

CLIMATE CHANGE–SOME BASIC FACTS

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What is climate change (CC)?

Life on Earth is made possible by energy from the sun. This energy arrives mainly in the form of visible light that is absorbed by the soil and water and, then, reflected back in the form of a slow-moving type of energy called infrared radiation. Infrared radiation is carried slowly aloft by air currents, and its eventual escape into space is delayed by **greenhouse gases** (GHGs), e.g. water vapor, carbon dioxide, ozone, and methane. GHGs act like the glass roof of a greenhouse. They trap the sun's heat and maintain the Earth's average temperature at about 60 degrees Fahrenheit, allowing life on the planet as we know it. That's a good thing!

Over the last 250 years, however, the concentrations of GHGs, especially CO₂ and methane, have increased dramatically due to human activities, e.g. the burning of coal, oil and natural gas for energy, as well as farming activities and changes in land use. As a result, concentrations of CO₂ have increased by nearly 30% and of methane by over 100%. The result is known as the "enhanced greenhouse effect" or global warming, an excessive warming of the earth's surface and lower atmosphere which interferes in a critical way with Earth's life support systems, thus leading to climate change. That's too much of a good thing!!

How do we know CC is really happening? What's the evidence?

Of course climate change is not a new phenomenon. Natural variations in the Earth's climate have occurred throughout geological time. However, the rate and intensity of CC resulting from human activities far exceeds that of the variations induced by Nature. According to the Intergovernmental Panel on CC (IPCC)*, the increase in the level of GHGs is causing *fundamental* physical changes in the atmosphere, oceans and the Earth's surface. * IPCC is a group of more than 2000 of the world's leading scientists, formed in 1988 by the World Meteorological Organization and UNEP to review the research on global warming and its potential impact.

For example, long-term changes in the climate have been observed in **extreme weather conditions**, such as droughts, heavy precipitation, heat waves, hurricanes and intense tropical cyclones. Snow cover has declined by some 10 per cent in the mid- and high latitudes of the Northern Hemisphere since the late 1960s, thus **declining the length of winter**. The expansion of the oceans due to increased global temperatures and widespread decreases in mountain glaciers and ice caps have contributed to **sea level rise**. Scientists have observed climate-induced **shifts in the natural world**, e.g. in at least 420 physical processes and biological species or communities.

Does CC affect humans?

Climate change is increasingly recognized as a **threat to human security**. It threatens, for example, the achievement of the Millennium Development Goals (MDGs) and the raising of the Human Development Index and is thus an obstacle to **human and economic development**.

It also poses a major threat to **national and global security** leading to conflict within and between nations, e.g. over control of scarce resources, the increase of migrants and refugees, and the destruction of sources of livelihood. In fact economic distress caused by the consequences of CC, such as shortfalls in seasonal rains, increases the likelihood of civil war by 50%.

Everyone will suffer from the consequences of CC, but the world's poor, 70% of whom are women, are the most vulnerable, especially girls and elderly women. Their survival, livelihood and basic dignity will be severely and disproportionately threatened.

How can we deal with the effects of CC?

After 150 years of industrialization, global warming has momentum, and it will continue to affect the earth's natural systems for hundreds of years. Nonetheless, measures can be taken to **mitigate** or reduce the rate of CC through curbing the emission of greenhouse gases by human activities and achieving greenhouse gas concentration at a safe level. Efforts can also be made to help people **adapt** to the consequences of CC, i.e. to be less vulnerable and more resilient. **Mitigation** and **adaptation** look for new and improved technologies and so are mainly technical in nature.

The social dimension, including the role women can play in adapting to CC, is often overlooked. The traditional skills and knowledge women can contribute are essential to successful adaptation. The need to initiate value and life style changes, which could also draw upon the leadership of women, must also be part of any adaptation strategy.

Information sources

www.UNFCCC.int *Essential background: Feeling the heat*

www.wedo.org/library *Gender, climate change and human security*, a report prepared by WEDO and NGO's in Ghana, Senegal, and Bangladesh

www.bridge.ids.ac.uk *Gender and climate change: Mapping the linkages. A scoping study on knowledge and gaps.* Prepared for the UK Department for International Development by A. Brody, J. Demetriades and E. Esplen, BRIDGE, IDS.