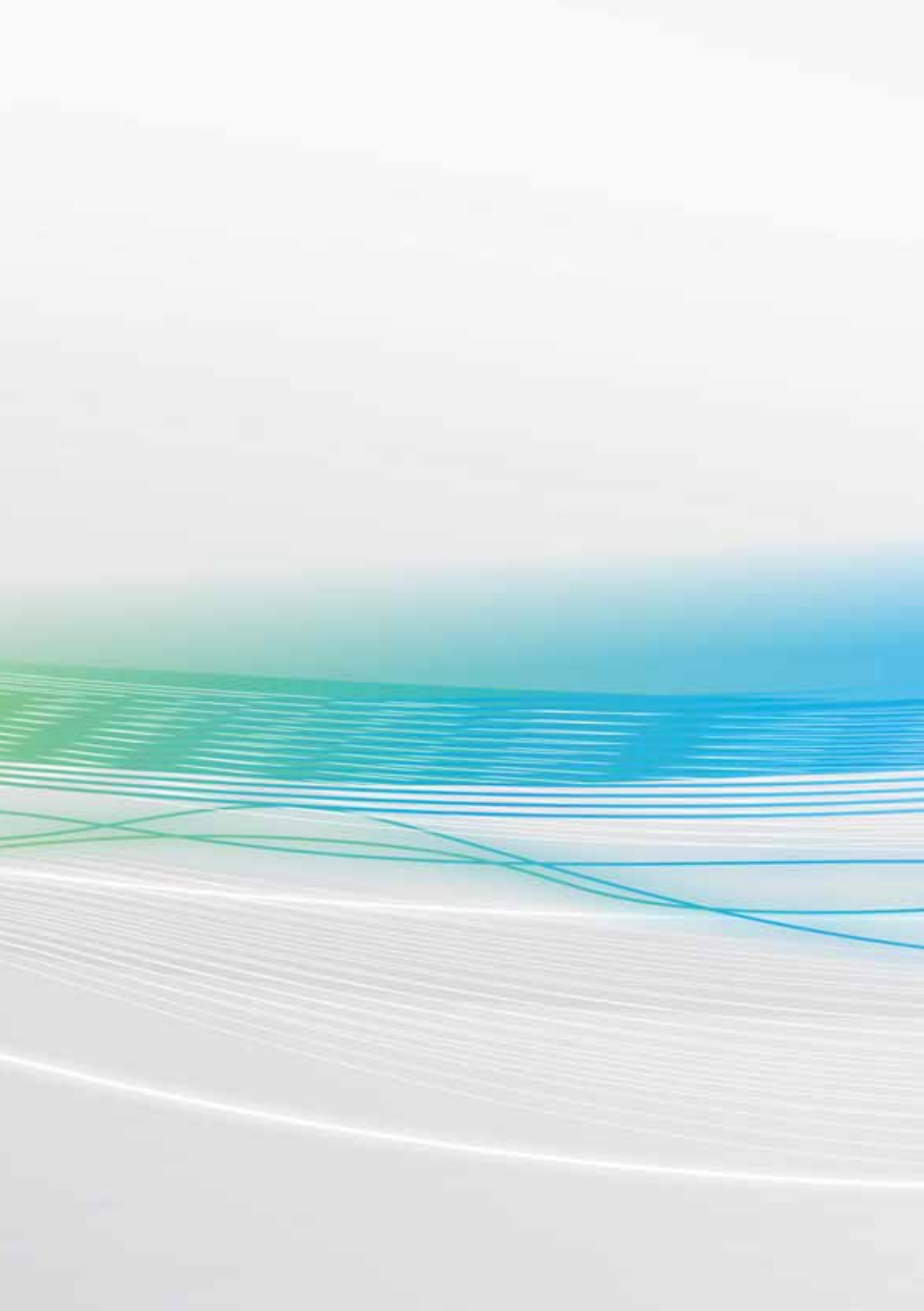
- [ ] If the research involves humans as research objects, has the relevance of gender to the research topic been analysed?
- [ ] If the research does not directly involve humans, are the possibly differentiated relations of men and women to the research subject sufficiently clear?
- [ ] Have you reviewed literature and other sources relating to gender differences in the research field?

Proposal phase:

- [ ] Does the methodology ensure that (possible) gender differences will be investigated: that sex/gender-differentiated data will be collected and analysed throughout the research cycle and will be part of the final publication?
- [ ] Does the proposal explicitly and comprehensively explain how gender issues will be handled (e.g. in a specific work package)?
- [ ] Have possibly differentiated outcomes and impacts of the research on women and men been considered?

Research phase:

- [ ] Are questionnaires, surveys, focus groups, etc. designed to unravel potentially relevant sex and/or gender differences in your data?
- [ ] Are the groups involved in the project (e.g. samples, testing groups) gender-balanced? Is data analysed according to the sex variable? Are other relevant variables analysed with respect to sex?

Dissemination phase:

- [ ] Do analyses present statistics, tables, figures and descriptions that focus on the relevant gender differences that came up in the course of the project?
- [ ] Are institutions, departments and journals that focus on gender included among the target groups for dissemination, along with mainstream research magazines?
- [ ] Have you considered a specific publication or event on gender-related findings?