

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 website¹ and relate to different topics within the field's work programme.

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



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

GENDER AND THE *ENVIRONMENT* RESEARCH FIELD

FP7 *Environment* objective²

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 disproportionately 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 disproportionately 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 feed-backs 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 change⁴ 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 health⁵. 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 patterns⁶, 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 Rätty, R. (2008), *Kvinnor, män och energi: makt, production och användning*, 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 gender¹⁰ 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 Johnson-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 better¹¹. 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 Diversity¹³ 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.

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, Switzerland, 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 sub-programmes*, 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.

