



## STATEMENT ON CLIMATE CHANGE

*Approved by Canfei Nesharim Board of Directors, May 2009*

### **Summary: What is Happening**

The Earth's climate has warmed significantly over the last 50 years, and unless human activities change dramatically, will continue to warm throughout his century.

- Fossil fuels are burned as a result of things we do every day to eat, travel, and live in our homes.
- Greenhouse gases, such as carbon dioxide, nitrous oxide and methane, are released by the burning of fossil fuels (such as oil, coal, and natural gas).
- These "greenhouse gases" remain in the atmosphere for a long time and are causing our atmosphere to become warmer.
- In addition, destruction of forests and other changes in the way we use our land have increased carbon dioxide in the atmosphere.
- The rise in atmospheric greenhouse gases parallels the rapid rise in the Earth's surface temperature during the same period of time.

**It has been predicted by sophisticated computer models, demonstrated by carefully designed experiments, and confirmed by countless direct observations that increased concentrations of greenhouse gases in the atmosphere have profound effects on the Earth's temperature, sea level, and the abundance and distribution of precipitation.**

### **Why Climate Change is Important**

Global warming affects the health and welfare of humans and other living organisms on this planet. To date, the earth's surface has warmed an average of 0.7°C and according to IPCC scientists, if no corrective action takes place, carbon dioxide concentrations will double by the latter half of this century, causing a rise of from 2.0 to 5.5°C (3.6 to 10°F) in the earth's average surface temperature.<sup>1</sup>

While these temperature changes may seem small, it is important to understand that even these slight changes in the average surface temperature can have profound effects on the global systems that regulate our planet. One way to help put these

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<sup>1</sup>An Assessment of the Intergovernmental Panel on Climate Change, approved in detail at IPCC Plenary XXVII (Valencia, Spain, 12-17 November 2007). These data are detailed in the Synthesis Report of over 2,500 scientists who gathered at the Intergovernmental Panel on Climate Change (IPCC) Plenary XXVII (Valencia, Spain, 12-17 November 2007)



temperature changes into perspective, one must understand what climate change means in terms of human health and welfare.<sup>2</sup>

While climate change might allow those in northern latitudes to enjoy warmer winters, warmer winters generally reduce the snow pack that provides the drinking water resources for a region. Snow and ice from mountain glaciers and snow pack are primary sources of water for both surface water (lakes and rivers) and ground water (the water source for wells). For example, scientists have shown that glaciers are melting at an alarming rate and may disappear within 30-50 years<sup>3</sup>, with serious impacts on the water availability in those regions. Additionally, in many subtropical and tropical regions, increased heat will cause drying, expanding arid conditions.

**Our water resources are used for agricultural, commercial, and domestic purposes. As population numbers increase and the demands for water rise, decreasing levels of available, usable water could create severe socio-political crises and economic disruptions.**

Beyond the need for water, a warmer planet can have significant impacts on agriculture. Warmer winters, earlier snowmelts and later frosts have been shown to cause greater insect infestations for agricultural crops. That is because many insects die during extended winter periods of subzero temperatures.<sup>4</sup> Additionally, while some species of crops grow better with increases in atmospheric carbon dioxide, the warmer, drier weather in some regions that are associated with increased carbon dioxide reduces overall productivity for many other key agricultural species.<sup>5</sup>

There is also a risk of warmer weather to human health. Aside from the very real risks posed by drought and heat stress (particularly to vulnerable populations such as babies and the elderly), there is also a potential for increased disease. Because changes in rainfall patterns and temperature regimens, may extend the range of mosquitoes that

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<sup>2</sup> For additional information refer to the US Climate Change Science Program Report [Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems](http://www.climatescience.gov/Library/sap/sap4-6/final-report/) (<http://www.climatescience.gov/Library/sap/sap4-6/final-report/>).

<sup>3</sup> WGMS *Glacier Mass Balance Bulletin 2002-2003, No. 8*. World Glacier Monitoring Service, Zurich, 2005. <http://www.wgms.ch/mbb.html>

<sup>4</sup> Cynthia Rosenzweig, Ana Iglesias, X.B. Yang, Paul R. Epstein, Eric Chivian. 2000. [Climate Change and US Agriculture: The Impacts of Warming and Extreme Weather Events on Productivity, Plant Diseases, and Pests](http://www.med.harvard.edu/chge). Center for Health and the Global Environment, Harvard University. <http://www.med.harvard.edu/chge>

<sup>5</sup> *ibid.*



can spread malaria, yellow and dengue fever, populations that had not experienced waterborne diseases may now be susceptible.<sup>6</sup>

While many of us have heard predictions of sea level rise as a consequence of climate change, we do not realize that ocean islands may be completely submerged by this increase. This reality may create millions of environmental refugees as people flood into areas in search on potable water and arable land. A recent report from the United Nations projects that the sea level could rise as much as two meters by the end of the century. Sea level rise could have devastating impacts on the hundreds of millions of people currently living in densely populated coastal regions or mega-deltas of Asia and India. The United Nations estimates that a sea level rise of only one meter will cause some areas to be uninhabitable, such as the oceanic island nation, Maldives, where about 80 percent of the 1,192 coral islets are one meter or less above sea level.<sup>7</sup>

**The displacement of entire societies, most of whom have had no share in the causes of climate change, pose startling issues for human justice.**

### **Scientific Evidence**

Largely as a result of increased human activities, the atmospheric concentration of carbon dioxide has reached 385 parts per million, a 40% increase over levels in the pre-industrialized world<sup>8</sup> and the highest values known for the last 1 million years.<sup>9</sup> Atmospheric concentrations of carbon dioxide continue to increase at a rapid rate<sup>10</sup> with 75% of the increase in carbon dioxide emission occurring in the last half century.<sup>11</sup>

Because of the long lead-time between emissions and consequent atmospheric temperature change, the atmosphere is expected to warm another 0.6°C (1.1°F) due to emissions that have already taken place even if no additional greenhouse gases are added to the atmosphere.<sup>12</sup>

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<sup>6</sup> W J Martens, L W Niessen, J Rotmans, T H Jetten, and A J McMichael. Potential impact of global climate change on malaria risk. *Environ Health Perspect.* 1995 10:458-464.

<sup>7</sup> Shriner DS, Street RB. North America. In: Watson RT, Zinyowera MC, Moss RH, editors. *The Regional Impacts of Climate Change. An Assessment of Vulnerability.* [A special report of the Intergovernmental Panel on Climate Change Working Group 2.] Cambridge (MA): Cambridge University Press; 1998. p. 253-330.

<sup>8</sup>National Oceanic and Atmospheric Administration, National Climatic Data Center, <http://www.ncdc.noaa.gov/oa/climate/globalwarming.html>

<sup>9</sup>D. King. *Climate change: the science and the policy.* *Journal of Applied Ecology* 42:779-783, 2005.

<sup>10</sup> Board on Atmospheric Sciences and Climate, Committee on Global Change, National Research Council, *Chapter 3 Stratospheric Ozone Depletion: Global Processes, Ozone Depletion, Greenhouse Gases, and Climate Change*, National Academic Press, Washington, DC, 1989, pp. 10-18.

<sup>11</sup> Hansen, J., et al. Dangerous human-made interference with climate: A GISS model study. *Atmos. Chem. Phys.*, 7:2287-2312, 2007

<sup>12</sup> IPCC op. cit.



There is a strong scientific consensus that rising carbon dioxide and other greenhouse gases has caused temperatures to rise above pre-industrial times by about 0.7°C (1.3°F) and has brought the hottest weather on record for several years within the last decade.<sup>13</sup> Damage from climate change is predicted to be most severe for changes above 2°C (3.6°F) and a carbon dioxide concentration of 450 parts per million.<sup>14</sup> Combining these data, it is clear that the system has already experienced or is committed to some 65% of the warming we can safely afford.

**Without any corrective action, carbon dioxide concentrations will double by the latter half of this century, resulting in a rise of from 2.0 to 5.5°C (3.6 to 10°F) in the earth's average surface temperature.<sup>15</sup> Therefore, it is highly likely that significant changes in agriculture, health, and socioeconomic parameters will occur.**

Some of the carbon dioxide emitted to the atmosphere dissolves into the ocean, thereby increasing its acidity. Ocean acidification and related worldwide changes in ocean chemistry have been shown to be detrimental to marine organisms such as reef-building corals and a host of economically important fish species.<sup>16</sup>

Current research cannot prove with 100% certainty that existing climate change does not have a natural component along with the human industrial influence. However, predictions climate scientists made 20 years ago as to the Earth's response to increasing atmospheric carbon dioxide levels are entirely consistent with the actual changes that have occurred.<sup>17</sup> This powerful finding is matched by retrospective computer modeling that has demonstrated that the single most accurate predictor of current changes in land and ocean temperatures is the human-driven emissions of carbon dioxide.<sup>18</sup>

While there are uncertainties in the science of climate change, they are not about whether the Earth has already warmed or whether human emissions of greenhouse gases are responsible for a large part of this warming. Rather, they concern the magnitude of future changes if civilization does not take corrective action.

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<sup>13</sup> *ibid.*

<sup>14</sup> *ibid.*

<sup>15</sup> *ibid.*

<sup>16</sup> 2004 UNESCO report, *Priorities for Research on the Ocean in a High-CO<sub>2</sub> World*

<sup>17</sup> *ibid.*

<sup>18</sup> F. Joos and R. Spahni. Rates of change in natural and anthropogenic radiative forcing over the past 22,000 years. *Proc. Nat. Acad. Sci USA* 105:1425-1430, 2008.



## **What Can Be Done to Help**

Given that human activities are a critical cause of global climate change, Canfei Nesharim recognizes that people can also become motivated to act to reduce or even reverse the rate at which these changes are occurring. Specifically, as an organization we appeal to the full range of societal stakeholders to promote policies and practices that reduce carbon footprints at the individual, corporate, national, and international levels.

This appeal is consistent with the Biblical (d'araiso) injunction, *Bal Tashchit*—from the book of Deuteronomy (Chap. 20: 19-20). This injunction not to waste or destroy trees in times of war has been interpreted by the rabbinic authorities of the Talmud and later generations to encompass a larger proscription against wasteful destruction of resources.

“When you lay siege and battle against a city for a long time in order to capture it, you must not destroy its trees, wielding an ax against them. You may eat of them, but you must not cut them down – for is a tree of the field a man, that it should be besieged by you? Only the trees which you know are not trees for food, you shall destroy and cut them down, and you shall build siegeworks against the city that makes war with you until it is subdued.”

Over the centuries, the instruction not to waste became extended well beyond fruit trees to become a general philosophy of prudence and protection, consistent with our stewardship over the earth. We are obliged not to use more than what we need, not to destroy things needlessly, not to use something of greater value when something of lesser value will suffice and not to use something in a way it was not meant to be used (which increases the likelihood the item will be broken or destroyed). This injunction points us in the direction of proper, sustainable use of natural resources, and certainly is consistent with preventing significant damage to natural systems upon which life depends, such as our climate.

**Our actions are causing destructive harm to the resources on our planet, upon which all life depends. Our Jewish tradition obligates us to take action.**



Acting locally to limit our energy use and reduce our environmental impact can change a mindset of disbelief and inaction that, in turn, will move corporations and governments to greater action. Examples of these small-scale actions include but are not limited to:

- If you can walk to shul on Shabbat, walk there for daily minyanim whenever it is convenient.
- Get an energy audit for your congregation and, within the ability of your community to do so, implement an energy savings plan for the building.
- Consider the energy used in simple activities such as water usage in your home and synagogue; lighting, heating and cooling buildings; and growing, transporting, and buying food.
- Buy local to reduce fuel requirements in merchandise transportation both for your home and shul.
- Even more effective than buying local is shifting to less than one day per week's worth of calories from red meat and dairy products to chicken, fish, eggs, or a vegetable-based diet achieves more greenhouse reduction than buying all locally sourced food.<sup>19</sup>
- "Green" your home and shul as best as you can in terms of its physical structure, e.g., where appropriate, install a green roof or solar panels and compact fluorescent bulbs (taking care to buy those with lower mercury).
- Use carpools, bicycle, or take advantage of public transportation to get to work. When buying a new car, consider the models with the highest gas efficiency.
- Minimize home and synagogue energy usages, e.g., if you are not in a room, then turn the light off; use setback thermostats to control air temperatures; and insulate your house.
- Work with organizations that encourage greater tree plantings or roof gardens in urban areas, especially pollution-tolerant species. This will help reduce the urban heat island effect, which is associated with increased heat-related illnesses and mortalities.<sup>20</sup>

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<sup>19</sup> CLWeber and HS Matthews, Food-Miles and the Relative Climate Impacts of Food Choices in the United States, *Environ. Sci. Technol.*, 42:3508-3513, 2008, <http://pubs.acs.org/doi/full/10.1021/es702969f>

<sup>20</sup> Gamble, J.L., K.L. Ebi, F.G. Sussman, T.J. Wilbanks. 2008. [Analyses of the Effects of Global Change on Human Health and Welfare and Human Systems](#). A Report by the U.S. Climate Change Science Program and the Subcommittee on Global Change Research. U.S. Environmental Protection Agency, Washington, DC, USA.