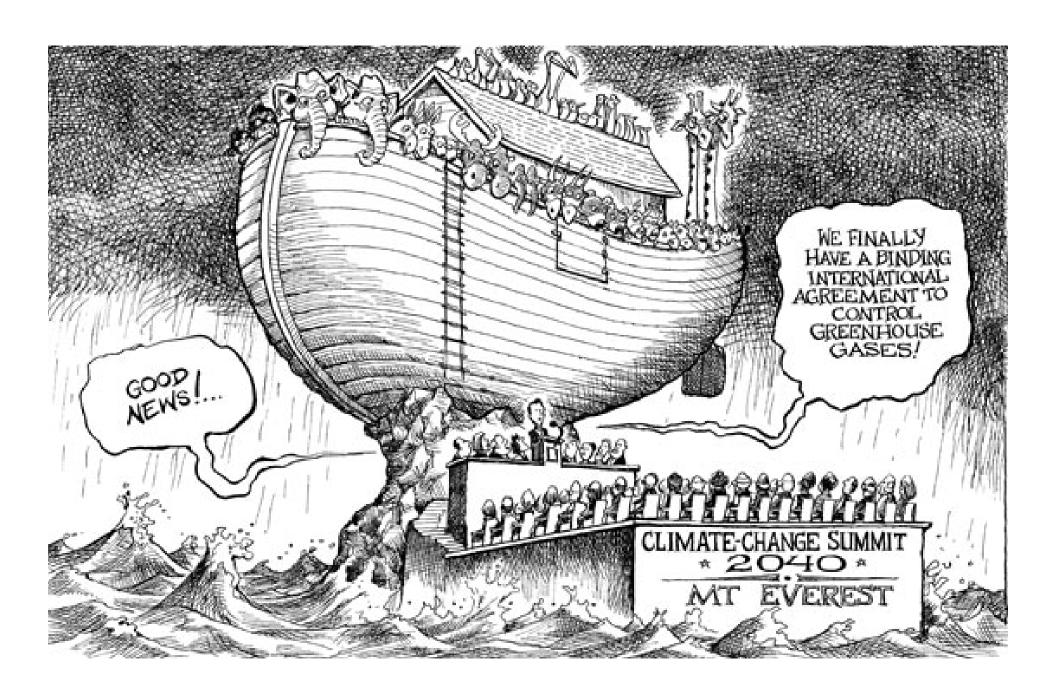


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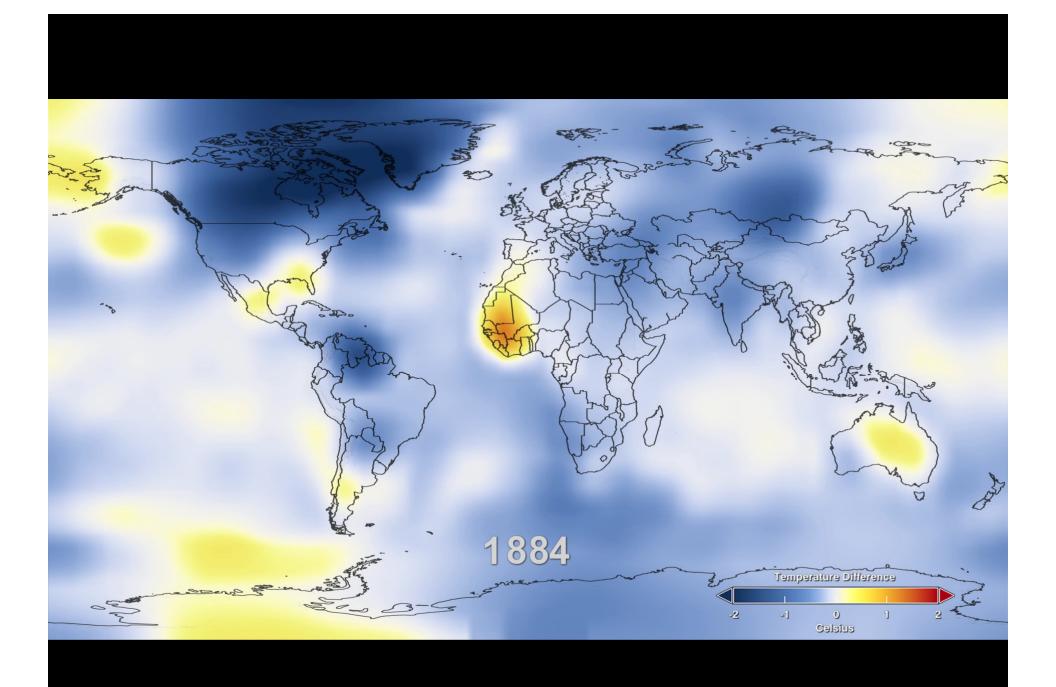




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Warming nears point of no return, scientists say

David Perlman Thursday, June 7, 2012

The Earth is reaching a "tipping point" in climate change that will lead to increasingly rapid and irreversible destruction of the global environment unless its forces are controlled by concerted international action, an international group of scientists warns.

Unchecked population growth, the disappearance of critical plant and animal species, the over-exploitation of energy resources, and the rapidly warming climate are all combining to bring mounting pressure on the Earth's environmental health, they say.

Scientists from five nations, led by UC Berkeley biologist Anthony Barnosky, report their analysis Thursday in the journal Nature.

They likened the potential impact of the forces to previous major changes - both gradual and abrupt - in the planet's history that triggered mass extinctions and expansions, and produced completely new worldwide environments.

The most recent of those was the sporadic end of the last ice age that began 14,000 years ago and shifted rapidly from warm to cold and then back to warm again over a few thousand years. That period saw the extinction of half the world's large animal life, and then the spread of an expanding human population to every continent on the planet.

Difficult to reverse

A similar "critical transition" is occurring now, Barnosky's scientists maintain, and they warn that once it starts, it will be "extremely difficult or even impossible for the system to return to its previous state."

"The science tells us that we are heading toward major changes in the biosphere," Barnosky said in an interview this week. "And given all the pressures we are putting on the world, if we do nothing different, I believe we are looking at a time scale of a century or even a few decades for a tipping point to arrive."

2 years of research

Barnosky, who tracks longtime changes in the fossil record, and 22 other scientists spent two years in conferences and research to produce their review. It is timed for a U.N. conference on sustainable development - known as the Rio+20 Conference - that is scheduled for Rio de Janeiro from June 22 to 24. The conference will mark 20 years since the first "Earth Summit" at Rio, involving delegates from 172 governments, produced the first international conventions on climate change and biodiversity.

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In their report in Nature, the scientists say their research shows many combined factors are thrusting the world toward the tipping point they foresee. Among the problems are these:

-- The rapid growth in the world's human population - to 9 billion or more by 2050 and possibly 27 billion by the end of the century - is quickly consuming available resources.

Fossil fuels are being burned at a rapidly increasing rate, increasing concentrations of carbon dioxide in the atmosphere by 35 percent since the industrial revolution began. At the same time, ocean acidity has risen by 5 percent in the past 20 years.

- -- Ocean productivity is being diminished by vast "dead zones" where no fish swim, while 40 percent of Earth's land mass that was once "biodiverse" now contains far fewer species of crop plants and domestic animals.
- -- More animal species than ever are becoming extinct, and many plan; and animal species are being forced by global warming to seek new ranges that could place them at risk of extinction, as well.
- -- Within the next 60 years, the average global temperature "will be higher than it has been since the human species evolved."

Not a sure thing

The scientists concede there is "considerable uncertainty" that these forces will inevitably lead to such a rapid and radical transformation of the world's environment - a "state shift," as they call it - but they argue such a shift is "highly plausible" and may have already begun.

Slowing or reversing that transition will require international cooperation to slow population growth, curb dependence on fossil fuels, increase the efficiency of food production, and manage both lands and oceans as reservoirs of biodiversity, the scientist say.

Richard Lindzen, a climate scientist at Massachusetts Institute of Technology who has been a vociferous skeptic on the urgency of global warming, called the warnings by Barnosky and his colleagues "highly implausible."

"Even if their models of the future were correct, what's crucial is the time frame, and no one thinks that something terrible will happen in anything like the future they see," Lindzen said. "Their population predictions are extremely unlikely, and their climate predictions are always hypothetical."

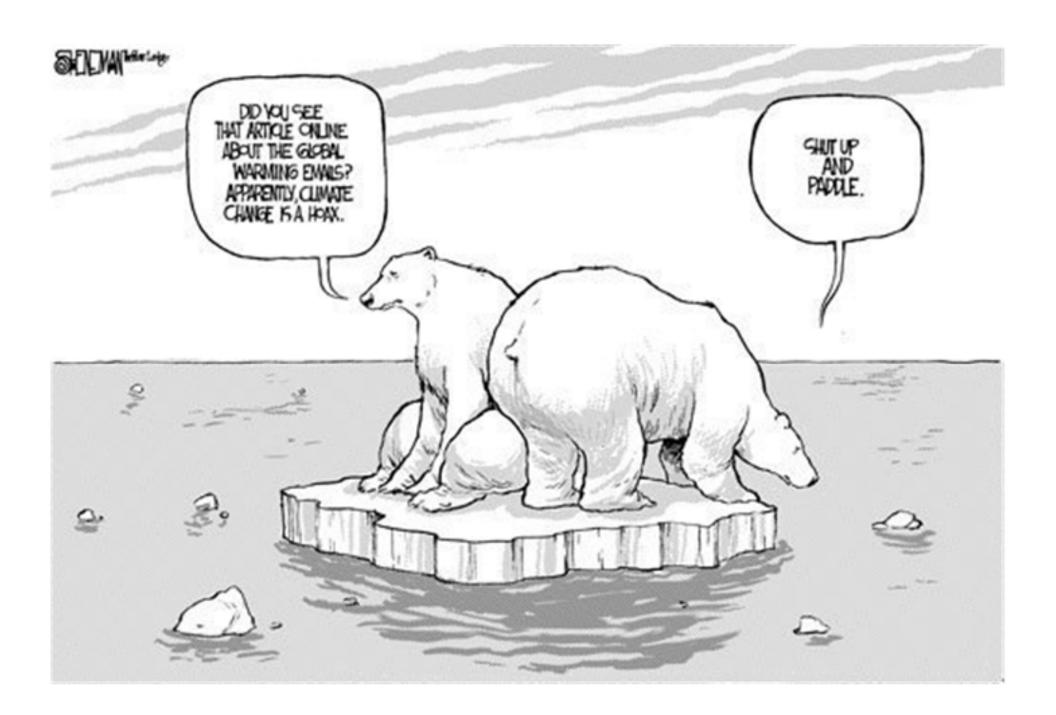
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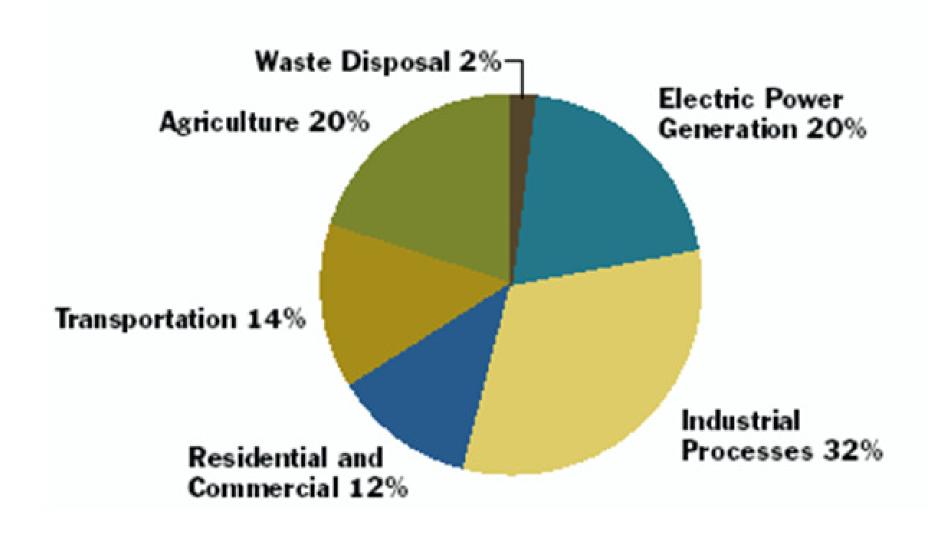
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Sources of Anthropogenic GHG Emissions

Worldwide, 1990, in CO₂E



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