Scientists at Penn and around the world have demonstrated that global climate trends, if allowed to continue, will lead to an ecological catastrophe.

-------- Penn President Amy Gutmann, 2007

Penn’s commitment to research and scholarship on global warming, as well as our efforts to minimize Penn’s footprint of climate-warming emissions, has never been more important. During the spring and summer of 2016, the Academics Subcommittee of the Penn Environmental Sustainability Advisory Committee (ESAC) drafted a consensus statement from the members in support of Penn President Amy Gutmann’s position that “global climate trends, if allowed to continue, will lead to an ecological catastrophe.”

Comments are welcome at sustainability@upenn.edu.

Purpose of this document:
This Statement on Climate Change is the consensus view of Penn professors and scholars working with the university’s Environmental Sustainability Advisory Committee. It represents current thinking on global warming and the approaches that can be taken to mitigate and adapt to likely future climate conditions. The purpose of the document is to share this view with Penn’s community and beyond; to acknowledge the critical and urgent nature of the issues; and to support a broad-based coalition of stakeholders to take action.

Climate change is real
The evidence from direct measurements of surface air temperatures, from subsurface ocean temperatures, and from such phenomena average global sea level rise, retreating glaciers, and changes in physical and biological systems indicates that global warming is occurring now.

Despite significant regional and seasonal variations, the temperature of the earth, averaged globally and annually, has warmed approximately 1 to 1 ½ degrees Fahrenheit over the past century. More than half of that rise has occurred since 1970.

The Intergovernmental Panel on Climate Change projects that the average global surface temperatures will continue to increase to between 2.5 and 10.4 degrees Fahrenheit above 1990 levels by 2100.

Current climate change is primarily caused by human actions
Carbon dioxide levels have increased from 280 ppm in 1750 to over 400 ppm today – higher than any levels that can be reliably measured over the last 420,000 years. The rise in carbon dioxide levels, together with computer model simulations and historical climate reconstructions from ice cores, ocean sediments, and tree rings, all provide strong evidence that the majority of the warming over the past century is a result of human activities. This is also the conclusion drawn, nearly unanimously, by climate scientists. This warming has already led to changes in the Earth’s climate.

1 President Dr. Amy Gutmann, Penn Commencement Address, 2007; Taking the Environmental High Road, http://www.upenn.edu/president/meet-president/commencement-2007
Action is needed
Carbon dioxide remains in the atmosphere for many decades. Even with lower future emission rates, the planet will be experiencing a significant warming trend through the 21st century. Waiting to take action will inevitably increase costs, escalate risk, and foreclose options, and the science of climate change is now sufficiently clear to justify taking prompt action to dramatically reduce emissions. Reduction in the build-up of greenhouse gases in the atmosphere will lessen the future magnitude, rate, and effect of climate change.

Prepare for the consequences of climate change
The task of devising and implementing strategies to adapt to the consequences of climate change will require worldwide collaboration from a wide range of experts, including physical and natural scientists, engineers and designers, social scientists, health care professionals, business leaders and humanists, economists, and government and policy leaders.

The need for basic and applied research on a myriad of adaptation strategies – from coping with sea level rise, to changing crop productivity, to providing water in drying climates – is essential and urgent.

Role of research universities
As researchers and academics, we consider it to be our responsibility to ensure, to the best of our ability, that people understand what we know: human-caused climate change is happening, we face risks of abrupt, unpredictable and potentially irreversible changes, and responding now will lower the risk and cost of taking action.

As University leaders, we must:
- Acknowledge that the threat of climate change is clear and increasing;
- Identify steps that can be taken now to contribute to substantial and long-term reduction in global greenhouse gas emissions, while recognizing that delayed action will increase the adverse environmental effects and will likely incur a greater cost;
- Work with peer institutions to build a scientific and technological capacity to develop innovative solutions to mitigate and adapt to the adverse effects of climate change, and share that research through academic, professional, and governmental publications and networks;
- Show leadership in every academic discipline in committing to further research, teaching, and dissemination of sustainability strategies, including conservation, policy development, waste minimization, and creation and deployment of clean energy technologies.

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