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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 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 *Food, agriculture and fisheries, and biotechnology* is provided.



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

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 preparing 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/the_men/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).

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*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.

Gender in research content

The project's ambition is to improve understanding of recent European agri-food legislation. Since the law takes a sustainable development perspective, the project will strive to unravel the cultural values which underpin the concept of sustainable development. Additionally, the project will examine how European agri-food legislation and other legal systems in the world reconcile cultural relations to soil and food.

There is abundant literature on food, agriculture and gender, and a thorough review would help the project to clarify its own methodology. In all societies, men's and women's roles, and access to and control over resources in agriculture, have always been clearly differentiated, thereby giving each gender a different level of power. Therefore, when trying to delineate the values attached to food production and consumption, gender should be taken into account at each step of the research to guarantee exhaustive outcomes. A gender-sensitive approach will not only prevent the project from being gender-blind but also prevent it from discriminating in favour of one sex over the other. In this respect an analysis of the agri-food law from a gender perspective, i.e. its impact on women and men, would be important in revealing potential gender biases.⁸

The same applies to the project's attempt to compare how various legal systems reconcile cultural relations to soil and food. The relationship to soil and food might differ between men and women, and for the sake of exhaustiveness and validity of outcome, the project would do well to take both perspectives into account. Data collection should be gender-sensitive, with the systematic collection of sex-disaggregated data (analysed with respect to other relevant variables such as income and work), gender-balanced focus groups, and analysis by the sex variable. In examining the history of shared and non-market-oriented values, a gender-sensitive approach might prove to be a challenge: women's history and stories are likely to have gone unrecorded. Systematically noting any lack of data will not only validate the approach, it will also underline all stakeholders' right to be heard.

As has been demonstrated here, the project would greatly benefit from mainstreaming gender through all its stages and work packages. This systematic gender-sensitive approach would open opportunities for publication and dissemination of the findings focusing on a gender view. Here it can be noted that the use of gender neutral language would be welcome. The use of "man" as tacitly representing the whole of humanity (men and women), or "head of household" as the sole representative of the household, has certainly contributed in women's voices going unnoticed, and distorted realities being described. The project would gain in credibility with a broader range of audiences if it showed its awareness of this risk by systematically recognising that there are differentiated realities.

⁸ See the *Guide to gender impact assessment*, European Commission, Employment and Social Affairs DG, 1998.

Case 2

Biofortification

Project outline

Malnutrition, and especially deficiencies of micronutrients like iron, zinc and vitamin A, undermines progress towards most of the Millennium Development Goals. In view of the serious concerns as to the coverage, compliance and safety of supplementation, this project aims to identify novel staple-food-based approaches to improving micronutrient malnutrition for the better health and development of women and children in sub-Saharan Africa. They are now often trapped in the poverty cycle:

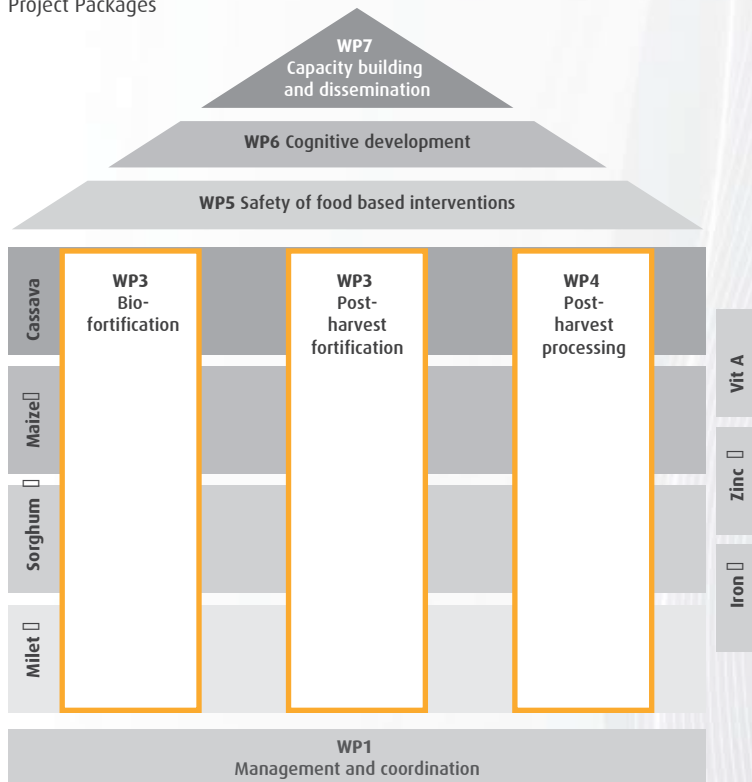


The vicious circle of poverty, malnutrition and mortality

The project will focus on the improvement of millet-, sorghum-, maize-, and cassava-based (complementary) foods.

The genetic potential of staple foods to increase the micronutrient and antinutrient content will be evaluated and the determinants of success and failure of introducing biofortified staple foods in local farming systems will be assessed. The efficacy of biofortified staple foods with adequate levels of provitamin A will be determined. Concerning fortification, the project will develop and test new approaches to optimising iron and zinc fortification of staple-food-based foods.

Project Packages





Identification of relevant gender issues

Equal opportunities for women and men in research

There is no mention of the composition of the team. To attain its objective of identifying novel staple-food-based approaches in order to improve women's and children's health in sub-Saharan Africa, the project could consider constituting a diverse team, in terms of sex and origin, to tap into local knowledge, notably on local farming systems where African men and women might be involved at different stages and in different roles.

Gender in research content

A lot of literature on how gender impacts on farming and food consumption in sub-Saharan Africa has already been produced. This literature describes how the different hierarchical situations societies give men and women determine how food is produced, traded and consumed.⁹

The project aims to improve micronutrient malnutrition in women and children in sub-Saharan Africa by introducing biofortified staple foods in local farming. To achieve its ambition, the project will have to adopt a gender-sensitive approach throughout all its activities in all work packages. This means that women and children, whenever considered, cannot be viewed in isolation (from men). As in any gendered system, women and men (and boys and girls) will be cast in different roles, with different expectations and attitudes assigned to each sex. This might determine who accesses and controls food production and consumption. From a scientific perspective biofortified crops are the solution to nutrient problems, but adoption of biofortified crops and access to processed food from these crops (actual consumption) are crucial in breaking the poverty cycle.

⁹ Counihan, C. (1999), *The Anthropology of Food and Body: Gender, Meaning and Power*, New York: Routledge

Part of the research needs to focus on the acceptability of the biofortified crops to the end-consumer, through sensory evaluation and consumer preference. Both women and men are important in appreciating crops' taste to ensure adoption. A change of colour, for instance, is enough to hamper adoption. Adoption of biofortified crops with visible traits will require that both producers and consumers (men and women) actively accept the sensory change along with the productivity and end-use features. Crops with invisible traits, such as higher concentrations of iron or zinc, do not require behavioural change per se because the augmented levels will not result in sensory changes.

Participatory breeding schemes, involving male and female farmers (since men and women might have separate plots), might stimulate adoption.

Moreover, considering traditional gender roles, women are crucial when it comes to transforming crops into food. Crop features might change transformation practices, so the investment of time and effort should be monitored.

But, even if the visible features and transformation practices of biofortified crops are acceptable, the project will need to focus on adequate measures to encourage both men and women to buy these new crops, since ingrained habits can be strong. Behavioural change in the household in terms of increased consumption of the biofortified crop is the next step. This is determined by social patterns in the households: often, in poor families, adult male family members eat first, and consume most of the high-quality food, while women and children get the left-overs. Awareness-raising of men and women is again crucial to obtain the desired effect.

Another consideration is the economic potential of the household, since biofortified crops might be more expensive than traditional crops: poorer households (such as those headed by women) might be less inclined to buy more expensive food in sufficient quantities. A second economic risk might be the tendency to sell the (more expensive) biofortified crops on the market, and to buy cheaper traditional varieties for home consumption. Support to policy development at national level is necessary in order to ensure that biofortified seeds are widely available at prices that are competitive with those of traditional seeds, and biofortified crops are available as cheaply as traditional crops. Support for initial marketing efforts can help biofortified crops to gain a significant market share.

These reflections show that it is important to involve end-consumers from the start (WP2) and through the following work packages. It would be too late to involve them only at the final stage of disseminating results and building capacities (WP7). The last stage needs to be considered as an extension of the end result, and needs to place a lot of emphasis on awareness-raising.

Case 3

Sweet sorghum for food and fuel

Project outline

Increasing world market prices for fossil fuels, driven by limited reserves, growing demand and instability in producing regions, now render renewable fuels economical. Such fuels are also a pathway to reducing Greenhouse Gas emissions and mitigating climate change. Bio-ethanol from crop plants is a promising, partial solution to sustainably satisfying the energy demand for road transport. The success of bio-ethanol from sugarcane in Brazil demonstrates proof of concept but cannot be transferred to water-limited or temperate environments.

Sweet sorghum, as a source of either fermentable free sugars or lignocellulosics, has many potential advantages, including: high water, nitrogen and radiation use efficiency; broad agro-ecological adaptation; rich genetic diversity for useful traits; and the potential to produce fuel feedstock, food and feed in various combinations. Fuel-food crops can thereby help to reconcile energy and food security issues. This project will breed for improved cultivars and hybrids of sorghum for temperate, tropical semi-arid and tropical acid-soil environments by pyramiding in various combinations, depending on region and ideotype, tolerance to cold, drought and acid (Al-toxic) soils, and high production of stalk sugars, easily digestible biomass and grain Work Programme (WP 1-3).

Molecular-genetic and physiological breeding support is given by WP4, and agro-ecological adaptation and sustainable practices are developed by WP5. Other WPs (6, 7, 8) provide for integrated technology and impact assessments including economics, dissemination and coordination. The consortium is composed of 10 members from France (leader), Italy, Germany, Brazil, India, Mexico and South Africa, including a seed company. Research involves the structured participation of stakeholders, including policy-makers. Project outcomes will be new germplasm, sustainable practices and commodity chain concepts adapted to each target region. The duration of the project is five years.



Identification of relevant gender issues

Equal opportunities for women and men in research

The project will involve 10 partners, so this gives a good opportunity to make up a very diverse team in terms of sex, age and ethnic background. The 10 partners will come from four different continents, which might imply a need to travel. To improve its performance, the project might look into the working conditions and culture it favours and whether these are equitable to all its members, and inductive to a satisfying work/private life balance. For example, specific measures might need to be set up to support single parents.

Gender in research content

The central aim of the project is to develop strains of sorghum that can be transformed into both food and energy, and can be combined to suit a variety of growing regions. The composition of the consortium hints at the production of this biofuel in developing countries. It has been shown¹⁰ that large-scale production of liquid biofuels in developing countries might affect men and women differently, both at the intra-household level and at the level of male- and female-headed households, depending also on specific socio-economic and policy contexts. Men and women might be affected differently by the potential socio-economic and environmental risks associated with biofuel production, reflecting differentiated male and female roles and responsibilities as well as pre-existing gender-based inequalities, particularly in terms of access and control to land and productive assets in general. For example, in most societies, the role in the trade and production of different crops differs for men and women. Broadly speaking, the crops to be sold tend to be more controlled by men whereas the crops to be consumed by the household directly tend to be handled by women. Motivating farmers to produce more marketable crops, without serious efforts to involve women as full farmers, might marginalise women even more. Moreover, as they are likely to be working in fields of marketable crops as well, it will increase their work burden, without giving them direct access to the income provided by these cash crops. Quality and quantity of household consumption might decline. Biofuel production might also create different employment opportunities for men and women, thereby threatening female socio-economic activities, which in turn would reduce female-headed households' resilience and might ultimately endanger rural communities.¹¹

¹⁰ Rossi, A. & Lambrou, Y. (2008) *Gender and Equity Issues in Liquid Biofuels Production – Minimising the Risks to Maximize the Opportunities*, Rome: Food and Agricultural Organization.

¹¹ Ibid.

Traditionally crops might be labelled as typically male, female or grown by both sexes. The project can influence whether new crops for biofuel will be labelled as male crops or crops grown by both sexes, and thus benefit both men and women. The key is who initiates the field, and thus controls the harvest. Gender analysis will show whether men and women both initiate fields and control harvests. But it is obvious that, without clear stimulation from the research project, women will rarely put themselves forward as farmers of new crops (rather than unpaid labourers on the family plot). They probably would if openly invited and stimulated to. In this way the new economic opportunity will benefit them as well as their husbands.

Such elements should be carefully looked into and researched, for each region, early on in the development of the project, when developing specific technologies and considering sustainable practices within various policy contexts. Evaluating the risk potentials of biofuel production on economic and social well-being in the regions concerned, and understanding the gender implications of such production in their specific socioeconomic and policy contexts, will be key to the success of the project. Local gender expertise might come in handy here, but might already be provided by a multidisciplinary team that will have the competence and skills of rooting new production techniques in a sustainable policy context. This approach would also vouch for consistency of biofuel production policies and other important policy objectives, such as sustainable rural development, gender equality and adaptation to climate change, strengthening the potential synergies and reducing the risk of trade-offs between them.

Obviously, a participative approach involving stakeholders (including policy-makers) will be essential to feed the project with valuable inputs. Equal representation and participation of men and women should be sought in each activity, and ensuring that both male and female voices are equally valued should be striven for. Publishing the results of this project, underlining its gender-sensitive approach, would enrich existing literature, and generally contribute to a broader awareness and understanding of how a gender-sensitive approach can contribute to long-term sustainable policy objectives.

USEFUL READING

Balakrishnan, R. (2000), *Gender defined strategies for biodiversity management for household food security*, in Kanvinde, H. and Gopalkrishen, G. (eds.), *Gender dimension in biodiversity management and foods security: policy and programme strategies for Asia*, FAO, www.fao.org/DOCREP/005/AC795E/AC795E07.htm (28.04.09).

Beardsworth, A., Bryman, A., Keil, T., Goode, J., Haslam, C., Lancashire, E. (2002), *Women, men and food: the significance of gender for nutritional attitudes and choices* in *British Food Journal*, 104(7):470-91.

Bock, B.B. and Shortall, S. (eds.) (2006), *Rural Gender Relations Issues and Case Studies*, CABI Publishing, Wallingford, UK.

de Bruijn, M., van Halsema, I., van den Homberg, H. (1997), *Gender and land use: diversity in environmental practices*, Thela Publishers, Amsterdam.

International Development Research Center (IDRC) (1998), *Guidelines for Integrating Gender Analysis into Biodiversity Research*, <https://idl-bnc.idrc.ca/dspace/handle/123456789/27568> (28.04.09).

International Fund for Agricultural Development (2009), *Gender in Agriculture Sourcebook*, The World Bank, <http://www.ifad.org/gender/pub/sourcebook/gal.pdf> (24.03.2009).

Howard, P. (2003), *The Major Importance of 'Minor' Resources: Women and Plant Biodiversity*, Gatekeepers series no. 112, International Institute for Environment and Development, <http://www.farmingsolutions.org/pdfdb/GK112.pdf> (28/04/09).

Jackson, C. (2005), *Strengthening food policy through gender and intrahousehold analysis: Impact assessment of IFPRI multicountry research*, International Food Policy Research Institute, Washington D.C.

Feldstein, H. and Jiggins, J. (eds.) (1994), *Tools for the Field: Methodologies Handbook for Gender Analysis in Agriculture*, Kumarian Press, West Hartford, Connecticut.

Kyprianou, M.H. (2001), *Bibliography on gender and fisheries (1990-2001)*, FAO Fisheries Circular, N° 969, Rome, FAO, <http://www.fao.org/DOCREP/005/Y1273E/Y1273E00.HTM> (29.04.2009).

Little J., (2002), *Rural geography: rural gender identity and the performance of masculinity and femininity in the countryside* in *Progress in Human Geography*, 26(5):665-70.

Nichols, S. and Komjathy, K. (2003), *Gender and access to land*, Sustainable Development Department, Food and Agriculture Organization of the United Nations, SD Dimensions.

Prugl, E. (2004), *Gender Orders in German Agriculture: From the Patriarchal Welfare State to Liberal Environmentalism* in *Sociologia Ruralis*, 44(4):349-72.

Quisumbing A. (2003), *Household Decisions, Gender, and Development: A Synthesis of Recent Research*, Washington DC: International Food Research Institute, 289 pp.

Ransom, P (2002) *Women, Pesticides and Sustainable Agriculture, Papers: sustainable Agriculture*, <http://www.earthsummit2002.org/wcaucus/Caucus%20Position%20Papers/agriculture/pestices1.html>

Rocheleau, D., Edmunds, D. (1997), *Women, men and trees: Gender, power and property in forest and agrarian landscapes*, Clark University, Worcester.

Samson, A.E.S., Symington, A., Principe, T. (2004), *Gender equality and new technologies: agricultural biotechnology*, AWID, [http://www.awid.org/eng/Issues-and-Analysis/Library/Gender-Equality-and-New-Technologies/\(language\)/eng-GB](http://www.awid.org/eng/Issues-and-Analysis/Library/Gender-Equality-and-New-Technologies/(language)/eng-GB) (29/04/2009).

Vandana, S., Moser, I. (1995), *Biopolitics: a feminist and ecological reader on biotechnology*, Zed Books, London.

Williams, M.J., Williams, S.B and Choo, P.S. (2005), *Changing traditions: first global look at the gender dimensions of fisheries*, Report of the 7th Asian Fisheries Forum, Penang, Malaysia, Global symposium on Gender and Fisheries 1-2 Dec 2004, ICLARM, the World Fish Center.



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