

QUAKER ECO-BULLETIN

Information and Action Addressing Public Policy for an Ecologically Sustainable World

Volume 1, Number 2

July/August 2001

Global Change: It's not Just the Climate

by Kim Carlyle & Ed Dreby

The Science. Our planet's early atmosphere was largely carbon dioxide (CO₂). Over eons, much of the CO₂ was absorbed into the oceans and, as life developed, was photosynthesized into vegetation. Some was buried and transformed into coal, oil, and natural gas. As plants released oxygen (O₂), animal life evolved and a balanced carbon/oxygen cycle developed, stabilizing atmospheric carbon dioxide at a low level, around 300 parts per million by volume (ppmv).

A very important quality of atmospheric CO₂ is that it traps heat. While sunlight passes through its molecules unimpeded, some of the heat reflected back from the earth's surface is absorbed by the carbon dioxide and reflected back to the earth. This "greenhouse effect" provides for temperatures in which life can thrive; without it our planet's average temperature would be about 0°F, and almost all water would be frozen. The earth's temperature over the last several hundred thousand years has deviated within a range of less than 10 degrees. These minor fluctuations, the effects of periodic changes in solar activity and the earth's tilt and orbit, have been enough to cause warm periods and ice ages. For the past 10,000 years, the earth's average temperature has been relatively stable at about 60°F, but during the past 150 years, there has been an increase of about 1.5°F. This cannot be explained by natural mechanisms, and can be explained as a result of human activities.

Since the 1700's, two human developments have been responsible for increasing atmospheric CO₂: deforestation and fossil fuel combustion. First, as forests are cut and burned, large quantities of carbon stored in the trunks, limbs, and roots of trees are released, and their potential for carbon storage is greatly reduced. Second, as coal, oil, and natural gas are extracted and burned, carbon that has been stored within the earth for millions of years is released into the air. These processes have increased atmospheric CO₂ by about 30% — from 280 to 370 ppmv — a level greater than at any other time in the last 400,000 years.

Climate warming and increased CO₂ are not new discoveries. That burning fossil fuels would increase the earth's temperature was predicted more than a hundred years ago and the increase of carbon in the atmosphere was detected more than forty years ago. Since about 1960, increasing CO₂ concentrations and temperatures have been carefully measured, and climate scientists have developed sophisticated modeling procedures to try to predict the future effect of increasing in CO₂ concentrations.

Since 1988, the United Nation's Intergovernmental Panel on Climate Change (IPCC), a body of about 2500 of the world's leading climate scientists, has reviewed research and provided periodic reports. The IPCC's most recent report projects warming of 2.5 to 10.4°F between 1990 and 2100. The range in this projection is due mainly to three uncertainties: 1) The ability of a warming ocean to remove carbon from the atmosphere, 2) the effects of an increase in clouds — cooling as light is reflected back to space, or further warming as more heat is absorbed, and 3) the human response to climate change.

While the rate of warming is unknown, warming is certain. Recently, the National Academy of Sciences reaffirmed the mainstream scientific view that the earth's atmosphere was getting warmer and that human activity was largely responsible. The report of the NAS is very significant since the panel of atmospheric scientists who prepared it includes several former climate change skeptics.

More than Climate. Global warming is just the first in a chain of potentially disastrous disturbances that are apt to occur because of the increase of greenhouse gases (GHG). Among the potential consequences:

- Water expands as it heats, and thus sea levels are rising.
- Glaciers are melting, which will cause sea levels to rise even more.
- Melting arctic permafrost releases trapped methane, a GHG, creating positive feedback — more GHG causes more warming cause more GHG.
- Warmer air holds more water vapor, and water vapor also traps heat — more positive feedback.
- Warming and expanding oceans could cause a shift in currents, with totally unpredictable effects on climate.
- Increased water vapor leads to more extreme weather events. There have already been more storms, floods and droughts.
- Higher nighttime and winter temperatures are allowing insects carrying tropical diseases to move into areas where they were previously unknown.
- Changes in temperature and rainfall may occur too rapidly for animals, and especially plants, to adapt or migrate. Extinctions have been attributed at least in part to climate change. Widespread forest decline and accelerating desertification may occur.

Why a Friends Concern? The developments described above will cause severe stress on people and governments, first in poorer nations where the majority of the world's people live.

Rising oceans and storm surges will submerge deltas, coastlines, and many island nations, creating refugees by the millions, and destroying some of the earth's most fertile farm land. Food and water supplies will become increasingly unreliable and limited. These are the seeds of war. Friends are advised "to live in the virtue of that life and power that takes away the occasion of all wars." Activities that cause climate change must therefore be understood as directly relevant to the peace testimony.

The profligate use of fossil fuel energy by the rich in the highly industrialized countries, especially in the US, is the main source of the climate change problem. Its effects will be most devastating for the poor, particularly those living in the least industrialized countries. Therefore, climate change is directly relevant to our testimonies on equality, justice, and simplicity. The campaign by coal and oil interests to distort and discredit the findings of the IPCC is directly relevant to Friends' testimony on integrity.

U.S. Policy. President Bush has abandoned a pledge to reduce carbon dioxide emissions from power plants, withdrawn the US from the Kyoto Protocol, and unveiled an energy policy which would increase US greenhouse gas emissions by as much as 35%.

What Can Friends Do? Our testimonies require Friends to address the causes and consequences of global warming. At home, at work, and in our Meetings, we must become mindful of the consequences of our use of energy as John Woolman was mindful of the consequences of his personal decisions.

As citizens, we must persuade government at all levels:

- to enact policies to reduce GHG emissions,
- to greatly reduce the use of fossil fuels while providing assistance those whose livelihoods are affected,
- to promote renewable sources of energy, improved energy efficiency and increased conservation.
- to resume international negotiations in good faith toward a treaty that limits the emissions of greenhouse gases.

As Friends, we can encourage our meetings to ask and help enable Friends Committee on National Legislation to engage in this effort. And we can participate in interfaith campaigns, such as the National Council of Churches, and other interfaith activities to lift up climate change as a fundamental moral issue for all human beings and all faith traditions.

For More Information:

IPCC: <http://www.ipcc.ch/>

NAS Report: <http://www4.nationalacademies.org/onpi/webextra.nsf/web/climate>

Union of Concerned Scientists: <http://www.ucsusa.org/environment/0warming.html>

Sierra Club: <http://www.sierraclub.org/globalwarming>

United Nations Environment Programme: <http://www.grida.no/climate>

Find your state's interfaith campaign: <http://www.webofcreation.org/climate.html>

Quaker Eco-Bulletin (QEB) is published bi-monthly as an insert in *BeFriending Creation* by **Quaker Eco-Witness**, a project of **Friends Committee on Unity with Nature (FCUN)**.

Quaker Eco-Witness (QEW) will promote US government and corporate policies to help restore and protect Earth's biological integrity. It will work within and through the Religious Society of Friends for policies that enable human communities to relate in mutually enhancing ways to the ecosystems of which they are a part. This witness will seek to be guided by the Spirit and grounded in reverence for Earth's communities of life as God's creation.

QEB's purpose is to inform the **QEW** network to advance Friends' witness on government and corporate policy as it relates to the ecosystems that sustains us. Each issue is an article about timely legislative or corporate policy issues affecting our society's relationship to the earth.

Friends are invited to contact us about writing an article for *QEB*. Submissions are subject to editing and should:

- Provide background information that reflects the complexity of the issue and is respectful toward other points of view.
- Explain why the issue is a Friends' concern.
- Describe the positions of other faith-based and secular environmental groups on the issue.
- Relate the issue to legislation or corporate policy.
- Provide sources for additional information.

QEB Editorial Committee:

Judy Lumb, Sandra Lewis

To receive *QEB*:

via email, write QEW@FCUN.org.

via the Internet, visit www.FCUN.org.

via mail, write to QEW c/o FCUN

Contributions are welcome.

Quaker Eco-Witness

c/o FCUN,

173-B N Prospect Street

Burlington VT 05401