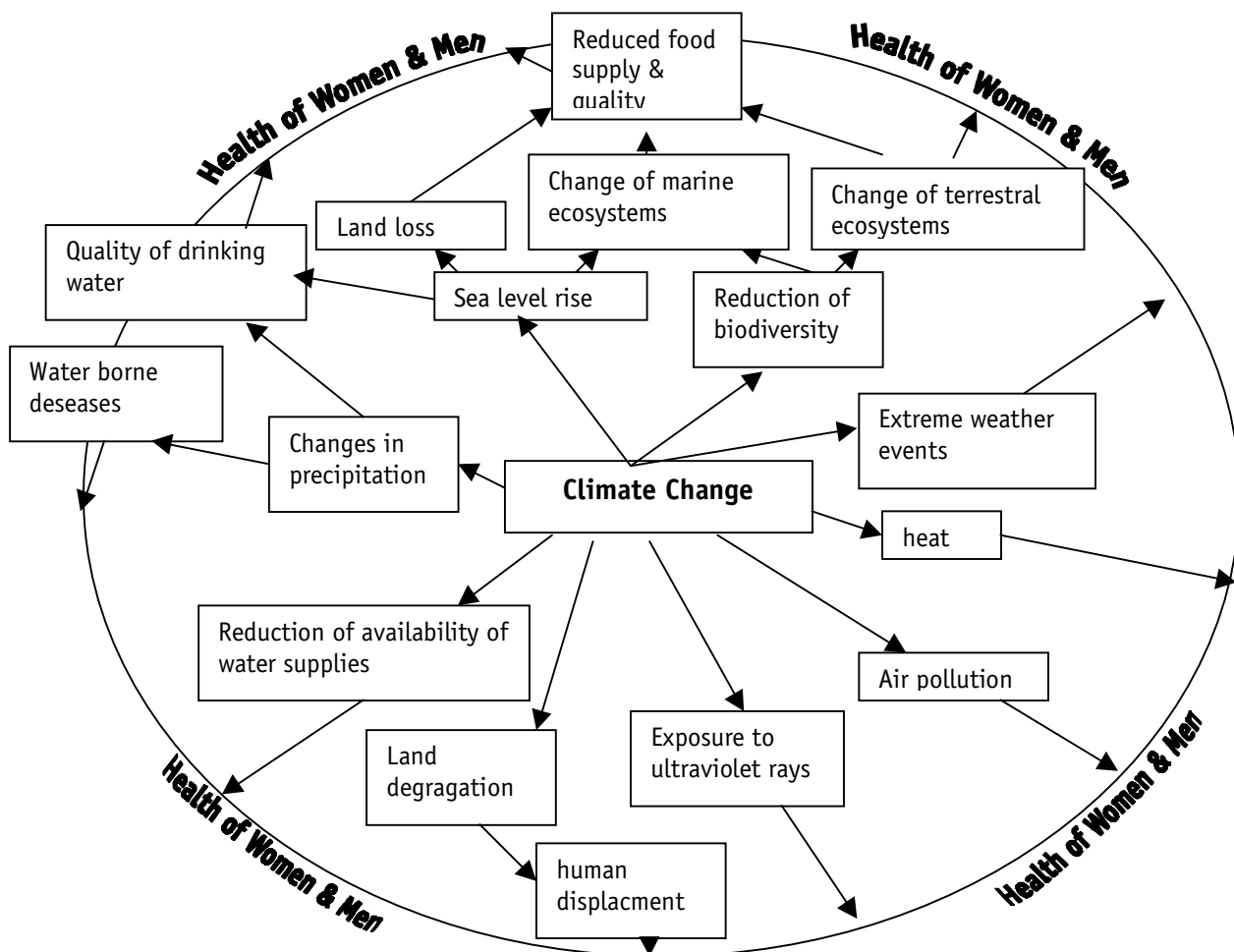


CLIMATE CHANGE, HEALTH AND GENDER FACT SHEET

Climate Change does affect in a direct and indirect way human health. As we are dealing with complex eco systems, of which men and women are just one part, the indirect effects are not easily seen and understood. Even more difficult is the disaggregation by gender aspects. Some women scientists, organisations, institutions and networks have started to dedicate their work to gender questions, strategies and action in Climate Change. Referring to the information on the following pages many gendered questions still have to be put and answered.

Direct and indirect Effects of Climate Change on Human Health



Climate Change affects directly human health, women differently than men. In some cases more women are affected than men, in some other cases women are more severely affected. The effects of climate change on women's and men's health are different in countries of the North, than in those of the South. Main aspects in general are: temperature-related morbidity and mortality, health effects of extreme weather events, air pollution-related health effects, health effects of water- and food-borne contamination, vector-borne and zoonotic diseases, and health effects of exposure to ultraviolet rays, as shown in the following table.

Health Concerns	Examples of Health Vulnerabilities	Gender Aspects
Temperature-related morbidity and mortality	<p>Cold and heat related illnesses. The most direct risk is heat stress. Increasing frequency and severity of heat waves may lead to more deaths and an increased occurrence of illness and exposure, especially among the very young and the elderly. Temperatures are likely to be higher in the major centres.</p> <p>Respiratory and cardiovascular illnesses</p> <p>Winter and summer temperature extremes are responsible for more deaths than are violent weather events such as tornadoes, blizzards, or floods (http://adaptation.nrcan.gc.ca/posters/articles/on_04_en.asp?Category=hs&Language=en&Region=on)</p>	<p>Women tend to perceive hot summers as more straining than men and as a consequence are more open to change their behaviour in order to contribute to a sounder environment (Potsdam Institut f. Klimafolgenforschung, 2000)</p> <p>In general women's mortality related to heat waves is higher than the mortality of men (Röhr et.al. 2004)</p>
Health effects of extreme weather events	<p>Damaged public health infrastructure</p> <p>Injuries and illnesses</p> <p>Social and mental health stress due to disasters</p> <p>Population displacement</p> <p>Access to health services during severe weather conditions is a concern to rural communities.</p>	<p>In case of occurrence of the mentioned events women are specially affected because they have to take over the biggest part of the additional work burden, specifically additional care work, and the burden of nurturing the family, as well as providing the daily essentials. (http://www.cru.uea.ac.uk/tiempo/floor0/archive/issue47/t47a7.htm)</p>
Air pollution-related health effects	<p>Heat can be expected to lead to poorer air quality and increased urban (ozone) smog as well as a changed exposure to outdoor and indoor air pollutants and allergens can be expected. One third of the carbon dioxide emissions generated by human activities comes from transportation. Furthermore, in urban areas, vehicles produce up to three quarters of the pollutants that combine to form ground-level ozone, the main ingredient of summer smog. This summer smog or photochemical smog occurs after longer periods of hot sunny days and is the product of a chemical reaction of the sun light on anthropogenic pollutants (oxides of nitrogen, hydrocarbons and particles). (http://adaptation.nrcan.gc.ca/posters/articles/on_04_en.asp?Category=hs&Language=en&Region=on).</p>	<p>In countries of the South "women are already at the receiving end of the indoor pollution. Environmental pollution and climate-related incidents will impair even more the health of men and women". (Fatma Denton, 2000, Climate "Change, Gender and Poverty").</p>

Health Concerns	Examples of Health Vulnerabilities	Gender Aspects
Air pollution-related health effects	Respiratory disorders and allergy problems may worsen as a result of increased heat and humidity, and declining air quality (higher levels of dust, pollen, and moulds) in some areas.	
	Asthma and other respiratory diseases	
	Heart attacks, strokes and other cardiovascular diseases	
	Cancer	
Health effects of water- and food-borne contamination	Diarrheas and intoxication caused by chemical & biological contaminants	
Vector-borne and zoonotic diseases: Poor sanitation in areas where most people live in poverty, combined with future increase in rainfall could cause more outbreaks of waterborne diseases such as diarrhoea.	Changed patterns of diseases caused by bacteria, viruses and other pathogens carried by mosquitos, ticks and other vectors. The present distribution exclusively in countries of the south (except Laishmaniasis in Southern Europe) would change and affect as well countries of the north.	
Health effects of exposure to ultraviolet rays	Skin damage and skin cancer	Data from the Swiss Statistic Institute reveal, that there has been a significant difference between men and women as far as the occurrence of new illnesses between 1983 and 1987 is concerned. Women are more affected than men in 8 from 11 locations within 8 European countries ¹ . (http://www.statistik.admin.ch/stat_ch/ber02/umwelt/dum27.htm).
	Cataracts	
	Disturbed immune function	

See: Canadas Health Concerns from Climate Change and Variability - website: <http://www.hc-sc.gc.ca/hecs-sesc/ccho/index.htm>, Climate ark web site: <http://www.climateark.org/vital/39.htm>, WHO, 2003: "Climate Change and Human Health").

Some more facts: An estimated 150,000 deaths were caused in the year 2000 due to climate change. A further 5.5 million healthy years of life were lost worldwide due to debilitating diseases caused by climate change", revealed a study carried out by WHO in December of 2003. „In Europe this past summer, for example, an estimated 20,000 people died due to extremely hot temperatures." (REUTER, 15.12.2003) During heat waves, excess mortality is greatest in the elderly and women. (see WHO 2003 p.88, and Röhr et.al. 2004 p.48).

¹ e.g.: in Great Britain (South west): from 1.000.000 53 men and 93 women got ill with melanomas between 1983 and 1987, in Norway 105 men and 135 women, in the Netherlands 39 men and 56 women.

B *INDIRECT EFFECTS OF CLIMATE CHANGE ON HUMAN HEALTH*

1 *Climate Change and Water*

There is increasing evidence that global climate change and climate variability will affect the quality and availability of water supplies. Current scientific research shows that climate change will have major effects on precipitation, evapotranspiration, and runoff — and ultimately on the water supply. Groundwater and rainwater often are the main sources of freshwater. Increase in sea level can cause saltwater intrusion to groundwater deteriorating the quality of water. In addition, uncertainty in changes to spatial and temporal pattern of rainfall due to global warming poses a threat to availability of water. The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) from 2001 estimates a rise of the sea level until the year 2100 between 9 and 88 cm. This and subsequent land loss especially in coastal areas will have severe effects on local population. “50% of the world population lives within 150 kms of the shore. 13 of the world’s largest cities are on the coast. The coast provides 25 % of all primary biological productivity and 80 – 90% of the global fishing catch. 75% of the pollution of coastal waters come from the land” (Sharon Murray, Macol Stewart: “Gender, Population and Environment”, Intercoast, Winter 2002).

2 *Climate Change and Global Warming*

Human activities have polluted the atmosphere to the extent of being able to affect the climate. The atmospheric concentration of carbon dioxide has increased by 31% since pre-industrial times, causing more heat to be trapped in the lower atmosphere. The average surface temperature is about 15 °C, about 33 °C higher than it would be in the absence of the greenhouse effect. The 1990s were the hottest decade of the entire century; perhaps even the millennium, and 1998, 2001, and 2002 were three of the hottest years ever recorded. The growing scientific consensus is that this warming is largely the result of emissions of carbon dioxide and other greenhouse gases from human activities². Projections of future warming suggest a global increase of 1.4°C to 5.8°C by 2100. This warming, along with the associated changes in precipitation, sea-level rise and land loss will have important consequences for the environment, economy and health. Events in the last years show the extent of destruction combined with effects of global warming. According to a WHO fact sheet in 1998 the hurricane Mitch caused over 7.500 deaths in Central America. In the same year China experienced a flooding that affected 180 million people, close to 4.000 died. In 1999 a cyclone in Orissa, India caused 10.000 deaths. In 2000 , floods in Mozambique killed 500 people. <http://www.who.int/mediacentre/factsheets/fs266/en/>.

Europe is already and will be affected by global warming. Countries in Eastern Europe are expected to suffer more than countries in Western Europe, and southern Europe more than the Northern neighbours, according to an EU-funded report. The Mediterranean region will experience “increased desertification, water shortage and forest fires” according to the Europe Acacia Project (<http://www.jei.uea.ac.uk/>).

3 *Climate Change, Change of Ecosystems and Reduction of Biodiversity*

The very real possibility exists that climate change over this century will jeopardize the integrity of many terrestrial and marine ecosystems, will pose a threat to the biodiversity and to the food supply of many people. In the Arctic, ocean temperature varies only a few degrees (-2 to +3 ° C), so any increase in temperature could have major impacts on the marine ecosystem and thus have a direct impact on food supply of the local population. Climatologists are discussing if the gulf stream as “warm water heater” for Europe will be weakened by climate change. A global warming would lead to higher evaporation, followed by heavier rainfalls among others in the North Atlantic and thus a

² Although there is a group of climatologists who do not share the opinion of the IPCC scientists and state that the antropogenic character of climate change is not proved and questionable.

lower salinity, this together with higher temperature lead to a lower density of the gulf water. Fishing catch in the North Atlantic would be severely affected, thus population in coastal countries, that depend on their fishing activities (in which way women differently from men is still to be analysed). "Overfishing is not the sole cause of dramatically declining fish stocks in the north Atlantic Ocean, or world-wide. Environmental changes such as climate warming may be just as important. ... Marine ecosystems, particularly in the northern Atlantic, are much more vulnerable to natural fluctuations than previously realized " Quirin Schiermeier, issue 51, NATURE, 4 March 2004.

Wildlife in general is sensitive to climate variations. The results of recent studies show that any change in climatic conditions would likely cause rapid advances or retreats of certain populations as their habitats shift or are disturbed. This would have a direct effect on the food security of populations depending heavily on such ecosystems.

According to a study, published in science journal NATURE, 8 of January, 2004 and carried out by 19 biologists, led by Chris Thomas, Centre for Biodiversity and Conservation, University of Leeds, Great Britain, climate change could become the greatest threat to biodiversity. The study predicts that the current rate of climate change will lead to the extinction or endangerment of 15–37 percent of the world's plant and animal species by 2050, the largest mass extinction since the disappearance of the dinosaurs. Global warming is causing such rapid habitat change that thousands of species will simply be unable to adapt; thousands more will be left stranded in small habitat pockets with nowhere else to go.

C POVERTY AS CROSS CUTTING ISSUE IN CLIMATE CHANGE

Climate change is superimposed on existing vulnerabilities and thus affect poor people more. It will further:

- ✓ Reduce access to drinking water,
- ✓ Negatively affect the health of poor people to a greater extent,
- ✓ Pose a real threat to food security in many countries in Africa, Asia and Latin America.

Decreasing crop yields will threaten famines (in areas where livelihood choices are limited). The loss of land mass in coastal areas might lead to migration with unknown social effects. Climate change is predicted to enhance the already existing gaps between the rich and the poor.

D GENDER AS CROSSCUTTING ISSUE IN CLIMATE CHANGE

"Climate change is not a neutral process; first of all, women are in general more vulnerable to the effects of climate change, not least because they represent the majority of the world's poor and because they are more than proportionally dependent on natural resources that are threatened. The technological changes and instruments that are being proposed to mitigate carbon emissions, which are implicitly presented as gender-neutral, are in fact quite gender biased and may negatively affect women or bypass them.

The negotiation process tends to be driven by a masculine view of the problem and its solutions. Participation of women in the whole process, at international, national and local levels is very low, both in the South and in the North; probably skills and resources need to be developed to overcome this.

Gender, like poverty, is a cross cutting issue in climate change and needs to be recognised as such. In fact, gender and poverty are interrelated and create mutually reinforcing barriers to social change. There is a need to be strident to overcome the uninformed view of many involved in climate change that climate change is neutral, and real life examples are needed to make the alternative case clear and convincing." (Gender and Climate Change web site: <http://www.gencc.interconnection.org/about.htm>).

Some Facts about CO₂-Emissions and their Effects on Climate Change in General and Impacts of Individual Human Behaviour

CO₂ emissions of selected countries in 2002 (energy related emissions, those which occur as a direct effect of energy use, not included are emissions from e.g. forest fires):

Country	total in Mio. tonnes	per capita in t
USA	5591,9	19,4
Canada	531,7	16,7
Finland	63,9	12,3
Czech Republic	118,5	11,5
Belgium	116,3	11,3
Netherlands	177,9	11,1
Russia	1498,3	10,4
Germany	833,6	10,2
Greece	100,3	9,5

Country	total in Mio. tonnes	per capita in t
Japan	1144,5	9,0
Great Britain	519,6	8,7
Italy	436,5	7,6
Poland	287,7	7,5
Spain	295,9	7,4
France	383,6	6,4
Portugal	60,9	6,1
China	4082,4	3,2

<http://www.learn-line.nrw.de/angebote/agenda21/archiv/03/daten/CO2abskopf.htm>

- ✓ CO₂ emissions per capita are the highest in countries of the North. Gender-disaggregated data would give more insights as far as gender specific emissions are concerned and thus more inputs for environmental policies to address this problem. A 50% to 60% reduction in present global emissions of carbon dioxide would be required to stabilize atmospheric CO₂ concentrations at current levels.
- ✓ One-third of the carbon dioxide emissions generated by human activities comes from transportation. Furthermore, in urban areas, vehicles produce up to three-quarters of the pollutants that combine to form ground level ozone, the main ingredient of ozone smog.
- ✓ Every litre of gasoline used in cars produces almost 2.5 kilograms of CO₂, as well as other pollutants.
- ✓ Fifteen seconds of idling a car engine uses more fuel than restarting it.
- ✓ 'Jackrabbit' starts (studies reveal, that much more men than women do it) consume about 50 % more fuel than if acceleration is gradually.
- ✓ One short haul flight , e.g. from London to Lisbon , produces 0.6 t of CO₂ per capita.
- ✓ In washing machines, 92% of the energy is used by the hot water heater to heat water, and only 8% of the energy is actually used to run the machine. Using cold water to wash and rinse clothes save up to 225 kg of CO₂ a year.
- ✓ An average UK home (3 bedroom detached) produces around 6 t of CO₂ a year, from heating, lighting, running the kitchen appliances, etc.
- ✓ Purchasing locally produced food and other products reduces transportation emissions. According to the environmental awareness and -behaviour studies biannually carried out in Germany, 72% of the women and just 57% of the men buy locally produced vegetables and fruit.

Useful websites on Climate Change in general³:

A beginners guide to the United Nations Framework Convention on Climate Change (UNFCCC) is on <http://www.unfccc.int/resource/beginner.html>

The Climate Change page of the EU is on:

http://europa.eu.int/comm/environment/climat/home_en.htm

You find the homepage of the IPCC. The Intergovernmental Panel on Climate Change (IPCC) has been established by WMO and UNEP to assess scientific, technical and socio-economic information relevant for the understanding of climate change, its potential impacts and options for adaptation and mitigation. It is open to all Members of the UN and of WMO on <http://www.ipcc.ch>

The WHO has several documents on <http://www.who.int>, and a useful fact sheet on climate change and health on <http://www.who.int/mediacentre/factsheets/fs266/en/>

The international Climate Action Network (network of NGOs working on climate change issues and negotiations, working mainly in regional coordination offices, see CAN Europe) is on <http://www.climatenetwork.org>

Health links of the Climate Action Network Europe you will find at <http://www.climnet.org/links.htm#health>

See as well the Climate ark web site at <http://www.climateark.org/>. It offers a lot of other interesting links concerning Climate Change.

You can find several recommendations on useful literature/documents and downloads on the genanet web site at: <http://www.genanet.de>.

Many useful hints and information can be found in German on <http://www.learn-line.nrw.de/angebote/agenda21/lexikon/klimawandel.htm#IPCC>

REFERENCES

Murray, Sharon & Stewart, Macol (2002): "Gender, Population and Environment", Intercoast, International Newsletter for Coastal Management, Nr. 41, Winter 2002, S. 5

Potsdam Institut für Klimafolgenforschung (2000): Weather Impacts on Natural, Social and Economic Systems PIK-Report Nr. 59

Preisendörfer, Peter (1999): Umwelteinstellungen und Umweltverhalten in Deutschland. Empirische Befunde und Analysen auf der Grundlage der Bevölkerungsumfragen „Umweltbewusstsein und Umweltverhalten 1991-1998“, Studie im Auftrag des UBA. Opladen

REUTER (15.12.2003), "WHO says climate change killing 150,000 a year"

Röhr, Ulrike; Schultz, Irmgard; Seltmann, Gudrun; Stieß, Emmanuel/ISOE (2004): Klimapolitik und Gender – Eine Sondierung möglicher Gender Impacts des europäischen Emissionshandelssystems, ISOE-DiskussionsPapiere 21

Schiermeier, Quirin (2004), Greenland's Climate: A rising tide. NATURE, Nr. 51, März 2004, S. 114 – 115

WHO/UNEP/WMO (2003): Climate Change and Human Health, Risks and Responses

AUTHOR

Heike Spohr, genanet-focal point gender justice and sustainability/LIFE e.V.

spohr@genanet.de www.genanet.de

Frankfurt/M., 19 of August 2004



³ Last time checked: august 2004. Please take into account that unfortunately websites change their address or disappear completely.