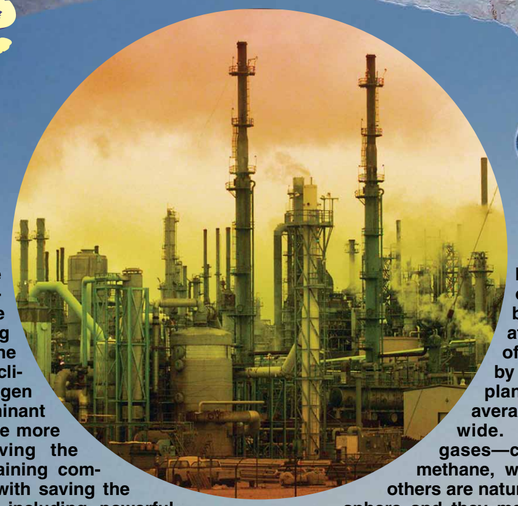
Global Warming— What it is and Why People Should Care



Oil refinery in Los Angeles.

The warming of the earth is a global emergency and many people are hoping that something good will come out of the international meeting on climate change in Copenhagen (Dec. 7-18). But the dominant players at this summit are more concerned with preserving the capitalist system and gaining competitive advantage than with saving the planet. Different forces, including powerful political figures, spread lies about and deny the reality of global warming. Others admit global warming exists but put forward lukewarm patchwork answers that don't seriously address the enormity of the problem. So it is very important to step back and get a scientific understanding of what global warming actually is... how this is an extreme environmental emergency... and why people should care about this crisis.

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The warming of the earth will negatively impact the earth's living systems and every human being for generations to come. If things aren't changed dramatically and quickly, global warming combined with other forms of environmental destruction will very likely change the world to one where many forms of life go out of existence—to a world that no one would want to, and may not be able to, live in.

So let's get into some science on this. Think of the atmosphere that surrounds the earth acting like a greenhouse. Sunlight streams through the glass panes, but some of the sun's rays that bounce off the floors are trapped by the glass walls, warming up the greenhouse. The atmosphere on earth functions similarly. The sun's light goes through the atmosphere and strikes the earth, and certain parts of the light bounce back into the sky. Some of this energy is trapped by gases in the earth's atmosphere. This trapping of some of the sun's heat by gases is what keeps our planet relatively warm—an average of 57 degrees planet-wide. These "greenhouse" gases—carbon dioxide (CO_2), methane, water vapor, and several others are naturally present in the atmosphere and they make the planet livable. If they weren't there, the earth would be a ball of ice.

Over the last 150 years, since the beginning of the industrial age, the amounts of greenhouse gases have been building up in the atmosphere. As they increase, more of the energy from the sun is getting trapped, heating the earth up. The growth of the amounts or concentrations of these gases is primarily the result of the forms of economic development the capitalist-imperialist system has developed and is dependent on, like burning of coal, gas, oil, etc. The burning of these fuels gives off CO_2 into the atmosphere, the main greenhouse gas. Clearing and burning of forests and other practices are also adding to the build-up of CO_2 and methane in the atmosphere.

Scientists have measured the amounts of greenhouse gases in the atmosphere and found the amount of CO_2, for example, has risen from 280 parts per million (ppm) in the 1800s to 386 ppm today. What is shown is that as CO_2 rises, so does the earth's temperature; when CO_2 drops, the temperature drops. They've found evidence that in earth's past history, warming has melted the ice at the North and South Poles, and this has changed ocean currents—which has transformed the climate dramatically.

The history of the earth's climate is one of dynamic change. There have been much warmer eras and also much colder periods—including periodic ice ages, in earth's history. Some of these climate variations are caused by periodic changes in the earth's orbit and tilt. Other natural changes have caused climate warming, which is one likely cause of mass die-offs of species in the earth's history at certain points. Today's warming of the earth is being caused by human activity—predominantly by the burning of fossil fuels and deforestation. But looking to this past history of big changes shows that truly catastrophic things can occur from climate change.

Villagers in flood water, near Dhaka, Bangladesh, 2008.

The science of the climate is complex. The warming of the planet is not linear or uniform. Sometimes people say, "the earth can't be warming up, it was really cold last winter." A cold winter in one area or even a whole region doesn't prove global warming isn't happening, because the warming doesn't happen in a straight line or uniformly. When scientists talk about global warming they are talking about trends over years, and also it is based on measurements at stations all over the entire globe and then averaged. Climate is not consistent. There are natural variations. But now greenhouse gases produced from human activity are taking things in a certain direction. Global warming isn't happening by every area of the globe warming equally at the same rate. But the earth as a whole is warming over years and decades, with different regions affected differently.

The "proof" that global warming is real comes from many different lines of evidence. Polar ice and glaciers are melting at an accelerating rate. Studies measuring temperature over the last several decades show a clear warming trend. The decade of the 1990s was warmer than the 1980s, and 2000-2009 was warmer than the 1990s. Eleven of the past 14 years are the warmest ever recorded. There is a great deal of evidence that, on average, spring is occurring earlier and earlier on the planet as a whole—affecting many plant and animal species. And there is also increasing evidence that climate extremes—more devastating floods in some regions, severe droughts in others, heat waves and more powerful hurricanes in certain regions—have been occurring as climate patterns are being changed through this process.

As global warming continues, there is growing danger of "tipping points," where much more dramatic shifts to an unrecognizable planet become not only likely, but if greenhouse gases are not quickly and dramatically cut, inevitable. If "business as usual" continues, the planet will experience tremendous changes, such as the melting off of glaciers that provide fresh water for tens of millions making an already dire situation (where a billion people on earth don't have access to clean water) much, much worse. Even the potential breakdown of human societies causing much greater suffering and chaos than already exists could happen because of warming and other environmental destruction. These things and more are very possible and indeed likely if dramatic cuts in greenhouse gases are not made, and relatively quickly. These gases need to be cut by 80% by the year 2050, and by 25% to 40% by 2020 worldwide, in order to prevent the worst of global warming. Some warming is already inevitable and "built into the system" because the gases already in the air will continue to cause warming for a long time even if the amount put into the air is cut now.

Severe drought in Denan region, Ethiopia, 2006.

Photos: AP

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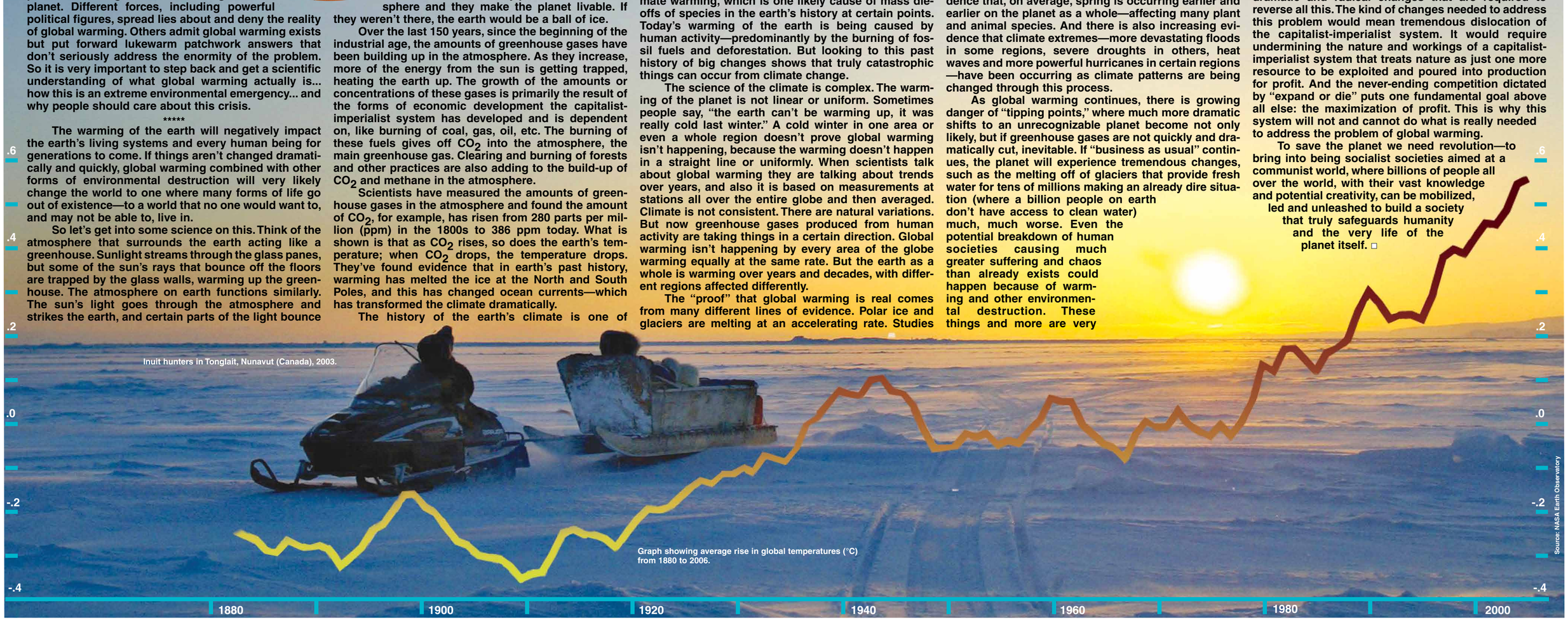
The technology and know-how exist to make the dramatic and radical changes that are required to reverse all this. The kind of changes needed to address this problem would mean tremendous dislocation of the capitalist-imperialist system. It would require undermining the nature and workings of a capitalist-imperialist system that treats nature as just one more resource to be exploited and poured into production for profit. And the never-ending competition dictated by "expand or die" puts one fundamental goal above all else: the maximization of profit. This is why this system will not and cannot do what is really needed to address the problem of global warming.

To save the planet we need revolution—to bring into being socialist societies aimed at a communist world, where billions of people all over the world, with their vast knowledge and potential creativity, can be mobilized, led and unleashed to build a society that truly safeguards humanity and the very life of the planet itself. □



Inuit hunters in Tonglait, Nunavut (Canada), 2003.

Graph showing average rise in global temperatures (°C) from 1880 to 2006.