

The Climate Change Conundrum



While it ended in more of a whimper than a bang, the climate summit in Copenhagen last December should be appreciated for what it was—an important step in the ongoing process of reaching a global consensus on limiting the emission of greenhouse gases.

By Don Hinrichsen

C LIMATE CHANGE HAS BEEN ON THE INTERNATIONAL scientific and political agenda for more than three decades, yet precious little progress has been made to actually get the community of nations to adopt and implement achievable and binding climate change agreements.

The First World Climate Conference was held in 1979 in Geneva, Switzerland. Attended mostly by climate scientists and researchers, it was meant to examine data and trends and prompt governments to “foresee and prevent potential man-made changes in climate that might be adverse to the well-being of humanity.” Its recommendations were duly noted and largely ignored.

Eleven years later, in 1990, the Second World Climate Conference was also held in Geneva. It, too, issued dire warnings if governments failed to act in time. It called on the world community to reduce sources of carbon dioxide emissions, while at the same time increasing carbon sinks, such as planting more trees which absorb more carbon dioxide. Its recommendations were also largely ignored by policy makers and politicians.

A picture can be worth a thousand research papers to illustrate the deleterious effects of global warming—the rapid disappearance of Arctic ice and the subsequent threat to the precious habitat of the polar bear. The photographer caught the scene off the northeast coast of Edgeøya, one of the Svalbard islands.

ARNE NÆVRA, NATURBILDER.NO

Two years earlier, in 1988, the United Nations Environment Program and the World Meteorological Organization set up the Intergovernmental Panel on Climate Change (IPCC), which has been the force behind the flurry of conferences and reports churned out ever since. Currently, some 3,000 scientists, from a wide variety of disciplines, contribute to the IPCC reports that are issued every five years and represent a consensus among climate scientists as to the best possible projections of the impact of climate change on the planet, with special reference to the human environment.

The climate debate heated up at the Earth Summit in Rio de Janeiro in 1992. Here, for the first time, the world community agreed to the establishment of the United Nations Framework Convention on Climate Change. With 192 countries as Parties to the Convention, it provides the basis for

Copenhagen Simplified

What the Accord does:

- Developed countries have agreed to provide about \$30 billion between 2010 and 2012 to developing countries in an effort to help them cut greenhouse gas emissions (the US has agreed to provide only \$3.6 billion, while the EC has pledged \$10.6 billion).
- By 2020, the developing world will be on the receiving end of some \$100 billion a year from the developed countries. More than half will come from private sources, not yet identified.
- Wealthy nations, such as the U.S. and U.K., will have to submit plans for cutting greenhouse gas emissions to the U.N. for monitoring.
- Poorer countries, including China and Brazil, are required to submit reports on their emissions to the UN as well, but no provision yet for verifiable mechanisms (apparently the highly contentious issue of inspections by independent bodies was opposed by China; this gives negotiators time to work something out by the Mexico City meeting).

What the Accord does not do:

- It does not create legally binding obligations on any country to reduce greenhouse gas emissions.
- It does not specify a timetable by which greenhouse gas emissions should peak.
- A plan to tackle deforestation by setting up a special fund that would pay developing countries to conserve remaining forests has been put on hold.

The next meeting will be in Bonn, the Secretariat for the UN Framework Convention on Climate Change, sometime this spring, while the Mexico City conference in December is the fallback for getting the world's nations to agree on a binding treaty which would include the pledges made in Copenhagen.

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international action to halt the worst impacts of climate change.

The Convention was complemented in 1997 by the Kyoto Protocol, named after the city in Japan where it was negotiated. The Protocol commits developed countries and emerging market economies to reduce their greenhouse gas emissions—mostly carbon dioxide and methane—by five percent by 2012, using 1990 as the baseline for measuring reductions. Unfortunately, the United States Congress refused to ratify the protocol, thus leaving the world's largest emitter of greenhouse gases out of the equation and largely undercutting the ability of the Protocol to actually tackle the pernicious problem of climate change.

The year 2009 was supposed to be a watershed for action on climate change. Four major meetings—in Antalya, Turkey; Venice, Italy; Bali, Indonesia and Barcelona, Spain—preceded the Copenhagen Climate Summit, held in the Danish capital from December 7-18. Copenhagen, touted as the mega-conference that would finally grapple with the specter of global climate change and its impact on humanity, attracted some 5,000 accredited journalists and photographers. But after two full weeks of posturing, political maneuvering and predictable inter-country bickering, the conference ended with a whimper and not a bang.

DESPITE THE FACT THAT AN IRONCLAD AGREEMENT TO combat climate change by reducing greenhouse gases according to a timetable with specific country targets was downplayed months ago, expectations were still high that something concrete would emerge, committing the main greenhouse gas emitters—particularly China and the U.S.—to verifiable scaled reductions over time.

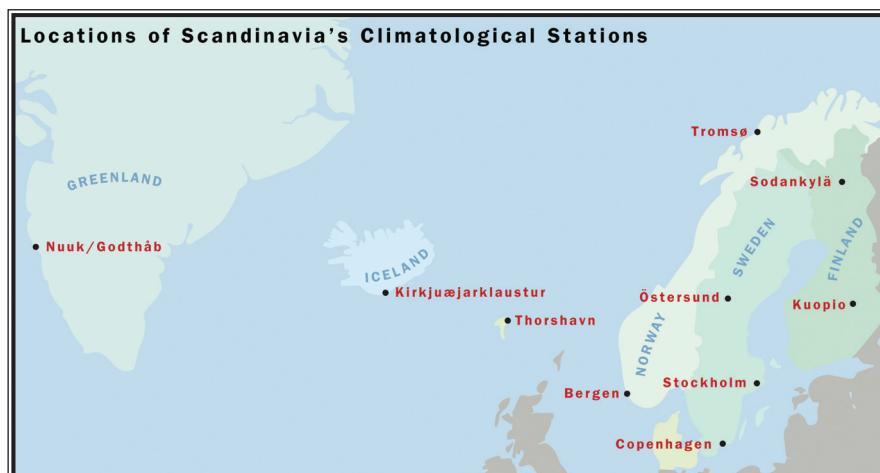
Pundits, who see U.N. conferences as a waste of time, immediately attacked the results as meaningless. But, what many failed to note was that Copenhagen is part of an ongoing process to persuade the main polluters to agree to a timetable for the reduction of climate-altering gases aimed at limiting the increase in global temperature to no more than 2 degrees C. If seen in the context of a continuing dialog, the Copenhagen mega-meeting was not a complete failure.

What the conference did do was to elevate climate change to the top of international political agendas. It also paved the way for national governments to enact legislation that would limit the emission of greenhouse gases. And it clearly put the onus of action on the doorstep of the major polluters—particularly China, the U.S., India, Brazil and the European Union.

What the conference did not do, to the frustration of many country and

U.N. representatives was to come out with a binding agreement to reduce greenhouse gases by the middle of this century, with big payoffs to developing nations to preserve forests, introduce energy-efficiency measures, and utilize renewable energy sources. It also did not set a date in 2010 for reaching a binding treaty; though the Mexico City meeting scheduled for December 2010 is intended to be the forum for a “final binding agreement.”

What did come out of 14 days of acrimonious wrangling was the so-called Copenhagen Accord, brokered by President Obama between the U.S., China, India, Brazil and South Africa—some of the main CO₂ emitters—and later “noted” by the European Union (EU) along with dozens of other countries. For the first time the Accord commits all signatories to prevent global tem-



peratures from rising by more than 2 degrees C by the middle of this century. (For the specific components of the Accord see the sidebar: Copenhagen Simplified.)

Speaking to a raft of reporters at the end of the conference, U.N. Secretary General Ban Ki-moon was upbeat about the results: “We sealed a deal, and it is a real deal . . . it is a beginning, an essential beginning.”

Ban, who worked through the final night in order to get fence-sitters to go along with the Accord, added: “We will try our best efforts to turn this political accord into a legally binding agreement and we will do so in 2010.”

No doubt a lot is resting on the main emitters of greenhouse gases to agree on a comprehensive set of actions that will head off the worst impacts from climate change. The tipping point seems to be keeping carbon dioxide in the atmosphere from reaching 400 ppm (parts per million), thereby limiting global average-temperature increases to no more than 2 degrees C, by 2050. Right now the amount of carbon dioxide in the earth’s atmosphere is just over 380 ppm, dangerously close to the trip wire. One reason to keep the level below 400 ppm is that climate scientists have found evidence that 20 million

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years ago, when atmospheric carbon dioxide exceeded 400 ppm, there was no Antarctic ice cap and sea levels were 25-40 meters (82-132 feet) higher than they are today!

Another compelling reason to limit the earth’s heating up is that it would have an impact on food production, as well as raise sea levels, inundating coastal cities, wetlands and productive agricultural land. According to Lester Brown, President of the Earth Policy Institute in Washington D.C., each one-degree rise in world temperature “would lead to a 10 percent drop in wheat and rice yields.” Even more frightening is the real prospect that wholesale melting of glaciers in the Himalayas could devastate wheat and rice harvests in India and China, creating the “most massive threat to food security the world has ever seen,” concludes Brown.

With such a nightmare scenario, the world’s governments should be forced back to the negotiating table in 2010. President Obama put it this way: “We know [our actions] will not be sufficient. Ultimately this issue is going to be dictated by the science, and science indicates we’re going to have to take further steps in the future.”

For many governments already affected by climate change, inaction is not an option. There is already a growing crescendo of global voices pushing for a treaty in 2010. “This is the year where the world will either commit to a binding agreement on addressing climate change, or play roulette with our future,” concluded one climate-change activist.

Ironically, it was a Swedish chemist, Svante Arrhenius, who warned that increasing carbon dioxide emissions could lead to global climate change. The year was 1896! He was awarded the Nobel Prize in Chemistry in 1903 for his seminal work, but his findings were ignored for half a century.

NEVERTHELESS, THE NORDIC COUNTRIES HAVE BEEN IN the forefront of climate change negotiations for the past two decades and have all enacted legislation and regulations to reduce and limit emissions of greenhouse gases. Sweden, Norway and Finland had already reduced their per-capita emissions of carbon dioxide from three tons in 1973 to close to one ton by 1991. And it has dropped further since then.

A recent survey of 200 Nordic companies found that 85 percent of Swedish and 68 percent of Danish and Finnish companies had reduced their carbon emissions over the past two decades. Norway’s industries benefit from hydroelectric energy, since all of Norway’s electricity is generated by hydropower.

The Nordics as a group have forged ahead with carbon neutral policies and programs, while investing rapidly in alternative energy sources. Denmark

Carbon dioxide accounts for roughly half of all the gases causing global disruptions in climate and weather.

now derives 20 percent of its electrical energy from wind turbines, dozens of which can be seen along the Copenhagen skyline. Like Sweden, Norway and Iceland, Denmark is also experimenting with a variety of biofuels to power vehicles. Biofuels and hydrogen already power some of Copenhagen's public buses, with ambitious plans to scale up alternative sources this decade.

More reductions are planned. The Nordic Investment Bank has pumped more than a billion euros into projects aimed at mitigating climate change. By the end of 2010, the Nordic countries as a whole will generate nearly two-thirds of their electricity from renewable sources (mostly from wind, hydropower and biomass).

Denmark, like the rest of its Nordic neighbors, exemplifies this overall trend towards energy efficiency and the use of alternative sources. "Over the past 25 years," observes Lars Løkke Rasmussen, Denmark's Prime Minister, "our [Danish] economy has grown something like 75 percent while energy consumption has remained broadly stable."

Though the outcome of the Climate Summit was disappointing, it was an ideal place for the Nordics and others to showcase what is already being done to head off the worst impacts of climate change. At the least, the Copenhagen Summit will be remembered as the end of the beginning, a time when world leaders decided they had to come to grips with the reality of climate change while there was still time to avoid its worst impacts.

Reasons Why We Should Care About Climate Change

There is little doubt that global climate is changing. According to the Inter-governmental Panel on Climate Change (IPCC)—which consists of some 3,000 scientists in a variety of disciplines—greenhouse gases, in particular carbon dioxide, and methane, are behind the rise in global temperatures, along with other perturbations, such as the increasing acidification of the oceans and the death of coral reefs.

Greenhouse gases, principally carbon dioxide, but also methane, nitrous oxide, chlorofluorocarbons (CFCs), hydrofluorocarbons, and sulfur hexafluoride, in the atmosphere trap more of the sun's heat, fueling global climate change (or global warming as some refer to it). The biggest contributor, however, is carbon dioxide which accounts for roughly half of all the gases causing global disruptions in climate and weather. Carbon dioxide is released from the burning of fossil fuels, such as coal, oil and gas for heat, transportation and industrial processes; methane, which accounts for 17 percent of greenhouse gases in the atmosphere, has 20 times the potency of carbon

dioxide as a climate-changing gas. It is released during rice cultivation, coal mining, energy production and livestock rearing. The rest are products of industrial use. In general, the heating up of the earth's atmosphere is known as the Greenhouse Effect.

Basic facts:

- Over the past century, the global surface temperature of the earth has increased by 0.7 degrees C. It is projected to reach an average of 2 degrees C by mid-century, the greatest rise in temperature in the last 5,000 years.
- The amount of carbon dioxide in the atmosphere is now 380 ppm; if it reaches more than 400 ppm, the tipping point for catastrophic impacts, sea levels could rise dramatically drowning low-lying coastal areas and creating millions of climate refugees.
- The U.S., China and the European Union now account for 50 percent of all carbon dioxide emissions into the atmosphere. The eight largest emitters—U.S., China, European Union, Russia, India, Japan, Germany and Brazil—account for more than 70 percent of global emissions.
- There is more carbon dioxide in the atmosphere than any time in the last 2.1 million years.
- Arctic sea ice in the summer months has shrunk considerably in the past decade. Compared to the long-term average between 1979 and 2000, ice cover has contracted by some one million square miles (2.61 million square kilometers)—an area equivalent to the size of Alaska and Texas combined.
- In the Antarctic, from 1950 to 2000, the average temperature increased by 2.5 degrees C, four times the global average; 85 percent of all glaciers are in retreat.
- Researchers in the Antarctic studying penguin populations have verified that by 2009 the Adélie penguin colonies near the U.S. Palmer Research Station, midway down the Antarctic Peninsula, had dropped by 80 percent over the past 30 years, from 40,000 breeding pairs to 2,400.
- The mean sea level rose by around 15 centimeters during the 20th century. Projections indicate that we can expect a further rise of 20-90 centimeters by 2100. But it could be much worse.
- The past decade was the hottest on record, with 8 of the warmest 10 years having occurred since 2000.
- A one-meter rise in sea level would inundate 15 percent of Egypt's arable land and 20 percent of Bangladesh's. The Maldives, an island chain off the southern coast of India, would basically disappear, as would a number of small coral islands in the Indian and Pacific Oceans.

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