

The International Institute for Sustainable Development (IISD) presents

## CLIMATE-L NEWS

ISSUE 7

December 17, 2002 – January 10, 2003

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Published by the International Institute for Sustainable Development (IISD)

Editor's note: Welcome to the seventh issue of Climate-L News, compiled by Richard Sherman [rsherman@iisd.org](mailto:rsherman@iisd.org). If you should come across a news article or have a submission for the next issue, please send it directly to Richard [rsherman@iisd.org](mailto:rsherman@iisd.org). CLIMATE-L News is an exclusive publication of IISD for the CLIMATE-L list and should not be reposted or republished to other lists/websites without the permission of IISD (you can write Kimo [kimo@iisd.org](mailto:kimo@iisd.org) for permission.) If you have been forwarded this issue and would like to subscribe to CLIMATE-L, please visit <http://iisd.ca/scripts/lyris.pl?join=climate-l>.

Funding for the production of CLIMATE-L (part of the IISD Reporting Services annual program) has been provided by The Netherlands Ministry of Foreign Affairs, the Government of Canada (through CIDA), the United States (through USAID), the Swiss Agency for Environment, Forests and Landscape (SAEFL), the United Kingdom (through the Department for International Development - DFID), the European Commission (DG-ENV), the Danish Ministry of Foreign Affairs, and the Government of Germany (through German Federal Ministry of Environment - BMU, and the German Federal Ministry of Development Cooperation - BMZ). General Support for the Bulletin during 2003 is provided by the United Nations Environment Programme (UNEP), the Ministries of Foreign Affairs and Environment of Finland, the Government of Australia, the Ministry of Environment and the Ministry of Foreign Affairs of Sweden, the Ministry of Foreign Affairs and Trade of New Zealand, the Ministries of Foreign Affairs and Environment of Norway, Swan International, the Japanese Ministry of Environment (through the Institute for Global Environmental Strategies – IGES) the Japanese Ministry of Economy, Trade and Industry (through the Global Industrial and Social Progress Research Institute - GISPRI), and the Ministry for Environment of Iceland. If you like CLIMATE-L News, please thank them for their support

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#### GENERAL NEWS

##### 1) GOVT TO CONSIDER ENVIRONMENT TAX FOR FY04 REFORMS

Yomiuri Shimbun

January 10, 2003

Internet: <http://www.yomiuri.co.jp/newse/20030110wo33.htm>

The government and ruling parties aim to create a plan to implement environment and other taxes in fiscal 2004 tax reforms in a bid to reduce the emission of carbon dioxide and other greenhouse gases, sources said recently. Specifically, the government and ruling parties will look into transferring a portion of special tax revenues earmarked for road construction, such as revenues from the gasoline tax, to funds for combating global warming.

Also, they are looking into the creation of a "carbon tax," to be determined by factors including the amount of carbon dioxide emitted by burning fossil fuels such as petroleum and coal, the sources said. Last year, the government ratified the Kyoto Protocol, which obliges industrially advanced nations to cut down their greenhouse gas emissions. In June, a Central Environment Council committee specializing in taxes to combat global warming said in an interim report that anti-global warming taxes would be implemented within a three-year period starting in 2005. Such moves have made the government Tax Commission more forward-looking in terms of introducing environment taxes, the sources said. The government and ruling parties will begin looking into such taxes with the intention of presenting a plan for their implementation in fiscal 2004 tax reforms.

##### 2) FISHING FOR CLUES

Newsday

January 10, 2003

Internet:

[http://www.newsday.com/news/health/ny-hsfish103081961jan10.0.4099908\\_story?coll=ny-health-headlines](http://www.newsday.com/news/health/ny-hsfish103081961jan10.0.4099908_story?coll=ny-health-headlines)

The best indicator of what's happening to global climate could turn out to be fish, scientists said yesterday. According to biological oceanographer Francisco Chavez, a small change, perhaps less than 2 degrees Fahrenheit, determines whether huge schools of sardines, or anchovies, occupy fishing grounds off California, Japan and Peru. When the Pacific is warm, sardines abound. When it's cool, anchovies thrive. These periods in which one or the other dominate appear to run in 25-year cycles. We are, perhaps, about 5 years into a cooling trend. "What surprised me most was that people in different parts of the world were seeing this, but without realizing they were all the same thing," said Chavez, at the Monterey Bay Aquarium Research Institute in California. "It's seen all around the Pacific." He added, however, that "I wasn't the first one to notice these cycles. The Japanese first published on it in 1983. They saw the sardine population changes, and they were first to plot the sardines off Japan, California and Peru."

Now Chavez and three colleagues - whose work is published in today's issue of Science - suggest that fish populations and where the fish are can offer clues to changes in global climate. "Because ... [the changes in fish] are fairly long-term and significant, they can play into the global warming interpretations," he said. Oceanographer Frank Schwing, at the National Oceanic and Atmospheric Administration laboratory in Pacific Grove, Calif., said Chavez's report "is a nice summary of things we've been looking at for some time. A lot of scientists have speculated there is a relationship between these climate cycles and fish

population cycles."

While more study is needed, what seems clear is that a 25-year cycle does exist, and it resembles the known, but more frequent, climate changes called El Niño and La Niña. These occur alternately in roughly four-year cycles, with impact on winter weather, the number of hurricanes that form, plus droughts and floods at various places around the world. Even though the temperature changes involved in "swapping" the domination of fish species are subtle and don't come often, the economic impact is indeed large. When California's sardines suddenly disappeared about 1950, for example, Cannery Row in Monterey, Calif., soon died. "I think what happened to the sardine fishery in the 1940s was that the population was vulnerable to changing climate," Schwing said, "and that, combined with continued heavy fishing pressure, led to the drop in numbers of fish available," and the demise of Cannery Row.

The huge anchovy fishery off coastal Peru is still very lucrative, however, although it goes through distinct cycles of boom and bust. These small, silvery fish are caught in the thousands of tons, and are processed into fertilizer and chicken feed. Right now, Chavez said, the ocean is cool and the anchovies are there. The Peruvians are benefiting from "the largest single-species fishery in the world." As a result of recent research, Chavez added, "a lot of people have started to realize there are these 25-year periods, when certain species tend to dominate. So these organisms may be better indicators of climate change than some of our sophisticated measuring devices." There is also evidence that these longer climate cycles are involved in the abundance of salmon and other fish in the waters off Alaska, Washington, Oregon and Northern California, the researchers said.

See Also:

Fisheries Ebb and Flow in 50-Year Cycle, Study Says, National Geographic News, January 9, 2003  
[http://news.nationalgeographic.com/news/2003/01/0109\\_030109\\_fisheries.html](http://news.nationalgeographic.com/news/2003/01/0109_030109_fisheries.html)

### 3) PATAKI RECEIVING PRAISE FOR HIGHER RENEWABLE ENERGY GOAL

AP

January 9, 2003

Internet:

[http://www.newsday.com/news/local/wire/ny-bc-ny--renewableenergy0109jan09.0.6176709\\_story?coll=ny-ap-regional-wire](http://www.newsday.com/news/local/wire/ny-bc-ny--renewableenergy0109jan09.0.6176709_story?coll=ny-ap-regional-wire)

ALBANY, N.Y. (AP) \_ Gov. George Pataki was praised by environmentalists Thursday for his promise to mandate increases in the amount of electricity generated in New York from renewable energy sources like wind and solar power. Pataki said he will order the state Public Service Commission to implement a renewable portfolio standard of 25 percent on in-state power generation. Utilities must meet the goal in 10 years, the governor said in an initiative first mentioned in his State of the State speech to the state Legislature on Wednesday. "To have the governor make this commitment is an unbelievable piece of good news for the environment," said John Stouffer, legislative director for the Sierra Club's Atlantic Chapter.

Anne Reynolds, air and energy program director of Environmental Advocates called Pataki's announcement "excellent news for the state's public health, economy and environment." She said it was a first step toward New York's adoption of a global-warming action plan. About 17 percent of the electricity generated in New York state is produced by renewable sources \_ virtually all of that hydroelectricity. The bulk of the state's hydropower comes from the big power stations on the St. Lawrence and Niagara rivers.

A Greenhouse Gas Task Force appointed by Pataki recommended that a renewable electricity mandate be adopted in New York state. Thirteen other states have some form of a mandate, including Massachusetts, New Jersey, Connecticut, Pennsylvania, Texas and California. Power plants that burn fossil fuels like oil are the biggest producers of air pollution in New York other than automobiles. Environmentalists call renewable energy "clean," non-polluting sources of power. Gavin Donohue, executive director of the Independent Power Producers of New York, called Pataki's goal "very ambitious." It cannot be reached, he said, unless existing hydropower plants are included in the definition of renewable energy \_ some environmentalists balk at that because of the effect on aquatic life near the hydro stations \_ along with garbage-burning waste-to-energy plants.

Jason Babbie, an environmental specialist with the New York Public Interest Research Group, said existing hydro plants should be included in the renewable calculations, but not waste-to-energy facilities. "Anything that would include incineration of waste we oppose because there are major air (pollution) impacts from incineration," Babbie said. It will be up to the Public Service Commission to decide if some or all existing hydro plants are included in the 25 percent mandate under Pataki's plan. Not surprisingly, the governor was also praised by renewable energy groups. David Wooley, regional representative of the American Wind Energy Association, said a significant investment in wind power generation would help stabilize the prices of electricity and natural gas. "Wind power acts as a buffer against electricity price volatility because the wind is free and inexhaustible," Wooley said.

Wind power producers say there are many areas in the state where large-scale generation of electricity from wind is feasible, including Long Island and areas east of the Great Lakes. Anthony Pereira, president of the New York Solar Energy Industries Association, said its members are creating a "wealth of new jobs" in the state by utilizing state-of-the-art technology to generate electricity from the sun. "Governor Pataki is showing the vision and leadership needed to promote further solar electric deployment during these challenging economic times," Pereira said. In June 2001, Pataki issued an executive order giving all state agencies until 2010 to get their sources from "green" sources.

#### 4) GLOBAL WARMING WILL BRING INCREASED COSTS TO COMMUNITIES

Stuff

January 9, 2003

Internet: <http://www.stuff.co.nz/stuff/0,2106,2177570a11,00.html>

More droughts, floods and higher temperatures predicted for most parts of New Zealand as a result of global warming will mean significant costs for communities, climate change experts say. Information from the Government's New Zealand Climate Change Project estimates that temperatures in Nelson and Marlborough could become up to 2.5° warmer over the next 70 to 100 years, while temperatures in Wellington, Kapiti, Wairarapa, Hawke's Bay, Gisborne and the Manawatu/Whanganui regions could be up to 3° hotter.

The predicted increases compare to an overall temperature increase in New Zealand during last century of about 0.7°, which experts say globally has already been linked to shifts of plants and animals, melting of glaciers and sea-ice, and rises in average sea levels. For New Zealand, the temperature rises will mean more extreme hot days and heat waves, but fewer frosts. Rainfall will also be more variable in many areas, with heavy rainfall becoming more intense and frequent. Tropical cyclone winds are likely to become more intense, with heavier rainfall causing floods and property damage. Some regions will expect more than average rainfall, while others are likely to get less, with an increased risk of drought in areas that are already dry. The effects of such climate change are likely to bring significant costs to the community, as the cost of dealing with stock losses, replacing or repairing damaged roads, bridges, houses and stormwater drains, and increased soil erosion hits home.

Beneficial effects could include less need for heating in winter and may mean some areas will be able to grow crops that they are unable to now. But for Wellington, Kapiti and Wairarapa, western areas could be up to 20 per cent wetter, while eastern areas could be up to 20 per cent drier. The regions as a whole are likely to experience more varied rainfall patterns and flooding could become up to four times as frequent by 2070. The outlook is similar for the Manawatu/Whanganui area, which could be up to 20 per cent wetter, with more varied rainfall patterns and flooding. By contrast, Hawke's Bay and Gisborne, like much of the east coast, is likely to become warmer and drier by as much as to 20 per cent, but with more varied rainfall patterns. But like many regions, flooding could become up to four times as frequent by 2070. The top of the South Island could be up to 10 per cent wetter, while coastal Marlborough could be 10 per cent drier and flooding could be more frequent.

#### 5) TOKYO WINDMILLS TO FIGHT GLOBAL WARMING

Yomiuri Shimbun

January 9, 2003

Internet: <http://www.yomiuri.co.jp/newse/20030107wo61.htm>

Two 70-meter-high windmills will be built on a Tokyo waterfront this month to generate wind power, a

source said. While there are about 450 windmills nationwide, these will be the first to be constructed in the metropolitan area. Officials of the metropolitan government, which is involved in the project, said they hoped the new windmills would become a symbol of Tokyo's efforts to counter global warming. The windmills will be built on a landfill site near breakwaters in Tokyo Bay, at the southern end of Tokyo's Daiba waterfront area, more commonly known as Odaiba. They will be visible from Tokyo Disneyland and Haneda Airport.

The windmills, made in Denmark, are scheduled to be transported to the site by Thursday, where they will be assembled later this month. They will start operating from the end of March. The windmills will be managed by J Wind Tokyo, a company co launched by Toyota Tsusho Co. and Electric Power Development Co. The two new windmills are capable of generating a maximum of 1,700 kilowatts. The planners expect the windmills to generate a total of 2.5 million kilowatt-hours annually--enough energy to provide electricity to about 800 households. The power generated will be sold to Tokyo Electric Power Co.

As of March, windmills nationwide generated a total of 310,000 kWh. A government outline that promotes measures to combat global warming suggested this figure be increased to 3 million kWh by the end of fiscal 2010. In addition to constructing the two new windmills, the metropolitan government will research wind conditions at two locations near Odaiba to examine the possibility of constructing more windmills in the area. The government will decide on further windmills after studying research results to be submitted by the end of this year.

#### 6) A SOUTH POLE TREK IN SEARCH OF GLOBAL WARMING

The Christian Science Monitor

January 8, 2003

Internet: <http://www.csmonitor.com/2003/0108/p02s01-wogi.html>

Just over 90 years after the first humans set foot at the South Pole, a team of US scientists has completed a rare cross-country trek to Antarctica's southernmost point as part of an international effort to uncover the history of climate change on Earth's most inhospitable continent. The 775-mile route they followed would take 11 hours to cover on an interstate highway. Under polar conditions, however, the 10-member team took 27 days to make the trip. Along the route, the expedition's 14-ton sled-tugging tractors crept through deep snowdrifts, hunkered down during howling blizzards, dodged deep crevasses, and stopped to extract hundreds of core samples from the top 160 to 400 feet of the two-mile-thick mantle of ice that covers the continent.

Researchers are keenly interested in that ice cover and the climate regimes that govern its growth and shrinkage. The West Antarctic Ice Sheet is seen as a possible source of the water that raised sea levels by as much as 25 meters in a period of less than 1,000 years - probably between 14,000 and 11,000 years ago. During the past 10,000 years, the sheet has thinned by more than 2,300 feet at the coast, a process that continues today. Understanding the links and tracking the ice's history are vital to forecasting its future behavior, particularly if the global climate's current warming trend continues, according to Paul Mayewski, a geologist at the University of Maine and the expedition's leader. Research reported last week in the journal Science indicates that the sheet's long-term decline is expected to continue, part of a natural process that began with the end of the last ice age.

#### TIME CAPSULES MADE OF ICE

"In the short-term the West Antarctic Ice Sheet is generally stable," Dr. Mayewski says. The new ice cores and other data the group collected track changes that have occurred over the past 200 to 1,000 years.

By comparing these data with those from deeper core samples from elsewhere on the continent, scientists hope to find out how much of this deglaciation is part of a long-term natural process and whether the trend may be accelerating due to global warming. "We'll be able to answer these questions in the next year or two," after all the data have been analyzed, he says.

The expedition, which reached the South Pole Jan. 2, got off to an inauspicious start. The team initially attempted the trip Nov. 23. But "within 48 hours, we realized we weren't going to make it," Mayewski

told a press conference conducted via phone from the South Pole. The snow was much heavier than predicted, bogging down the team's two 27,000 pound tractors and their 50,000 pound sleds in snowdrifts up to the tractors' axles. In two days the team had moved a mere 25 miles from Byrd Station, its starting point. By Dec. 7, however, mechanics had replaced the sleds' skis with runners that looked more like sea-plane pontoons, giving the sleds greater buoyancy. The heavy snow and milder-than-expected temperatures (between minus 4 and minus 18 degrees Fahrenheit instead of minus 40 degrees F.) were consistent with climate-model predictions of El Niño's effect on the continent, still something of a surprise since its effect is much less evident in the Arctic, researchers say. "It really shows the strong connection between conditions in the tropical Pacific and the South Pole," Mayewski says.

#### AN EXPEDITION WITHOUT HUSKIES

Along the way, members of the three-woman, seven-man research team lived in insulated plywood bunkhouses and ate in a special mess tent on the sleds the tractors pulled. The tent doubled as the women's dorm, while one of the bunk houses did double duty as a lab. The mini tractor train also carried the fuel for transportation, heat, and electric generators. The expedition was conducted under the aegis of the International Trans-Antarctic Scientific Expedition (ITASE), a multi-year program of Antarctic research involving 19 countries. Where some polar field projects are interested in pinning down the physical processes determining how the climate system works at high latitudes, ITASE is trying to gather climate records from across as much of the frozen continent as possible. "Antarctica is one of the most data-sparse areas on the planet" when it comes to climate, notes David Bromwich, an associate professor of atmospheric science at Ohio State University. The ice-core samples provide tree-ring-like information on precipitation levels. They also trap air samples and particles from past events such as volcanic eruptions or major storms. By taking cores from regions where the layers are relatively flat, and calibrating them using the past 50 years of instrument measurements, the cores can provide a more comprehensive window on climate than information from a handful of locations on the continent.

#### UNDERNEATH THE RADAR

In addition, researchers are using radar to map the bedrock far below the ice sheet's surface. The radar also is proving useful for exploring ice layers without the need to drill or dig trenches, and for spotting crevasses ahead of the tiny convoy. The deep radar aims to see how the bedrock influences the surface shape of the ice sheet, according to expedition scientist Steve Arcone, a geophysicist with the US Army Corps of Engineers Cold Regions Research and Engineering Laboratory in Hanover, N.H. That information is critical to selecting sites for coring because ice layers can get compressed and jumbled as the sheet glides over bedrock features, making interpretation of the layers more difficult. One solution was to use a shallower radar scan. That resulted in layers of ice showing up in the radar return, yielding a way to gauge year-to-year snowfall rates - a key to understanding the degree to which the ice sheet is losing or gaining mass, and an indicator of historic weather patterns. The radar returns seem to vary in strength every six miles or so, Dr. Arcone says. "It looks like the radar picked up different climate regimes" as it moved from region to region.

Between the radar data and weather balloons the team regularly launched, the researchers took measurements "from bedrock to 23 kilometers above the ice surface," Mayewski says.

#### 7) U.S. SENATE BILL WOULD CAP GREENHOUSE GAS EMISSIONS

ENS

January 8, 2003

Internet: <http://ens-news.com/ens/jan2003/2003-01-08-06.asp>

WASHINGTON, DC, January 8, 2003 (ENS) - A bipartisan bill introduced in a U.S. Senate hearing today would attempt to curb global warming by establishing a market based trading system in greenhouse gas emissions. The bill, the first major piece of environmental legislation to be introduced in the 108th Congress, was met with rousing endorsements from the conservation community. Senators Joe Lieberman, a Connecticut Democrat, and John McCain, an Arizona Republican, said their bill would spur innovation by giving companies maximum flexibility in meeting national greenhouse gas emissions goals.

"By capping emissions and tapping market forces to meet those goals, this bill will heat up American

innovation and cool down our changing climate," Lieberman said. "Our approach promises environmental progress in reducing harmful global warming, economic progress by creating new high-tech jobs to meet emissions goals, and international progress by showing our allies that we're serious about this global problem." The bill, which will be formally introduced soon, was the subject of a hearing today in the Senate Commerce Committee, which McCain will soon chair. The legislation, which is modeled after the successful acid rain trading program of the 1990 Clean Air Act, would require a reduction to 2000 carbon dioxide emission levels by the year 2010, and a reduction to 1990 levels by the year 2016.

"Too much attention has been focused on the uncertainties, and not enough on what is known in tackling the problem at hand," McCain said. "This bill uses the best approach we know - a market based trading system - to reduce emissions and give companies maximum flexibility in meeting requirements. Ultimately, the bill rewards improvements in energy efficiency and encourages advances in technologies." McCain and Lieberman began work on the legislation in August 2001. The bill creates a comprehensive cap on greenhouse gas pollution, paired with an allowance trading system aimed at reducing the costs of meeting the caps while offering a range of opportunities for reducing greenhouse gas pollution and boosting the uptake of carbon by soils, crops and trees.

The bill "marks an end to stalling and the start of the search for serious solutions to the global warming problem," said Fred Krupp, president of the conservation group Environmental Defense. "The bill's cap on greenhouse gas pollution takes on the problem of global warming in a strong and sensible way," added Krupp. "The bill's cost lowering emissions trading market will cut more dangerous pollution than traditional bureaucratic approaches and promote innovation while spurring American economic growth." REP America, the national grassroots organization of Republicans for Environmental Protection praised the legislation today. "Finally, someone in Washington DC is exercising the thoughtful leadership we urgently need to combat the threat global warming poses to our environment, economy, and long term security. We're not surprised that someone is John McCain, who has never been afraid to tackle the big issues of our time," said Jim DiPeso, REP America policy director.

But the nonprofit Competitive Enterprise Institute, a conservative public policy group that seeks to limit government interference with "free enterprise," calls the bill "a regressive energy tax," that would "place an enormous burden on the U.S." While the bill will likely be supported in McCain's Commerce Committee, and is touted by its authors as an economic bill more than an environmental bill, it will face tough opposition from the Senate Environment and Public Works Committee, whose new chair, Oklahoma Republican James Inhofe, opposes mandatory limits on greenhouse gas emissions. The bill would apply to emissions from the electricity generation, petroleum refining, industrial and commercial economic sectors, which together account for 85 percent of overall U.S. greenhouse gas emissions. It would apply to all entities that emit more than 10,000 metric tons of greenhouse gases per year, and therefore would not apply to individual car owners, homeowners or the agricultural sector. The bill is designed to reduce emissions by allowing the trading of emissions allowances on the open market, supported by a government inventory of emissions and emission reductions for individual companies and utilities. Most companies would be required to submit one tradable allowance for each metric ton of greenhouse gasses they emit, while petroleum refiners and importers would have to submit an allowance for each unit of petroleum product sold that will produce a metric ton of emissions.

The Commerce Secretary would determine the number of emissions allowances each company would receive free of charge, and how many would be auctioned off. Proceeds from the auction of these allowances would be used to reduce the energy costs of consumers and assist workers affected by the new policy. Companies could buy and sell credits among themselves, and could satisfy up to 15 percent of its emission reduction requirements by submitting tradable allowances from another nation's market in greenhouse gases, or by contributing to projects that sequester carbon dioxide emissions.

Automakers could earn credits that they could sell to other companies if they exceeded the Corporate Average Fuel Economy (CAFE) standards by more than 20 percent. The CAFE standards spell out the average number of miles per gallon that a manufacturer's vehicles must achieve. Many automakers now meet this standard by offering a small number of very efficient vehicles, such as electric or hybrid gasoline-electric cars, to offset the poor efficiency performance of popular sport utility vehicles and other large vehicles. Any company that failed to meet the emissions limits set by the bill would be fined for each ton of greenhouse gases over the cap at the rate of three times the market value of a ton of greenhouse gas. The market value would be based upon the price of emission credits from trading system provided for in the bill.

Companies would have the economic choice of reducing their emissions to reduce their required allowances, or purchasing other companies' allowances to cover their continued emissions. Companies that have voluntarily undertaken efforts to reduce their greenhouse gases would receive credit for those actions. The "cap and trade" approach, which is expected to be adopted by Japan, the European Union, and other parties that have ratified the Kyoto Protocol, is supported by the environmental community and the independent Pew Center on Global Climate Change. The approach has successfully reduced the emissions of acid rain causing pollutants through a program established in the 1990 Clean Air Act.

So far, the Bush administration has declined to embrace a "cap and trade" concept, or offer any kind of plan that would reduce greenhouse gas emissions. President George W. Bush has also withdrawn U.S. support for the Kyoto Protocol, an adjunct to the United Nations Framework Convention on Climate Change which will become law when a minimum of 55 countries covering at least 55 percent of 1990 greenhouse gas emissions have ratified the pact. The announcement of the new emissions trading bill was seen by conservation groups as a sign that the Bush administration's past policy toward global warming will be challenged, even under the Republican controlled Congress.

"It's encouraging to see real action on the environment by senior statesmen so early in the new Congress," said Katherine Silverthorne, deputy director of the U.S. climate change program at the World Wildlife Fund. "The McCain-Lieberman bill could jump start U.S. policy on global warming." The two senators worked with both industry and conservation groups as they designed the legislation, attempting to craft an approach that would address the concerns of American businesses while taking positive steps toward reducing global warming. "This effort to solve global warming puts to rest all the excuses for doing nothing: This bill is bipartisan, it achieves environmental goals by encouraging innovation and American ingenuity, and its flexible approach is supported by industry," said Mark Van Putten, president of the National Wildlife Federation. "This is an opportunity for Congress to provide responsible environmental leadership where the White House has failed."

Global warming is a growing problem, with 2002 closing as the second warmest year on record. The 10 warmest years have all occurred since 1987, with nine of them happening since 1990. Two studies in the current edition of the journal "Nature" show that global warming is already posing a threat to a variety of plants and animals, and other research suggests that the sea ice around the Earth's poles could melt entirely by the end of this century. "We are already beginning to see the environmental impacts of global warming coast to coast, from coral reef bleaching in the Caribbean to the loss of treasured pine forests in coastal Alaska," said Van Putten. "Each year we procrastinate makes the problem harder to solve."

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<http://www.nytimes.com/2003/01/09/politics/09ENVI.html?ex=1042779600&en=ba624b1b275d9264&ei=5006&partner=ALTAVISTA1>

2 rivals join to oppose Bush on global warming, International Herald Tribune, January 10, 2003 <http://www.ihf.com/articles/82844.html>

#### 8) TOKYO BACKS CO2-CUTTING PROJECTS OVERSEAS

Asia Pulse

January 7, 2003

Internet: <http://www.atimes.com/atimes/Japan/EA07Dh04.html>

TOKYO - The Japanese Ministry of Economy, Trade and Industry will back up private-sector overseas projects to cut global-warming gas emissions through lending, investment and trade insurance to be provided by government-affiliated financial institutions, ministry sources said. The move is intended to help Japan achieve its carbon-dioxide-reduction goal stated in the Kyoto Protocol, which allows countries engaged in such projects overseas to obtain carbon-dioxide emission rights from foreign governments.

The protocol obliges Japan to trim its carbon-dioxide (CO<sub>2</sub>) emissions in 2008-12 by 6 percent from the levels seen in 1990. In other words, CO<sub>2</sub> emission rights obtained by Japanese companies involved in overseas energy-saving projects, such as renovating old power-generation plants and improving factory efficiency, will count as Japan's CO<sub>2</sub> reduction under the protocol. METI will make it easier for private firms involved in such overseas projects to obtain lending and investment by Development Bank of Japan and Japan Bank for International Cooperation (JBIC), the sources said.

By drumming up investment from private lenders, Development Bank will set up a 3 billion yen (US\$25 million) fund to pump money into private firms' energy-saving projects abroad, into which the public lender will also contribute 500 million yen. Development Bank and JBIC will also be encouraged to extend loans to private firms' environment protection-related and other projects overseas. METI will also encourage those public lenders to provide trade insurance to such private-sector companies to cover possible losses from unilateral contract violations by overseas countries in which they pursue energy-saving projects. The ministry has secured 2.5 billion yen in its fiscal 2003 budget to reduce CO<sub>2</sub> discharges. Last October, the ministry started procedures to award government hallmarks to private-sector firms seeking to use the Kyoto Protocol mechanism.

#### 9) FACING UP TO THE GLOBAL WARMING THREAT

Mainichi Shimbun

January 6, 2003

Internet: <http://mdn.mainichi.co.jp/news/archive/200301/07/20030107p2a00m0oa026000c.html>

The Kyoto Protocol on global warming will probably go into effect this year if the treaty is ratified by Russia. Once the treaty is implemented, the advanced industrialized countries will commit themselves to reducing their emissions of greenhouse gases. There is plenty of evidence that the pace of global warming has been accelerating. Average global temperatures have been rising, and 1998 was the hottest year on record, and 2002 the second hottest. At the North Pole, average annual temperatures have risen by five degrees over the last century, and precipitation has also increased. And the ice sheet which juts out into the sea from Antarctica has begun to break apart.

Hotter temperatures and rising sea levels are beginning to kill off coral reefs, and to damage saltwater marshes and other coastal ecosystems. Island nations in the Pacific, Indian Ocean, and Caribbean are taking the threat of global warming and rising sea levels seriously. As their coastal areas are steadily destroyed, they cannot escape the fear that their countries will someday be swallowed by the sea. In Japan, the average annual temperature has risen about one degree over the past 100 years. In cities, temperatures have risen by more than two degrees. Over the past half century, cherry blossoms have begun to bloom five days earlier, and insects have begun to spread northward. Many invasive species from abroad including a poisonous spider have established themselves in Japan.

In a report entitled "The Influence of Global Warming on Japan 2001," the Environment Ministry warns that the climate changes accompanying global warming will reach dangerous levels in 30 years, and have a major impact on ecosystems, agriculture, and human health. The threats to the survival of mankind and living things should be taken seriously. It is time that we begin to implement those solutions which are doable. Even if the Kyoto Protocol, which commits the advanced industrialized countries to reduce their

emissions of greenhouse gases to 5 percent below 1990 levels between 2008 and 2012, is fully implemented, it will simply slow down the pace of, but not reverse, global warming.

Japan must lead the effort to bring the U.S. back into the Kyoto Protocol, and to convince the developing countries to reduce their own greenhouse gas emissions. While some voices in industry claim that policies to fight global warming cannot be adopted during a recession, efforts to reduce carbon dioxide emissions are likely to lead to technological breakthroughs, increase corporate competitiveness, and create jobs. Unfortunately, both politicians and bureaucrats lack a long-term perspective, so we hope that environmental nonprofit organizations and nongovernmental organizations will grow more powerful so that they can begin to lead the fight against global warming.

To bequeath a healthy Earth to the future, it is also important that we change our outlook and values. It is a good sign that two out of three people would like to participate actively in movements to protect the environment, according to an Environment Ministry survey. In the year that the Kyoto Protocol is set to take effect, we hope that Japan will steadily implement measures to prevent global warming, and become a model of sustainable development for the world.

#### 10) SCIENTISTS SEE WIDE IMPACT OF GLOBAL WARMING ON WILD PLANTS, ANIMALS

Jamaica Observer

January 5, 2003

Internet:

[http://www.jamaicaobserver.com/news/html/20030105T030000-0500\\_37600\\_OBS\\_SCIENTISTS\\_SEE\\_WIDE\\_IMPACT\\_OF\\_GLOBAL\\_WARMING\\_ON\\_WILD\\_PLANTS\\_ANIMALS.asp](http://www.jamaicaobserver.com/news/html/20030105T030000-0500_37600_OBS_SCIENTISTS_SEE_WIDE_IMPACT_OF_GLOBAL_WARMING_ON_WILD_PLANTS_ANIMALS.asp)

INDIANAPOLIS, USA (AP) - Rising global temperatures that have lured plants into early bloom and birds to nest earlier in the spring are altering the ranges and behaviour of hundreds of plant and animal species worldwide, two studies conclude. From North America's marmots to Britain's birds, the findings could spell bad news for species already stressed by habitat loss if predictions of global warming over the next century pan out, the authors said in the studies, which appear in last Thursday's issue of the journal Nature.

Other scientists said the studies, which are based largely on research done previously in Europe and North America, could foretell the extinction of many species in the coming decades as rising temperatures force them to retreat from their historic ranges or face new competitors.

Alastair H Fitter, a professor of biology at the University of York who has documented the trend toward earlier-blooming flowers in Britain, said the studies' conclusions that the ranges of hundreds of species are shifting northward in response to warming temperatures are disconcerting. He said the two papers show that plants and animals are already being affected by global warming, although Earth's average temperature climbed only about one degree Fahrenheit in the past century. "These papers are the conclusive evidence that the natural world is already responding in a big way to climate change, even though that change has only just got going and there is a lot more to come," Fitter said. A United Nations panel has predicted that average global temperatures could rise as much as 10.5 degrees Fahrenheit over the next century as heat-trapping gases from human industry accumulate in the atmosphere. Fitter said if that occurs, it may drive some plant and animal species to extinction as their ranges shrink or they are forced to compete with other species moving into their territory.

Working independently, two research teams reviewed hundreds of published papers that tracked changes in the range and behaviour of plant and animal species believed to be caused by human-driven global warming.

Both teams concluded that they had found the "fingerprint" of global warming on hundreds of species, from insects to birds and mammals, even after taking into account other possible causes such as habitat loss.

Other scientists said the two studies, in pulling together hundreds of published scientific papers for two comprehensive analyses, add another piece of evidence - along with retreating glaciers, warming oceans and shrinking snow cover - that global warming is impacting the Earth.

Mike Novacek, provost of science of the American Museum of Natural History in New York, said much of the data in the two papers was based on studies of wildlife found in North America and the United Kingdom.

New research of plants and animals representing a wider range of Earth's life would conclusively pin down the evidence, said Novacek, who was not involved in the research. Camille Parmesan, a biologist at the University of Texas at Austin, worked with a colleague to review studies that tracked about 1,700 species, often over several decades. While about half of the species showed no changes in behaviour or range shifts, the changes seen in the other half clearly pointed to global warming as the culprit, she said.

"The climate scientists have really shown that global warming is happening. What we've found is that it's not only happening but it's having a big impact," she said. In an analysis of 172 species of plants, birds, butterflies and amphibians, Parmesan found that spring events such as egg-laying or flower-blooming advanced 2.3 days on average each decade. Her analysis of studies of 99 species of birds, butterflies and alpine herbs in North America and Europe found these species' ranges have shifted northward an average of about 3.8 miles (6.1 kilometres) per decade. Most striking, she said, was the case of the sooty copper, a butterfly common near Barcelona until recent decades. These days, however, residents of the Spanish city must travel about 60 miles (100 kilometres) north to find this butterfly. Meanwhile, the sooty copper's northern range, which once ended in Austria, has shifted into Estonia during the past five years, Parmesan said. The insect had previously never been seen in that Baltic nation.

A second study by Stanford University researchers reviewed scientific studies that involved more than 1,400 plant and animal species. Terry L Root, a senior fellow at Stanford's Institute for International Studies, and five colleagues determined that about 80 per cent of those species have undergone range or behavioural changes likely caused by global warming. They found, for example, that the earlier arrival of spring weather had shifted events such as egg-laying, the end of hibernation and flower blooming ahead about five days per decade for temperate-zone species.

#### 11) SCIENTISTS DISCOVER GLOBAL WARMING LINKED TO INCREASE IN TROPOPAUSE HEIGHT OVER PAST TWO DECADES

SpaceRef

January 4, 2003

Internet: <http://www.spaceref.com/news/viewnews.html?id=673>

LIVERMORE, Calif. -- Researchers at the Lawrence Livermore National Laboratory have discovered another fingerprint of human effects on global climate. Recent research has shown that increases in the height of the tropopause over the past two decades are directly linked to ozone depletion and increased greenhouse gases. The tropopause is the transition zone between the lowest layer of the atmosphere -- the turbulently-mixed troposphere -- and the more stable stratosphere. The tropopause lies roughly 10 miles above the Earth's surface at the equator and five miles above the poles. To date, no scientist has examined whether observed changes in tropopause height are in accord with projections from climate model greenhouse warming experiments.

The comparison was made by Livermore scientists Benjamin Santer, James Boyle, Krishna AchutaRao, Charles Doutriaux and Karl Taylor, along with researchers from the National Center for Atmospheric Research, NASA Goddard Institute for Space Studies, the Max-Planck Institute for Meteorology and the Institut für Physik der Atmosphäre in Germany. Their findings are reported in the today's (Jan. 3) online edition of the Journal of Geophysical Research-Atmospheres. This research undercuts claims by greenhouse skeptics that no warming has occurred during the last two decades. Such claims are based on satellite measurements of temperatures in the troposphere, which show little or no warming since the beginning of the satellite record in 1979.

"Weather balloons and weather forecast models show that there's been a pronounced increase in the height of the global tropopause over the last two decades," Santer said. "Our best understanding is that this increase is due to two factors: warming of troposphere, which is caused by increasing greenhouse gases, and cooling of the stratosphere, which is mainly caused by depletion of stratospheric ozone. Tropopause height changes give us independent evidence of the reality of recent warming of the troposphere." The Livermore research supports the bottom-line conclusion of the 2001 Intergovernmental Panel on Climate Change (IPCC), which states that, "most of the observed warming over the last 50 years

is likely to have been due to the increase in greenhouse gas concentrations."

Earlier research showed that changes in the Earth's surface temperature, ocean heat content, and Northern Hemisphere sea ice cover are other indicators of human effects on climate change. "The climate system is telling us a consistent story -- that humans have had a significant effect on it," Santer said. "We're seeing detailed correspondence between computer climate models and observations, and this correspondence is in a number of different climate variables. Tropopause height is the latest piece of the climate-change puzzle."

To support the research, Livermore scientists examined tropopause height changes in climate-change experiments using two different computer climate models. Both models showed similar decadal-scale increases in the tropopause height in response to changes in human-caused climate forcings. The patterns of tropopause height change were similar in models and so-called 'reanalysis' products (a combination of actual observations and results from a weather forecast model).

The model experiments focused on both manmade climate forcings, such as changes in well-mixed greenhouse gases, stratospheric and tropospheric ozone, and on natural forcings, such as changes in volcanic aerosols. The forces have varying effects on atmospheric temperature, that in turn affect tropopause height, the report concludes. Founded in 1952, Lawrence Livermore National Laboratory is a national security laboratory, with a mission to ensure national security and apply science and technology to the important issues of our time. Lawrence Livermore National Laboratory is managed by the University of California for the U.S. Department of Energy's National Nuclear Security Administration.

## 12) CULTURE CLUB

Economic Times

January 4, 2003

Internet: <http://economictimes.indiatimes.com/cms.dll/xml/comp/articleshow?artid=32991584>

The environment was just right to link global issues like climate change and sustainable development to domestic politics. But the year gone by saw India waste a good opportunity to draw the business circle into the green culture. If the CII complained that it had been kept out of the World Summit on Sustainable Development, individual entrepreneurs with skeletal proposals for the much-hyped Clean Development Mechanism (CDM) under the Kyoto Protocol went round in circles looking for guidance. All along, international business houses and multilateral agencies went to town with the message that green is also the colour of money! To be fair, the minister for environment and forests, TR Baalu, made it clear that it would be unrealistic to expect carbon trading to take off immediately. There are a lot of issues to be ironed out and '02 was devoted to this.

Notably, at COP 8, India valiantly led developing countries in resisting pressure from developed ones to take on commitments in reducing greenhouse emissions. When developed countries tried to initiate a dialogue on broader participation in greenhouse gases mitigation commitments for a period beyond '12, India argued that the per capital greenhouse gas emissions of developing countries was much lower. Also, that the overriding priority for developing countries was poverty eradication, for which economic growth is essential. Yet India was accused of soft-peddalling on contentious issues — taking refuge behind the "sustainable development" formula. COP 8 did advance the operation of the Special Climate Change Fund and Least Developed Countries Fund to provide financial resources to developing countries. It also concluded three years of negotiations on reporting/review under the Kyoto Protocol. The Delhi Ministerial Declaration on Climate Change and Sustainable Development finally brought into focus the issue of adaptation to the adverse effects of climate change.

## 13) MELTING ICE SHEET IN ANTARCTICA YIELDS CLUES ON GLOBAL WARMING

Seattle Post Intelligencer

January 3, 2003

Internet: [http://seattlepi.nwsource.com/local/102682\\_antarctica03.shtml](http://seattlepi.nwsource.com/local/102682_antarctica03.shtml)

A vast Antarctic ice sheet could melt away in 7,000 years, possibly raising sea levels around the world by 16 feet, a study by University of Washington scientists has found. And global warming could hasten the process. The West Antarctic Ice Sheet, covering 360,000 square miles, started melting thousands of

years before mankind began burning coal and oil -- a "natural" rate that has held steady over the centuries, according to the study. "If we make the world warmer, it will very likely accelerate the melting rate," said John Stone, lead author of the study and a glacial geologist with the UW's Department of Earth and Space Sciences. "How much, we don't know." The discovery, published in the current issue of the journal *Science*, brings to light new challenges in dealing with global warming. Sea levels are rising because of melting glaciers and ice caps, plus a warming of the oceans that causes the water to expand. This threatens to drown some islands and coastal areas. Because the ice sheet -- about the size of Texas and Colorado combined -- sits on bedrock that's mostly below sea level, scientists believe it's particularly susceptible to future thinning and warming of the oceans around its edges.

As glaciers grind slowly downhill, underlying rocks and small boulders are left behind like an outgoing tide leaving starfish on a beach. Released from the ice, the rocks on the peaks are bombarded with cosmic rays that irradiate them, converting elements into radioactive materials. Stone collected rocks from the slopes of seven different mountains on the Antarctic coast, ground them up, then measured the amount of an isotope of beryllium. The amount of radioactive beryllium indicated how long ago the glacier had uncovered the rocks. Stone and colleagues from the UW and three other institutions made the surprising discovery that the glacier had been receding at a steady state for more than 10,000 years. By contrast, the huge glaciers that covered areas of North America and Europe reached their maximum girth about 20,000 years ago and had mostly disappeared by the time the glaciers of West Antarctica were just starting to melt. Enough water has already been released by the Antarctic ice sheet to raise sea levels almost 33 feet. If the rest of the water that's locked up in the sheet melted, the oceans could rise an additional 16 feet, the study found.

During the 20th century, sea levels rose about a half-foot due to melting ice and warmer ocean conditions. The effects could be compounded if the climate change results in stormier conditions. "It's a lot of dikes you have to keep raising," said Edwin Waddington, a UW glaciologist. Scientists agree that the climate is warming, but there's debate over how fast human behavior -- primarily the burning of fossil fuels -- is pushing the mercury higher. Stone, who received funding from the National Science Foundation, would like to return to Antarctica and use his new technique to study other glaciers. It took two trips to get the approximately 1,500 pounds of rocks he analyzed. Most Antarctic research had focused on what was happening in the past few decades using satellite technology or historic accounts of the size and extent of glaciers. The new research provides needed background for understanding more recent changes. "When people are trying to determine how fast the sea level is rising and why, you've got to have all of the parts to the equation," said Robert Ackert Jr., a glacial geologist at Woods Hole Oceanographic Institution in Massachusetts. "The Antarctic might be a bigger chunk than we had thought."

#### 14) RECORD TEMPERATURES ARE FORECAST FOR 2003

The New York Times

January 2, 2003

Internet: <http://www.iht.com/articles/81978.html>

NEW YORK Climate experts say global temperatures in 2003 could match or beat the modern record set in 1998, when temperatures were raised sharply by El Niño, a periodic disturbance of Pacific Ocean currents that warms the atmosphere. The El Niño that year was the strongest ever measured. A new one is brewing in the Pacific but is expected to remain relatively weak, experts say. Still, they say, a persistent underlying warming trend could be enough to push temperatures to record highs. Some of the warming could be the result of natural climate variation, but the experts say it is almost impossible to explain without including the heat-trapping properties of rising levels of carbon dioxide and other greenhouse gases emitted by smokestacks and tailpipes.

The mounting evidence of human contributions to climate warming has raised pressure on American policymakers to reconsider their reliance on voluntary measures for reducing heat-trapping emissions. At a meeting of climate scientists organized by the Bush administration last month, White House officials said President George W. Bush was no longer locked into the stance he announced last year - calling for nothing beyond voluntary measures to slow the growth in emissions until 2012. And Senator John McCain, Republican of Arizona, and Senator Joseph Lieberman, Democrat of Connecticut, plan to introduce legislation early in 2003 that would gradually establish mandatory greenhouse gas restrictions and a system in which companies could trade credits they would earn by making emissions cuts.

The European Union, Japan and most other industrial powers have ratified the Kyoto Protocol, a treaty that, once in effect, will require them to make reductions. The growing shift toward action in the American debate over greenhouse emissions comes after a decade of mounting evidence that the recent warming is caused mainly by rising concentrations of such substances. The main means of tracking climate change has been to synthesize hundreds of measurements of surface temperatures around the world into a global average. This average reading is meaningless for any particular spot, but it is a valuable way to measure long-term trends, and it puts the planet in its warmest period in a millennium, with the trajectory still headed upward.

According to the Commerce Department, the global average surface temperature increased at a rate of about one degree per 100 years over the 20th century, but since 1976 the earth has been warming at the rate of about three degrees per century. The Hadley Center for Climate Prediction and Research in Britain put the odds at 50-50 for 2003 to match or exceed the temperature record set in 1998. James Hansen, the director of the National Aeronautics and Space Administration's Goddard Institute for Space Studies, put the odds higher than that, barring a big new sun-blocking volcano or the like. A decade-long paucity of big volcanic eruptions and a peak in solar intensity can account for only part of the overall warming, he said, adding, "Clearly it's primarily due to human forcing."

The global average temperature reached 58 degrees Fahrenheit (14.44 centigrade) in 1998, while the average from 1880 to 2001 was 56.9 degrees (13.83). Preliminary estimates put the global temperature in 2002 at 57.9 degrees (14.39). Areas like Alaska have experienced sharper warming, in patterns that largely match projections produced by computer simulations of the climatic effect of rising greenhouse gases. The National Oceanic and Atmospheric Administration reported this month that satellite tracking of surface conditions on Greenland's vast ice sheet saw more melting last summer than at any time in the 24-year satellite record. Arctic sea ice also retreated more than it had done before in that span, the agency said.

These time spans are short when it comes to climate, and polar experts say it remains exceedingly difficult to ascribe regional changes to human actions rather than natural cycles in ocean and weather circulation around the Northern Hemisphere. The continuing global climb in temperatures, however, is getting harder to link to natural climate fluctuations, many scientists say. Even if 2003 does not set a record, many experts say, it almost undoubtedly will follow a generation-long rise in temperatures that has put the planet on course for substantial shifts in drought and storm patterns, continuing and significant retreats of terrestrial ice, and a resulting rise in sea levels in coming decades. In December, American and British climate teams and the World Meteorological Organization reported that 2002 would nudge out 2001 as the second-warmest year since the late 1800s.

While debate about the amount of atmospheric warming plays out, there is little disagreement about the extent of warming at the surface. The shifts around the Arctic - whether natural or human-induced - are profound, said Waleed Abdalati, NASA's director of polar programs. "The Greenland melting or the changes in ocean circulation or sea ice, any one of those is kind of a 'Wow, that's interesting,'" he said. "But when you see them collectively and kind of working in concert with one another," Abdalati added, "that's very significant."

#### 15) AIR POLLUTION IN 2002: LOOKING BACK OVER CLIMATE CHANGE, PARTICULATES AND CO.

Eddie weekly summaries

January 3, 2003

Internet: [http://www.edie.net/gf.cfm?L=left\\_frame.html&R=http://www.edie.net/news/Archive/6459.cfm](http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6459.cfm)

There was something in the air in 2002, and in some countries it was largely pollution. In the US, half the country's population breathed in polluted air, whilst brown haze over Asia was in danger of causing dramatic climactic changes. Good news included China's success at cutting methane emissions, and the fact that carbon dioxide could be stored underground for millions of years. The year started with news in January that companies in the Australian state of New South Wales would be fined for failing to cut their greenhouse gas emissions. However, in the US, the Government fixed the country's vehicle fuel efficiency levels for a further two years, despite being at a 20-year low.

Global warming could threaten the future of the Winter Olympics, it was revealed in February, a scenario

that could have been brought forward by US President George W Bush's new plan to tackle climate change that involved reducing only greenhouse gas 'intensity'. The good news from the US, however, was that polluters had paid over US\$4 billion for control and cleanup in 200, and the country's air quality had improved dramatically over the last 30 years. The following month, in March, air pollution's effect on health was hitting the headlines. Healthy blood vessels were constricting, particulates were increasing the risk of lung cancer, as had weapons testing in the 1950s. The new danger, however, was climate change, threatening to increase respiratory illnesses. The good news was that greenhouse gas markets across the globe were opening up. In April, lakes were found to emit carbon dioxide, and tropical rainforests might not be the carbon sponges they have been presumed to be. The following month a group of researchers from Wisconsin, US, agreed, saying that the Amazon could actually be a carbon source. The Chinese decided to promote electric vehicles, and a US utility decided to relocate an entire town, rather than clean up its own air pollution.

In May, New Zealand proposed an unpopular carbon tax, and Hong Kong vowed to clean up its air pollution. In the US, it was revealed that half of the country's populace breaths unhealthy air. Further prosperity would be postponed only two years under the Kyoto regime, it emerged in June, whilst ozone recovery could be hampered by the effects of climate change, according to NASA. The Japanese launched equipment that they claimed could reduce carbon dioxide emissions by 90%, and in order to make up for their own greenhouse gas emissions, New York trucking companies planted trees. Bicycles were big news in July, as they appeared to be emerging as the transport vehicle of the future, more popular than the car. Meanwhile, the Australian prime minister noted that although he was concerned about climate change, he would not ratify the Kyoto Protocol as it would not be good for Australian jobs. In the US, however, voters were found to be critical of their own premier's similar stance, revealing that they believed a lack of action on global warming to be irresponsible and short-sighted. Californians were more proactive, bringing in a bill to cut exhaust emissions from cars and trucks.

August saw two US government banks being sued by environmentalists for their lending impact on climate change, whilst it was revealed that marine habitats were at risk from the associated increasing temperatures, rising sea levels and changes in circulation patterns. Asian brown haze made its annual appearance raising the fear that it could cause a climate crisis. Sixty-four of the world's poorest nations benefited from a US\$100 million donation from the Kyoto fund to finance clean energy in September. It was revealed that Carbon dioxide could be stored underground for millions of years, which was fortunate in the light of the news that carbon dioxide emissions could rise 70%, rather than fall by 5.2% by 2012 hoped for under the Kyoto Protocol. In California, meanwhile, it was revealed that the state's children exceed their lifetime pollution limits after only 12 days.

In October, there was good news that six developing nations had made considerable progress on cutting their greenhouse gas emissions, although it was also revealed that diesel engines may have a greater effect on climate change than those powered by, due to the effect of particulates. A US study called for methane emissions to be tackled globally because of the gas' effect on the climate. Australians – if they wished to – could cut their greenhouse gas emissions by 60%, it emerged in November, although a group of London-based economists claimed that the Kyoto Protocol would fail to prevent climate change.

Meanwhile in the US, it emerged that states were taking on climate change mitigation despite their presidents aversion to such action, and an air pollution trading scheme intended to reduce emissions of sulphur dioxide appeared to be working. The bad news was that the microchip has a disproportionately large effect on the environment. A two-gram chip requires 3.7 pounds of fossil fuel energy and chemical inputs, said researchers from the UN University in Tokyo.

In December, evidence emerged that the dreadful accident in Bhopal, India, 18 years ago that killed at least 8,000 people and injured 150,000, could have been the result of corner-cutting by Union Carbide. The suing by environmental groups of US government organisations over their impact on climate change continued, with the EPA becoming the latest victim, but in China it was revealed that rice farmers had cut their methane emissions by 40% in 20 years, and New Zealand and Canada ratified the Kyoto Protocol. Finally, US researchers found that if you want to know the levels of pollutants in the air, analyse lichens.

## 16) AIR POLLUTION IN REVIEW FOR 2002, A YEAR FOR TACKLING TRANSPORT EMISSIONS

Eddie weekly summaries  
January 3, 2003

Internet: [http://www.edie.net/gf.cfm?L=left\\_frame.html&R=http://www.edie.net/news/Archive/6464.cfm](http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6464.cfm)

Air pollution issues over the last 12 months have centred around traffic, with good news for alternative technology, but increasing criticism of air travel. However, if you're heading abroad for some winter sun, you could do worse than buy a tree to soak up your carbon dioxide emissions. The year began well, with new UK air quality statistics showing a gradual overall improvement in urban areas since 1993, although the trend in rural areas was less clear. The 2001 air quality figures from the Office of National Statistics showed that during 2001 there was an average of 21 days in which air pollution was moderate or higher. February was the month for alternative vehicle fuels, with BP launching its sulphur-free petrol the City of Hull decided to use a new 5% biofuel-diesel mix, and the Cardiff announced that it was going to use green driverless taxis. To drive it all home, the Government's Chief Scientific Advisor called for the sale of fossil fuels for use in vehicles to be banned. On the corporate side, 46 companies signed up for the UK's new nationwide emissions trading scheme – the world's first, whilst the country as a whole was on track to miss its greenhouse gas emission targets.

In March, environmental group Friends of the Earth made it known that factories across the country has reduced their emissions of cancer-causing pollutants. On 7 March, Secretary of State for the Environment, Margaret Beckett announced that the UK would be ratifying the Kyoto Protocol on emissions of greenhouse gases as soon as possible, committing to cut emissions by 12.5% by 2008-2012. Chancellor of the Exchequer Gordon Brown's budget in April was good news for the country's least polluting vehicles, with cuts in road tax and 100% enhanced capital allowance for company cars. The National Society for Clean Air called on the Government to support clean technology, and for good reason, as carbon dioxide emissions were found to have increased for the second year running. Fortunately, other greenhouse gas emissions in the UK continued to decline. Climate change continued to be an important issue in May, following a warning that its impacts would be sharper and will occur sooner than previously predicted. The Government was also advised that it was missing opportunities to reduce greenhouse gas emissions by failing to produce a common label for products that contribute to climate change.

In June, a scientist announced that he was investigating ways of mitigating the impact of air pollution from motorways. Fortunately, the general travelling public were also doing their bit with the news that railway use was growing at a faster rate than car use. The question was, is the Climate Change Levy effective? According to London Electricity, despite all the criticism it's a valid method of motivating business to improve its energy efficiency. In July, airline passengers were offered the opportunity to buy trees in order to offset the carbon dioxide emitted by their flight. There were also calls for car drivers to pay more for their emissions, with a suggestion for pay-as-you-go motor insurance, and Environment Secretary Margaret Beckett launched the ALTER project, promoting lower emissions from vehicles in towns and cities. Airlines were also the focus of attention in August, when the Institute of Public Policy Research (IPPR) called on them to pay for their environmental pollution. The Government announced that it would raise targets for carbon monoxide, benzene, particulates and polycyclic aromatic hydrocarbons. In Brighton, a group of 16 companies decided to balance their carbon emissions. September saw the launch of an environmentally friendly boat engine, with no oil, propeller, and little noise. The ministers in the Department for the Environment, Food and Rural Affairs underwent a portfolio reshuffle, and the Department of Trade and Industry announced that it would investigate the practicality of storing carbon dioxide underground.

In October, the IPPR reared its head again, calling this time for the closure of fossil fuel power stations in order to reduce greenhouse gas emissions. Research also revealed that a phenomenon called 'singing' can damage clean combustors, and a scientist at the University of Edinburgh counted the costs – and savings – of climate change. A Londoner can save up to £80,000 in his lifetime by cutting emissions, if he puts his mind to it. November - a busy month - saw a new professional body for air quality, a 5% drop in the Government's greenhouse gas emissions and a disappointing pre-budget statement from the Chancellor. As the UK's carbon dioxide emissions rose, a group of scientists called for the Climate Change Levy to be scrapped. But Newcastle came to the rescue by announcing that it was to be the first city in the world to go carbon neutral, and a bright spark suggested giving cars eco-labels. Airlines came under attack yet again in December for their greenhouse gas emissions, this time from the Royal Commission on Environmental Pollution, and Transport Secretary Alistair Darling admitted that the Government's transport policy is failing.

17) ENERGY REVIEW FOR 2002: WIND ENERGY THRIVES, BUT KYOTO COULD PUSH PRICES UP

Eddie weekly summaries

January 3, 2003

Internet: [http://www.edie.net/gf.cfm?L=left\\_frame.html&R=http://www.edie.net/news/Archive/6447.cfm](http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6447.cfm)

The past year saw wind power continuing to grow across Europe, with wind farms planned off the coasts of Ireland and Sweden, and Germany predicted to become a world leader in wind energy. The EU launched an 'intelligent energy' programme to boost the renewables market and increase energy efficiency, while a spate of reports argued the real costs of reducing greenhouse gas emissions in Europe. Ireland launched 2002 with the go-ahead for a new €643 million wind farm, the largest offshore wind farm to be built in the world. And in February the Irish government announced the approval of a 363MW green energy generating plant to provide electricity for up to 250,000 homes. A separate report showed that 2001 was another record year for European wind power, with an additional 4,500MW of wind power capacity raising Europe's total to 17,000MW. March released a report predicting renewable energy in Europe will reach 109GW by 2010, while in April the European Commission launched a new €215 energy programme focusing on renewables and energy saving.

The month of April also saw arguments over the costs of meeting Kyoto emissions targets emerge in two contradictory studies, while a German study on wind power suggested the country would become a world leader in wind energy. A European conference warned that more research was needed to reduce the costs of wind power. May revealed EU power prices would have to rise by up to 13% to meet greenhouse gas emissions targets, while in June EU ministers agreed to back a Commission proposal to boost energy efficiency in European buildings by setting up a standard system for maximising energy efficiency. The World Wildlife Fund also launched a European green energy standard.

In July a US group warned that implementing the Kyoto protocol could damage the EU economy, while a Nordic fund donated €10 million to the Baltic Sea Region to become a testing ground for Kyoto mechanisms to reduce carbon dioxide emissions. Ventilation was the subject of an August report suggesting Europe could save €2.6 billion and 20% in energy by increasing the efficiency of air conditioning systems in offices and businesses. In September a Danish report criticised the "doomsday prophecies" of the World Wildlife Fund following its calculation of the population's ecological footprint. The Basque government announced in October that Spanish classrooms would soon be basking in the warm glow of the sun from solar panels mounted on roofs and classroom walls to promote solar power to the next generation.

November saw the European commission's proposals for directives on nuclear safety and nuclear waste management, while a pressure group warned that setting up new nuclear power stations in the UK could cost the public £1 billion. Elsewhere, a Swedish crematorium offered to pump excess heat from its furnace into the city's central heating system. The year ended with the launch of a website to stimulate public debate on the future of energy and a warning that EU countries would miss greenhouse gas reduction targets if they continued to pursue inadequate policies on cutting emissions.

## 18) CAR IMPORTS TO DISPLAY GREEN CREDENTIALS

Swissinfo

January 3, 2003

Internet: <http://www.swissinfo.org/sen/Swissinfo.html?siteSect=111&sid=1349017>

Car buyers will have less trouble identifying gas-guzzlers when buying a new vehicle (Keystone Archive) Fuel consumption labels are to be slapped on all new car imports from January 2003 to encourage Swiss consumers to avoid gas-guzzlers. The colourful labels, coded A to G, are similar to those already seen on electrical appliances, and will help emphasise cars that use less fuel. The A category will be awarded to smaller, urban-friendly cars, whereas the other end of the scale will be used to identify less environmentally sound models. The new classification for car imports is to be included in showroom brochures and price lists.

The initiative is part of an agreement signed last year by the Swiss car importers association, Auto Schweiz, and the government-run SwissEnergy programme. According to Hans Luzius Schmid, deputy head of the Swiss Federal Energy Office, the new project is designed to help consumers play a role in reducing Swiss fuel consumption. During the 1990s, consumption increased by between eight and nine per cent. "The average motor fuel consumption of new cars sold in Switzerland will have to be reduced

from 8.4 litres to 6.4 litres per 100 kilometres by the year 2008," said Schmid. Schmid added that the labels could aid the reduction of carbon dioxide emissions from vehicles by eight per cent by 2008. This would be in keeping with Switzerland's energy targets based on the Kyoto Protocol, he said. A recent Austrian study found that fuel consumption levels could be brought down by up to four per cent annually with the help of the labels.

However, Rudolf Blessing of Auto Schweiz says that while there is optimism about the new car stickers, they may not necessarily curb the sales of cars with high fuel consumption. "The government thinks it will have an effect of about 4.5 per cent on fuel consumption," said Blessing. "Our organisation is not sure it will reach this figure but we hope so, because we have an agreement with the government to reduce fuel consumption by two litres between 2000 and 2008." Blessing adds that the use of greater quantities of gasoline by larger G-grade cars actually poses a greater risk for the environment than emissions from smaller diesel-fuelled A-type vehicles. The European Union issued a directive two years ago demanding that cars carry fuel consumption labels but countries have failed to act. Last week the government announced plans to impose a new tax on sulphur-rich petrol and diesel. The environment ministry said the aim of the levy of SFr0.05 (\$0.03) per litre was to limit consumption of sulphur-rich fuel and reduce the emission of greenhouse gases. The tax will come into effect in 2004, if it receives parliamentary approval.

#### 19) ANTARCTICA'S ICE SHEET MELTING NATURALLY

BBC

January 3, 2003

Internet: <http://news.bbc.co.uk/2/hi/science/nature/2624603.stm>

The West Antarctic Ice Sheet (WAIS) has been melting naturally and releasing water to the ocean for the last 10,000 years. Research published in the journal Science suggests that the last Ice Age never really came to end in that part of the world. If the melting continues at its current rate then the WAIS could disappear in 7,000 years, possibly raising worldwide sea levels by five metres. However scientists warn that a sudden rapid melting of the WAIS could cause serious problems for some coastal regions.

#### ROCK CLIMBING

Geologists measured the chemical composition of rocks collected on seven mountains in the Ford Ranges near the Ross Sea. Some of the peaks are almost a mile high (1.6 kilometres), but were completely covered in ice 10,000 years ago. But as the ice began to melt away and the glaciers retreated, rocks were left behind on the freshly uncovered mountains. The rocks were exposed to cosmic rays from deep space and so their chemical make-up changed. By looking at the composition of the rocks the geologists could calculate how old they were and therefore when the ice melted.

#### ICE AGE

Professor John Stone from the University of Washington led the teams behind the work. He said: "In all cases we got very tight, consistent correlations of age with altitude, so we are able to track the margins of the ice sheet coming down the mountain sides with this approach." The most surprising finding though is how recently the ice has thinned in West Antarctica. Ice sheets in North America and Europe had nearly all melted 10,000 years ago, but this process had only just started in West Antarctica at that time. "The Ice Age never really came to an end in that part of the world" Professor Stone said. The WAIS, which covers an area of 360,000 square miles (580,000 km), is currently melting at a slow and steady rate and if this continues it will disappear in another 7,000 years. Professor Stone says this would raise the global sea levels by about five metres. But he warns: "A rapid melting event that released even a small fraction of this amount could have disastrous consequences for coastal regions." The scientists stress this melting of the WAIS is a natural process but they cannot rule out that global warming may now be playing a part. As much of the ice sheet is below water the WAIS could be very sensitive to the warming of the oceans.

#### 20) BRITAIN URGES MOTORISTS TO CHANGE TO CHEAPER GAS

Planet Ark

January 3, 2003

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/19269/story.htm>

LONDON - British Energy Minister Brian Wilson urged motorists yesterday to convert their vehicles to use liquefied petroleum gas as a cheaper and cleaner alternative to petrol, particularly as prices rise across Europe. "Liquefied petroleum gas (LPG) is an option which has already removed thousands of motorists from uncertainty about pump prices. I hope many more motorists will consider it," Wilson said in a statement. Drivers are facing higher petrol prices at the start of 2003 amid increased tension over a possible U.S.-led war against Iraq and a crippling month-long strike in key oil producer Venezuela. Supermarket retailer Safeway (STW.L) lifted its petrol pump prices by two pence on January 1. Other retailers have already done so or are set to follow.

British motorists suffer from some of the highest petrol prices in the world, with an average of 75.5 pence (\$1.22) a litre. Government taxes make up around 80 percent of the total. "LPG is half the price of petrol. It emits fewer greenhouse gases and is therefore one of the most environmentally friendly options currently available," Wilson said. While making millions from taxing petrol, Britain is providing incentives for cleaner fuels as part of its commitment to reducing greenhouse gases - blamed for global warming - under the U.N. Kyoto Protocol. LPG produces around 12 percent less carbon dioxide than petrol, and fewer harmful particulate and nitrogen oxide emissions than diesel. The government recently provided one million pounds (\$1.61 million) to help train garage mechanics to convert engines to LPG and covers half of the 1,700 pound (\$2,741) conversion cost. It has frozen duty on LPG after reducing it 40 percent in 2001. LPG vehicles will also be exempt from a congestion charge for drivers entering central London from mid-February. The government hopes to increase use of LPG vehicles in Britain to 250,000 by 2005 from only around 65,000 in 2002, even though few fuel stations currently sell the gas.

More than five million drivers use LPG worldwide.

## 21) COMPANY TO BEGIN LEASING STATIONARY FUEL CELLS IN JAPAN

Fuel Cell Today

January 3, 2003

Internet:

<http://www.fuelcelltoday.com/FuelCellToday/IndustryInformation/IndustryInformationExternal/NewsDisplayArticle/0,1471,2312,00.html>

According to reports in the Nihon Keizai Shimbun, Japanese company First Energy Service Co. will begin leasing eco-friendly fuel-cell power-generation systems for plants and offices in January 2003. The new service will install co-generation systems using high temperature fuel cells at plants and buildings. The systems will emit little in the way of carbon dioxides or nitrogen oxides, and can be fueled by methane gas discharged from breweries or sewage disposal plants, or by natural gas.

First Energy will be responsible for the purchase of units from fuel cell developers, and for installing them at plants or other buildings, procuring natural gas or other fuels and maintaining and repairing systems for customers. The service will allow corporations wanting to install fuel-cell systems to save on initial capital costs. Customers will instead pay First Energy for the electricity generated by leased units, which is not expected to be more expensive than electricity from the grid.

First Energy was set up in 1997 by Japan Research Institute and twenty other companies, including Iwatani International Corp., Ishikawajima-Harima Heavy Industries Co., Ebara Corp., Sumitomo Metal Industries Ltd., Electric Power Development Co. and Yokogawa Electric Corp. Capitalised at 400 million yen (US\$3.3 million), First Energy expects to generate around 2 billion yen in sales (almost US\$17 million) by March 2004. Over the next two or three years it expects to win around 20-30 leasing contracts. Japanese manufacturers are under increasing pressure to reduce CO2 emissions, not only from the Kyoto Protocol, but also from the Tokyo Metropolitan Government, which is planning to mandate large businesses to slash CO2 emissions.

## 22) HOLD THE COAL, SAY CONSUMERS, AND PASS THE WIND

Sydney Morning Herald

January 2, 2003

Internet: <http://www.smh.com.au/articles/2003/01/01/1041196690690.html>

Propeller power ... a queue is forming for greener energy sources. People are so keen to buy environmentally friendly power that electricity suppliers have been forced to buy more from sources such as wind farms and hydro-electric schemes. A growing number of households are choosing to pay more for green power, but many have had to wait because retailers underestimated the demand. Across Australia, 62,000 households are seeking the cleaner alternative, according to the latest audit of the nationwide Greenpower scheme. Biomass and hydro-electric generators provided most of this power, while solar systems and wind turbines accounted for just over 10 per cent. Energy suppliers cannot stop coal-generated electricity reaching customers, but they can guarantee that the amount of power taken is replaced by cleanly produced electricity. Energy Australia's Pure Energy scheme, which can offer customers either half or all of their power from clean sources, has more than 11,000 domestic customers and more waiting.

A spokesman said that although demand had been outstripping supply for some months, Energy Australia had recently bought more power from renewable sources. Integral Energy has just begun to offer green options to domestic customers, and will give them the choice of what type of power they want. Demand for clean power is expected to continue rising under the NSW Government's greenhouse gas-reduction law, which came into effect yesterday. It compels power companies to reduce their emissions by 5 per cent on a per capita basis by 2007, compared with 1989-90 levels. As well, the lower emissions must be maintained beyond 2007 for a further five years. It is estimated this will reduce greenhouse gas emissions in NSW by 15 per cent. The Premier, Bob Carr, said the law cemented "NSW's position as the greenest state in the country and a world leader in this area". "Global warming is one of the most pressing environmental issues facing the world and this program is aimed directly at one of the most greenhouse gas intensive industries - energy generation," he said. A meeting between state and territory leaders early this year will explore greenhouse gas reduction targets so that Australia can reach the national target set by the Kyoto protocol. However, Australia is expected to miss its target by 3 per cent and the Federal Government believes it is not in the country's interest to ratify the protocol.

### 23) CALIFORNIA EMISSION STANDARDS SHOULD BE MODERATED, CHRYSLER SAYS

AP

January 2, 2002

Internet:

[http://story.news.yahoo.com/news?tmpl=story&u=/ap/20030103/ap\\_wo\\_en\\_po\\_na\\_fin\\_us\\_la\\_auto\\_show\\_2](http://story.news.yahoo.com/news?tmpl=story&u=/ap/20030103/ap_wo_en_po_na_fin_us_la_auto_show_2)

LOS ANGELES - Chrysler Group President Dieter Zetsche called the California market both important and problematic for U.S. auto makers looking to increase market share while meeting stringent environmental demands. Chrysler wants to increase its market share in the state from 8 percent to 9.5 percent by 2004, but also wants to work with state regulators to moderate mandates for zero-emission vehicles, Zetsche said Thursday. "We want to work together with the state of California to find common ground," Zetsche told journalists at the opening of the Greater Los Angeles Auto Show.

Chrysler will produce its first hybrid pickup truck later this year. But Zetsche said that hybrid technology, which combines a gasoline-powered engine and an electric motor, is not a viable long-term technological or commercial alternative. "Hybrids have yet to prove they make business sense," he said. Both Toyota and Honda already sell hybrid cars: Toyota alone has sold more than 120,000 since it introduced its first, the Prius, in 2000. California has mandated that an increasing number of new cars and trucks sold in the state emit no pollution. The mandate was to have taken effect this year, but auto manufacturers won a preliminary injunction in June 2002 that delays implementation until 2005. Meanwhile, the California Air Resources Board will review the 13-year-old zero-emissions vehicle mandate at its Feb. 26 meeting, spokeswoman Gennet Paauwe said. The proposed changes will be made public Jan. 10, she said. Earlier Thursday, Zetsche said Chrysler intends to have a hybrid car available by 2007, when rival General Motors has said it intends to begin making a hybrid car.

But Zetsche said that clean-burning diesel fuel is the best short-term alternative while waiting for fuel cell technology — using hydrogen and oxygen to generate power — to be perfected. "Diesel has the potential of powering vehicles people will demand," he said. Dan Becker, director of the Sierra Club global warming and energy program, scoffed at that idea in an interview. "If Zetsche thinks the way of the future is 19th century diesel technology instead of 21st century hybrid technology, his company will go further down," Becker said. Chrysler announced in November it would test market a diesel-powered Jeep

Liberty sport utility vehicle in North America starting in 2004.

Zetsche said it is a mistake to think that auto makers have technology readily available to both reduce emissions and power cars with the styling and features consumers demand. "Fuel cell vehicles are not yet commercially viable and electric vehicles may never be," he said. He said his fear is that auto makers may be stymied if states adopt individual emissions standards. California remains the single largest market for auto makers, yet domestic car makers sell less here than their foreign competitors. Imports command 58 percent of the market in California, Zetsche said. To increase market share in the state, Zetsche said Chrysler recently appointed an advertising team exclusively for California. Half of all advertising dollars will be spent to attract Hispanic buyers, he said.

Zetsche also announced that a U.S. plant to produce a new four-cylinder gasoline engine as part of a joint venture between DaimlerChrysler AG, Hyundai Motor Co. and Mitsubishi Motors Corp. (news - web sites) will be jointly managed by the three companies. The companies agreed in December to jointly manage the U.S. plant, Zetsche said. The companies will announce the location of the plant within the next three months, Zetsche said. He declined to say how many people will be employed at the highly automated plant.

"It won't be a huge number," he said. The U.S. plant, which will be completed in 2005, is one of three to be built by the companies. The others will be in South Korea (news - web sites) and Japan. Until Thursday's announcement it had been expected that each partner would individually manage one plant. Hyundai is expected to start producing engines at the South Korean plant in 2004, with Mitsubishi and Chrysler starting the following year. About 40 percent of the 1.5 million aluminum engines expected to be produced at the three plants will be produced in the United States, although all three companies will own an equal share of the joint venture, he said. The joint venture was announced in May.

#### 24) ARGUMENTS HEAT UP OVER WATER, DAMS AND CLIMATE CHANGE

World Rivers Review  
January 2003  
Internet: [www.irm.org](http://www.irm.org)

Dams are moving into the forefront of the climate change debate for two reasons: because existing dams are likely to be badly affected by climate change, and because dam developers are trying to get subsidies from mechanisms devised to mitigate the impacts of climate pollution. Hydrological changes are expected to be some of the most serious consequences of global warming, causing increased flooding and droughts. One result will be a reduction in the ability of dams to provide services such as hydropower and water supply. Serious floods and droughts affecting many parts of the world in recent years, and rapidly melting glaciers in the world's mountainous regions, give a taste of things to come.

The dam industry has been working hard to ensure that large hydro projects gain from the emergent trade in "carbon credits" that is being established under the Kyoto Protocol (while neglecting to mention the hydrological impacts of climate change in any feasibility studies for dams, or that dam reservoirs themselves can emit significant amounts of greenhouse gases). IRN and the Bali-based NGO CDM Watch released a report at the latest round of UN climate negotiations, held in Delhi in October, which reveals that the large-hydro industry could be one of the biggest winners from the carbon trading mechanisms of the UN's Kyoto Protocol. The report shows that efforts to reduce climate pollution will suffer as a result. The new report, "Damming the CDM," shows that big hydro threatens to undermine the Kyoto Protocol by providing carbon-reduction credits for projects that do not actually reduce emissions. Thus far, large dams make up the lion's share of the efforts to reduce climate pollution through carbon trading.

#### POOR MOST VULNERABLE

The Delhi meeting showed a growing realization at governmental levels that intensified floods and drought are now inevitable and that the poor in developing countries are most vulnerable to them, while being the least responsible for greenhouse pollution. Severe droughts are currently causing economic hardship - and in some cases starvation - across Sub-Saharan Africa, India, Southeast Asia, North America and Australia. In Africa, drought is exacerbating the shocks to the continent's food production and distribution systems caused by collapsing economies, political and ethnic violence, and the

HIV/AIDS epidemic. James Morris, executive director of the UN World Food Program (WFP), told the UN Security Council in December that Africa is facing an "immense hunger crisis" with some 40 million people at risk of starvation. While the drought in southern Africa has received most attention in recent months, concern is now growing over drought in Ethiopia, Eritrea and the Sudan. Crops are down 80%, Morris notes.

Much of central and northern India is suffering its fourth consecutive year of drought. Some areas of India received as little as a tenth of average rainfall during the crucial June-September monsoon. In November the WFP told the media that "startling weather patterns have sabotaged the Cambodian rice crop" for the past three years with cycles of exceptional floods and droughts, and that 670,000 Cambodians need food aid. While none are starving, farmers in Australia and the US are also suffering serious drought-induced losses. The Australian government recently said that much of New South Wales is facing its worst drought in a century. Almost the entire western half of the US, as well as large parts of the midwest, southeast and far northeast, have been officially classified as drought-affected in the past year. All or part of 14 western states are suffering "severe," "extreme" or "exceptional" drought.

#### DEADLY FLOODS

The summer of 2002 will be remembered in central Europe for what is being termed "the flood of the millennium." Direct damage in Germany alone is set at around US\$9 billion. Nearly a fifth of all farmland in the Czech Republic is reported to have been flooded. Millions living in northeast India and eastern Nepal were also affected by floods in 2002. The reasons why flood damage is increasing around the world are complex and include factors such as land degradation, bad urban planning, and ironically, the counterproductive results of building dams and embankments for flood control. However, increasingly intense rainfall is also without doubt a major culprit.

While it is not possible to say that any particular extreme weather event would not have occurred in the absence of greenhouse gas pollution, the pattern of increasingly severe hydrological disruptions is consistent with climate change science. And as the earth's atmospheric composition and temperature has already been substantially changed by greenhouse gases - with an increase of around 0.6 degrees centigrade since 1860 - it is reasonable to say that all weather we are now experiencing, extreme or not, is in some way influenced by global warming. Reduced precipitation coupled with rising temperatures are causing an alarmingly rapid shrinkage of glaciers around the world, and especially in the tropics. Ice fields covering the peak of Kenya's iconic Mount Kilimanjaro have shrunk by 80% since it was first mapped in 1912. Unless the rate of shrinkage slows, the snows of Kilimanjaro will be gone within two decades.

The New York Times reported in November that the mass of glaciers and snowcaps in the Bolivian Andes has shrunk by 60% since 1978, and those in Venezuela are "nearly extinct." In many parts of the world, glaciers and snow pack act as water towers, storing winter precipitation and releasing it gradually through the summer melt. The Times points out that the disappearance of Andean glaciers "could lead to water shortages in places like Bolivia and Peru that depend on glaciers and the rain and snow that fall on the mountains for water for drinking, irrigating fields and generating electricity."

#### IMPACTS ON HYDROPOWER

Models of the impacts of climate change on the west coast of the US and Canada also predict serious reductions in water supplies due to shrinking snow packs. A recent study sponsored by the US Department of Energy (based on one of the most conservative climate models) predicts that even if total precipitation remained the same, warmer temperatures would mean that the snow pack in the Pacific Northwest could be halved by 2050. This would reduce the spring flow of the Columbia river by 20%, with major implications for hydropower, irrigation and water supply.

As a general rule, a decrease in run-off produces a greater decrease in hydropower production. Not only is there less water to go through the turbines, but lower reservoir levels reduce water pressure and, thus, the amount of energy in the falling water. According to the US Environment Protection Agency, a 10% decrease in runoff in the lower Colorado River (in the US Southwest) would reduce power production by 36%. The New York Times reported on December 9 that drought in 2002 had reduced US hydro

production by nearly one-quarter. A reduction in hydropower generation due to drought in the Pacific Northwest was one of the reasons behind California's "energy crisis" of 2000 (along with market manipulation by power companies). Drought also forced blackouts and energy rationing in heavily hydro-dependent Brazil in 2000-01. Other countries that have suffered serious drought-induced power reductions in recent years include Albania, Brazil, Chile, Colombia, Ecuador, Georgia, Ghana, Guatemala, Iraq, Kenya, Mexico, Peru, Sri Lanka, Tajikistan, Thailand, Vietnam, Zambia and Zimbabwe.

Norway is one country where energy planners are actually hoping to benefit from climate change. Norway generates almost all of its electricity from hydropower, and climate models predict that the country will get wetter. Yet the Norwegian energy sector is now experiencing the consequences of one of the few certainties about global warming - that it makes things more uncertain. Norway is now suffering a drought that has cut reservoir levels to 20% below normal. In early December Norway's energy minister announced that he could not rule out energy rationing this winter. Countries and regions that are heavily dependent on hydropower are especially vulnerable to global warming - at the same time as droughts reduce their agricultural production, they would also face cutbacks in industrial and other areas of their economy due to energy shortages.

#### MITIGATION MADNESS

The need for all countries to take measures to reduce their vulnerability to climate change was one of the main issues discussed at the October UN climate conference. The "Delhi Declaration," adopted at the end of the meeting, notes that "Developing countries are particularly vulnerable, especially the least developed countries and small island developing States." While "adaptation" to a changed climate was a hot issue at the Delhi summit there was also a widespread recognition - with the notable exceptions of the US, Saudi Arabia and other OPEC states - of the need for more actions on climate "mitigation," in other words reducing climate pollution. By the rules of the Kyoto Protocol, at least 55 countries representing 55% of total carbon dioxide emissions must ratify the treaty in order for it to become legally binding on the signatories. Despite the withdrawal of the US, this threshold would be passed with ratification by Russia, whose signature is expected sometime in 2003. The impending enforcement of the Protocol focused the attention of conference delegates on the workings of the Protocol's carbon-trading mechanisms. These mechanisms are supposed to cut the costs for developed countries of meeting their emission-reduction targets under the Protocol.

The report "Damming the CDM," analyzes the use of hydropower projects in the Clean Development Mechanism (CDM). The CDM is a Kyoto Protocol effort which promotes carbon-reducing projects in developing countries. Developed countries subsidize these projects by purchasing carbon credits from them. The credits allow buyers to reduce by an equivalent amount of carbon the emission cuts they have to make domestically. The report shows that big hydro threatens the effectiveness and credibility of the CDM, and will provide carbon-reduction credits for projects that do not actually reduce emissions. Of the 30 projects so far proposed for credits, seven are large hydropower schemes. These large hydros make up nearly 40% of the potential emission reduction credits. New renewable projects, by comparison, make up only 20% of the claimed credits.

Most of these large hydro projects are already under construction or were already planned to have been built regardless of receiving carbon credits. They are thus "non-additional" in the jargon of carbon traders, meaning that they would go ahead without the CDM. The main result of buying these carbon credits would not be to achieve economically efficient climate benefits. It would instead be to increase the return to the project developers - mainly subsidiaries of large US energy corporations. And because the projects would have happened anyway, developing countries would receive no additional investment benefit. "Giving these projects approval to generate carbon credits would turn the CDM into a subsidy mechanism for hydro developers and a carbon accounting loophole for industrialized countries, instead of a tool for climate protection," says Ben Pearson from CDM Watch. The social and environmental damage that will be caused by some of these projects also means that they are in breach of the CDM's mandate to promote sustainable development. In particular, the possibility that the Dutch government may source credits from the controversial Bujagali Dam in Uganda would totally undermine the credibility of the CDM as a driver for sustainable development.

#### 25) TSE TO CREATE MARKET FOR GREENHOUSE-GAS EMISSIONS TRADING

Japan Today  
January 1, 2003

Internet <http://www.japantoday.com/e/?content=news&cat=3&id=244551>

TOKYO — The Tokyo Stock Exchange (TSE) plans to set up a market for trading in greenhouse-gas emission credits under the 1997 Kyoto Protocol on cutting such emissions, TSE sources said Tuesday. The Tokyo bourse is scheduled to consult with entities concerned, such as the Ministry of Economy, Trade and Industry and the Environment Ministry, in a bid to create the market by around 2005, the sources said. (Kyodo News)

## 26) STUDY EMPLOYS BACKYARD SCIENTISTS TO DOCUMENT GLOBAL WARMING IMPACT

Michigan State University  
January 1, 2003

Internet: [http://www.eurekalert.org/pub\\_releases/2003-01/msu-seb122002.php](http://www.eurekalert.org/pub_releases/2003-01/msu-seb122002.php)

EAST LANSING, Mich. – The flora and fauna are sending signals about the impact of global warming – a message that is being heard in backyards around the world. A study in the Jan. 2 edition of the British science journal *Nature* synthesized data from 143 scientific papers to examine whether a signal, or "fingerprint," of climate change can be found in how animals and plants have reacted to increasing temperatures. Among their findings: In the temperate zone, the researchers estimate that, for species that have shown a change in timing, spring events are shifting about five days earlier every ten years. One team member, fisheries and wildlife postdoctoral researcher Kimberly Hall at Michigan State University, helped wrangle data that comes not only from scientific outposts, but from the backyard recordings and personal journals of people across the world. The impact of global warming often appears as an early arrival of spring and is seen at bird feeders, heard in the earlier croaking of frogs and sniffed in the first waft of lilacs. "Local weather is extremely variable from year to year, and animals and plants respond to many other factors besides temperature," Hall said. "To be able to detect impacts of climate warming, we have to have data sets that cover long periods, so trends can emerge from all of the noise."

The challenge: The average lifespan of a research grant is about three years. Few researchers focused on climate change 10 or 20 years ago, so many of the most convincing papers documenting long-term responses of wild plants and animals come from nonprofessional observers that were recording data as a hobby.

"The studies we reviewed often obtained data from persistent individuals, people who were curious about the wildlife around them and wrote down what they saw," she said. "Often the analyses that you can do with these types of data are pretty crude, but when they are combined with information from many other locations around the world, they paint a very telling picture."

Hall worked with Terry Root and Stephen Schneider at Stanford University, as well as Jeff Price at the American Bird Conservancy, Cynthia Rosenzweig with NASA and Alan Pounds in Costa Rica. Her job included searching literature from around the globe to find research papers to include in the study.

The project began as an effort to compile information for a recent international study, the Intergovernmental Panel on Climate Change Third Assessment report. The group reviewed more than 2,000 papers, then focused on a small subset that met the criteria for this additional study. "The papers using individual's observations were inspiring," Hall said. "They show how much can be gained from being a patient observer, and that great data sets are probably all around us, hidden in desk drawers and just waiting for someone to look at them through the lens of climate change."

The regular recordings of the ecologically curious, when joined with data from researchers around the world and analyzed, show that animals of all kinds, as well as plants, appear to be shifting behaviors, seasonal timing and locations in response to a 0.6°C increase in the average global temperature in the last 100 years.

The most dramatic impacts, the study notes, are seen in the higher latitudes, which have warmed more than the lower latitudes in the past half-century. "The majority of these changes bear the fingerprint of one factor – increasing temperature," Hall said. "When you put all these observations, all these notes from individuals, together, they suggest a strong unified signal of climate change from across the globe." Hall

said the study's significance lies in its foreboding. Global warming is projected to increase dramatically in coming years. While spring arriving early seems in itself innocuous, Hall said no one knows right now how these changes will affect the complex orchestration of the environment. "If temperatures are changing and wildlife are reacting to it, but other resources, such as food supplies, or the types of habitats that are protected, are not changing at the same rate, it could be trouble for many species," Hall said.

See Also:

Life on Earth Is Feeling the Heat, January 02, 2003

<http://www.sciam.com/article.cfm?chanID=sa003&articleID=0006C928-E1D8-1E11-8B3B809EC588EEDF>

## 27) TEMPERATURES ARE LIKELY TO GO FROM WARM TO WARMER

New York Times

December 31, 2002

Internet:

<http://www.nytimes.com/2002/12/31/science/earth/31WARM.html?ex=1042347600&en=89dedf146bf7347e&ei=5062&partner=GOOGLE>

Climate experts say global temperatures in 2003 could match or beat the modern record set in 1998, when temperatures were raised sharply by El Niño, a periodic disturbance of Pacific Ocean currents that warms the atmosphere. El Niño that year was the strongest ever measured. A new one is brewing in the Pacific but is expected to remain relatively weak, experts say. Still, they say, a persistent underlying warming trend could be enough to push temperatures to record highs. Some of the warming could be the result of natural climate variation, but the experts say it is almost impossible to explain without including the heat-trapping properties of rising levels of carbon dioxide and other greenhouse gases emitted by smokestacks and tailpipes. The mounting evidence of human contributions to climate warming has raised pressure on American policy makers to reconsider their reliance on voluntary measures for reducing heat-trapping emissions.

At a meeting of climate scientists organized by the Bush administration this month, White House officials said President Bush was no longer locked into the stance he announced last year — calling for nothing beyond voluntary measures to slow the growth in emissions until 2012. And Senator John McCain, Republican of Arizona, and Senator Joseph I. Lieberman, Democrat of Connecticut, plan to introduce legislation early in 2003 that would gradually establish mandatory greenhouse gas restrictions and a system in which companies could trade credits they would earn by making emissions cuts. The European Union, Japan and most other industrial powers have ratified the Kyoto Protocol, a treaty that, once in effect, will require them to make reductions. The growing shift toward action in the American debate over greenhouse emissions comes after a decade of mounting evidence that the recent warming is caused mainly by rising concentrations of such substances. The main means of tracking climate change has been to synthesize hundreds of measurements of surface temperatures around the world into a global average.

This average reading is meaningless for any particular spot, but it is a valuable way to measure long-term trends, and it puts the planet in its warmest period in a millennium, with the trajectory still headed upward.

According to the Commerce Department, the global average surface temperature increased at a rate of about one degree per 100 years over the 20th century, but since 1976 the earth has been warming at the rate of about three degrees per century. The Hadley Center for Climate Prediction and Research in Britain put the odds at 50-50 for 2003 to match or exceed the temperature record set in 1998. Dr. James E. Hansen, the director of the National Aeronautics and Space Administration's Goddard Institute for Space Studies, put the odds higher than that, barring a big new sun-blocking volcano or the like. A decade-long paucity of big volcanic eruptions and a peak in solar intensity can account for only part of the overall warming, he said, adding, "Clearly it's primarily due to human forcing." The global average temperature reached 58.0 degrees in 1998, while the average from 1880 to 2001 was 56.9 degrees. Preliminary estimates put the global temperature in 2002 at 57.9 degrees. Areas like Alaska have experienced sharper warming, in patterns that largely match projections produced by computer simulations of the climatic effect of rising greenhouse gases.

The National Oceanic and Atmospheric Administration reported this month that satellite tracking of surface conditions on Greenland's vast ice sheet saw more melting last summer than at any time in the 24-year satellite record. Arctic sea ice also retreated more than it had done before in that span, the agency said.

These time spans are short when it comes to climate, and polar experts say it remains exceedingly difficult to ascribe regional changes to human actions rather than natural cycles in ocean and weather circulation around the Northern Hemisphere. The continuing global climb in temperatures, however, is getting harder to link to natural climate fluctuations, many scientists say. Temperatures Are Likely to Go From Warm to Warmer. Even if 2003 does not set a record, many experts say, it almost undoubtedly will follow a generation-long rise in temperatures that has put the planet on course for substantial shifts in drought and storm patterns, continuing and significant retreats of terrestrial ice, and a resulting rise in sea levels in coming decades. This month, American and British climate teams and the World Meteorological Organization reported that 2002 would nudge out 2001 as the second-warmest year since the late 1800's.

Some scientists still doubt that the human influence will alter the climate beyond the range of natural variability, which they say has produced significant shifts in past eras and will inevitably do so again. "We don't really know enough about the climate to say with any confidence how much of this warming is natural and how much is caused by human activities," said Dr. John R. Christy, the director of the Earth System Science Center at the University of Alabama in Huntsville. But his view is held by an ever-shrinking minority of climate experts, partly because new analyses are questioning some of their conclusions.

In 1990, Dr. Christy and a team that included NASA satellite experts pioneered a method for measuring the average temperature of the atmosphere above the surface, using instruments on weather satellites. In a series of papers examining three decades of satellite data, they reported cooling or only slight warming, and the findings were highlighted by skeptics of the greenhouse theory among climatologists and policy makers.

A new analysis of the same data by an independent team of scientists suggests that much more warming is under way in the upper atmosphere — more than three times as much as Dr. Christy estimated. These analyses are more in line with surface trends and estimates produced by computer models. The new results were described in a news release this month by the Commerce Department but have not yet been published in a peer-reviewed journal. The scientific teams with differing views of the satellite temperature data argued at several scientific meetings this year, including the meeting convened this month by the administration to set priorities for climate research. At the meeting, Dr. Christy and the head of the other group, Frank J. Wentz, the founder of Remote Sensing Systems, a company that analyzes satellite data for the government, agreed to share more data and information on the way they arrived at their results. While the debate about the amount of atmospheric warming plays out, there is little disagreement about the extent of warming at the surface.

The shifts around the Arctic — whether natural or human-induced — are profound, said Dr. Waleed Abdalati, NASA's director of polar programs. "The Greenland melting or the changes in ocean circulation or sea ice, any one of those is kind of a 'Wow, that's interesting,' " he said. "But when you see them collectively and kind of working in concert with one another," Dr. Abdalati added, "that's very significant." The result could be some significant surprises, he said. This year, Dr. Abdalati was a co-author of a study showing that the surface melting in Greenland, for example, was unexpectedly accelerating the seaward crawl of the ice sheet as the melt water percolated down through more than a half mile of ice and lubricated the interface between the grinding sheet and the rock below. Should the Greenland ice continue to accelerate, that could require scientists to change their projections of how much a little warming could raise sea levels.

## 28) METEOROLOGISTS, ENVIRONMENTALISTS DISMAYED AT BUSH ADMINISTRATION

Sydney Morning Herald  
December 30, 2002

Internet: <http://www.smh.com.au/articles/2002/12/29/1040511258414.html>

As they reflect on 2002, the second-warmest year on record according to US and British meteorologists, many environmentalists look with dismay at the Bush administration. And they don't mince their words.

"This leadership is so ideologically hostile to conservation efforts, they've taken the 'conserve' out of conservative," said the Natural Resource Defence Council's Alysandra Campaign. The Wilderness Society's Dave Alberswerth has charged: "There is no concern for the environment and a great deal of deference given to oil, gas and livestock industries, the constituency that financially supports the Republican Party." While glaciers and ice caps are melting, groups such as Greenpeace and Friends of the Earth see a White House led by former oil executives that has rejected global efforts to combat the man-made emissions widely blamed for climate change. This month, as neighbouring Canada became the 99th country to ratify the 1997 Kyoto Protocol, the United States - the world's largest economy, responsible for one quarter of greenhouse gas emissions - asked for more time to study the science behind climate change. And while clean solar, wind and fuel-cell technologies hold vast promise, the critics say, the Bush government has allowed Detroit car makers to keep producing large gas-guzzlers while maintaining US access to cheap oil as a key goal of its foreign policy.

A sensible way to advance homeland security, argues veteran environmentalist Lester Brown of the Earth Policy Institute, would be to boost clean alternative energies while weaning the US of its addiction to volatile Mideast oil. Instead, the US opposed global renewable energy targets at the Earth Summit in Johannesburg this year. Delegates booed Secretary of State Colin Powell, who had travelled there while President George W Bush was taking a summer break at his ranch. Bush's rural hideaway near Waco, Texas has been where the president has often demonstrated his love for the American outdoors, at times clearing trails or chopping wood as reporters watched. The White House has hailed the administration's "commitment to a new environmentalism for the 21st century" - an approach that puts less faith in bureaucracy and more in the market to reduce pollution and solve other environmental problems. Lauding Bush's environmental achievements, the White House on its website praises "the largest habitat restoration ever undertaken" in Florida's long-abused Everglades wetlands.

It also describes the Healthy Forests Initiative, a response to this year's catastrophic wildfires based on "reducing unnecessary regulatory obstacles that hinder active forest management". The idea is to thin out the highly-combustible undergrowth left standing by decades of fire prevention efforts - and to allow companies to do the job and make a profit by selling the timber. Suspicious environmentalists see a thinly-disguised gift to the timber industry. "It is disingenuous to promote increased logging packaged as fuel reduction," said Sierra Club head Carl Pope. In another hotly-contested issue, the Environmental Protection Agency (EPA) has proposed easing power plant emissions rules, claiming cutting red tape will let operators make investments that will eventually help clear the air. With air and water already the cleanest they have been in decades, agreed Patrick Michaels of the libertarian Cato Institute, Bush can afford take "a more analytical look at the costs and benefits of environmental regulations ... perhaps with a colder eye than the previous administration".

But Greenpeace and the Sierra Club disagree and are suing the EPA for violating the 1977 Clean Air Act. Another flashpoint has been a plan to raise fuel efficiency for light trucks - which now make up half of all road vehicles sold in the US - marginally by 2007. The non-profit Union of Concerned Scientists called the move "political theatre". Environmental activists are now bracing for 2003, when Republicans will control both houses of Congress. Among unfinished business the Republicans have said they hope to return to will be a plan to drill for oil and gas in an Alaskan wildlife sanctuary, a proposal Senate Democrats blocked this year. Michaels, however, predicted that Bush will also try to look "greener" as the 2004 election campaign starts, pushing for more environmental research and a voluntary emissions trading system. It may be too little too late to win the hearts and minds of the environmental movement. Frustrated with Bush's stance on Kyoto, many groups and states this year took matters into their own hands. Liberal California passed a law that will require car-makers to cut carbon emissions from cars and light trucks to zero by 2008. General Motors and Ford shareholders are also urging the world's two largest car-makers to aggressively cut greenhouse gases. And major religious groups last month urged their followers to consider global climate change when they buy a car, using the bumper-sticker slogan "What would Jesus Drive?"

29) INSURANCE SURVEY: NATURAL DISASTERS CAUSED US\$55 BILLION IN DAMAGE IN 2002

AP

December 30, 2002

Internet:

[http://story.news.yahoo.com/news?tmpl=story&u=/ap/20021230/ap\\_wo\\_en\\_po/eu\\_fin\\_germany\\_world\\_d](http://story.news.yahoo.com/news?tmpl=story&u=/ap/20021230/ap_wo_en_po/eu_fin_germany_world_d)

## isasters\_1

BERLIN - Natural disasters caused an estimated US\$55 billion in damage and killed 11,000 people in 2002, with last summer's flooding in central and eastern Europe taking the biggest economic toll, the world's largest reinsurance company said Monday. Economic losses jumped by nearly 60 percent over 2001, and global warming makes further increases in natural disasters and the damage they cause inevitable, Munich Re's survey said. Flooding by the Elbe, Danube and other European rivers last August caused losses of some US\$18.5 billion in "the worst floods in Europe for centuries, probably since the millennium flood in August 1342," the survey said. Only US\$3 billion of the flood damage was insured.

The worst human toll hit Afghanistan in May when more than 2,000 people were killed in a series of earthquakes in the Hindu Kush mountains. Summer flooding in Nepal, Bangladesh and India claimed some 1,200 lives, while about 1,100 people were killed in a heat wave in India. Overall, US\$11.5 billion of the year's natural disaster damage was covered by insurance companies — about the same amount as in 2001, Munich Re said. But economic losses surged from US\$35 billion in 2001 to some US\$55 billion. Changes in the global environment will lead to more natural disasters in the future and "losses will continue their sharp upward trend," Munich Re said. "The evidence points to critical extreme wind speeds and precipitation being exceeded with increasing frequency, so for this reason alone there will inevitably be a stark increase in the loss burdens as well," Gerhard Berz, head of Munich Re's risks research department, said in a statement. "2002 was, along with 1998, the warmest year since temperature readings began, and this is evidence of the still unbroken trend of global warming."

Reinsurers sell backup insurance to other insurance companies, spreading risk so that enormous losses from natural catastrophes can be covered. The companies make money both from premiums and from investing premium proceeds in stocks and bonds, so the drop in stock markets has hurt their profits

### 30) 'NEXT YEAR WILL BE HOTTEST SINCE RECORDS BEGAN'

New Zealand Herald

December 29, 2002

Internet:

<http://www.nzherald.co.nz/storydisplay.cfm?storyID=3049060&thesection=news&thesubsection=world>

The coming year is likely to be the hottest since records began, senior meteorologists have told the British Government. A report to the Government by the Meteorological Office's Hadley Centre - the world's leading authority on predicting the climate - concludes that 2003 is likely to be as warm or warmer worldwide than 1998, the hottest year to date, as global warming increasingly takes hold. Next year is also expected to witness the Kyoto Protocol, the international treaty to combat climate change, coming into effect - and the prediction will increase pressure on governments to act. The report by two Met Office scientists - Chris Folland and Andrew Colman - is the result of a sophisticated new prediction system developed by the Hadley Centre. It correctly predicted a year ago that 2002 would be the second hottest year ever, after 1998. The report says that the most important determining factors of worldwide temperatures are global warming, in the long term, and the El Nino weather phenomenon, on a year-by-year timescale.

Dr Folland explained that it was a particularly strong El Nino that made 1998 so warm, raising global temperatures by 0.2 degrees centigrade. Global warming adds 0.02 degrees centigrade to worldwide average temperatures every year, he adds, and so the five years after 1998 will have raised temperatures in themselves by 0.1 degrees centigrade, making up half the effect of that year's El Nino. Another weaker El Nino has begun and it is expected to raise temperatures by about 0.1 degrees centigrade in 2003, causing it to equal 1998. The scientists say: "The best estimate forecast is for a year equal in temperature to the warmest year on record." They add that it could well be even warmer. The scientists estimate that there is only one chance in five that 2003 will be cooler than 2002. The hottest 15 years on record have all occurred since 1980 and the three warmest have been in the last five years.

See Also:

2002 second hottest as global warming speeds - WMO, Planet Ark, December 18, 2002

<http://www.planetark.org/dailynewsstory.cfm/newsid/19106/story.htm>

### 31) ISLANDERS WORRY AS TIDE KEEPS RISING

Los Angeles Times

December 29, 2002

Internet: <http://www.charlotte.com/mld/observer/news/4833305.htm>

VAIAKU, Tuvalu - This isolated country is not much more than a few specks in the middle of the Pacific Ocean. Its highest point is 16 feet above sea level. But Tuvalu is at the center of international debate over climate change. Many of Tuvalu's people worry that rising sea levels caused by global warming will wash away their country. They talk of filing a lawsuit against the U.S. government or big American corporations for polluting the atmosphere and causing the planet's temperature to rise. They condemn President Bush for backing out of the Kyoto Protocol on global warming. "We don't have hills or mountains. All we have is coconut trees," elder statesman Koloa Talake said. "If the industrial countries don't consider our crisis, our only alternative is to climb up in the coconut trees when the tide rises."

By all appearances, Tuvalu is a Polynesian paradise. With seven coral atolls and two coral islands, the country is spread across 350 miles of the South Pacific north of New Zealand. Palm trees grow along white sand beaches that fringe the turquoise waters of lagoons. It remains to be seen whether science will support Tuvalu's predictions of impending doom, but no one doubts the country faces a precarious existence. At the ripe age of 65 million years, its atolls are nearing the end of their geologic life span. Not only do islanders face the danger of the sea rising, they also face the inevitable problem of the land sinking. Each atoll was formed when a volcanic island sank beneath the sea, leaving a ring of coral islands around a lagoon.

An outer reef protects the land from the pounding of the sea. The coral can grow upward and keep pace with a gradual increase in sea level, but if the ocean rises too quickly, the natural barrier could be lost. "If the reef is destroyed, it's goodbye, Tuvalu," said Wolfgang Scherer, director of Australia's National Tidal Facility. The atolls are especially vulnerable to tropical storms that can blow in and change the landscape overnight. In 1997, a cyclone swept the topsoil and every tree and bush off the islet of Tepuka Savilivili in Tuvalu's main atoll, Funafuti. This former British colony has just 10 square miles of land and a population of about 11,000. The Tuvaluans are Polynesians whose ancestors arrived by canoe possibly more than 2,000 years ago. Today they fish, raise pigs and grow taro, cassava, bananas and coconuts on small plots of land.

Men and women commonly wear flowers in their hair. Many houses have thatched roofs and walls made of woven mats. When the country's 12-member Parliament is not meeting in the open-sided Maneapa meeting hall, boys play soccer there. In the cool, early morning hours, Tuvaluans go walking on Funafuti's airport runway -- or lie down there for a rest. Tuvalu is connected to the outside world only by flights to Fiji twice a week and by occasional cargo ships that bring supplies. Visitors are few. The country has one hotel, and it has no hot water. On Funafuti, television is normally broadcast one evening a week for two hours. A few people, mostly government officials, have computers and can connect to the Internet. There are few cars, and most people get around on foot or by motorbike. The Tuvaluan government is marshaling its arguments in the hope of winning foreign help in finding a new home if the need arises. Tuvalu has hired an attorney in Washington and is considering whether its best strategy is to sue the U.S. government or American oil companies, coal mining companies and auto makers. But officials acknowledge that pinning the blame for global warming on individual companies would be a long shot.

At one point, Tuvalu asked Australia to agree to accept its entire population in the event the islands are flooded, but Australia refused. New Zealand has agreed to accept 75 Tuvaluans a year, but many islanders can't afford to make the move. While there is no question that the world's oceans have been rising, no one can predict with certainty how fast they will rise. Nine years ago, scientists from Australia's National Tidal Facility installed high-tech gauges in Tuvalu and 10 other Pacific nations to measure changes in sea level. The Tuvalu gauge has detected an average increase of 1 millimeter a year -- the same rate at which the oceans have been rising for the last century. Because the average ocean level can fluctuate more than a foot from year to year, researchers say they will need at least two more decades to determine whether the water is rising faster than before. "The critical question is whether sea level rise is going to accelerate," said Scherer, the tidal facility director. "So far, there is no evidence of that happening in Tuvalu or anywhere else around the globe."

As the Earth's average temperature has gone up over the last century, glaciers in the Rocky Mountains, the Swiss Alps, the Himalayas and the Andes have receded. The fear is that huge ice sheets of Greenland and Antarctica will melt, drastically increasing the volume of water in the oceans and inundating coastal areas. "Tuvalu is the first victim of global warming," said Talake, a former prime minister. "We don't see any way of avoiding that. The only thing we can do is hope that industrial countries may listen to our poor voice." In February, the time of year when the tides typically are highest, the water rose to within an inch of flooding the home of third-grade teacher Easter Molu. "We think maybe next year the water will be inside our house," said Molu.

### 32) FUROR OVER RATIFICATION IS OVER; CANADA MOVES TO MAKING KYOTO WORK

Canada.Com

December 28, 2002

Internet: <http://www.canada.com/ottawa/story.asp?id={5DEA2579-A7CB-425E-A5D4-FAA1753BD773}>

OTTAWA (CP) - Now that Canada has ratified the Kyoto protocol the hard part begins - making it work. The challenge is to cut heat-trapping greenhouse gas emissions by a whopping 20 to 30 per cent over the next decade without cramping the country's economic growth. Accomplishing that will require changes in nearly every area of Canadian life, from home heating and manufacturing to transportation to city planning.

The international treaty to curb greenhouse emissions is expected to come into force once it's ratified by Russia in coming months, pushing participation to more than 100 countries accounting for more than 55 per cent of the world's industrial emissions.

Big business in Canada must find ways to prosper and grow without exceeding strict limits on emissions produced by oil, coal and gas - the fuels that drive virtually every industrial process. Individuals are being asked to voluntarily eliminate a tonne of emissions annually - 20 per cent below current per capita levels. A tonne of greenhouse gas would fill an average house. Despite the magnitude of the task, Environment Minister David Anderson expects political debate over Kyoto to settle down in coming months.

He believes attitudes will shift into a more co-operative mode now that an irrevocable commitment to the climate treaty has been made. "I'm pleased that we beat back the public relations campaign by the oil and gas crowd: I think it was important to do that," Anderson said in a recent interview. "I think we're going to have a much more reasonable discussion with them now."

There are still hopes the United States will eventually reconsider its decision to pull out of the climate treaty or synchronize its emissions-cutting actions with those of ratifying countries. Although President George W. Bush has renounced Kyoto for fear of economic damage, there is still a large pro-Kyoto lobby in the United States. Anderson believes Canada can have an influence on discussions south of the border. "I think we need to make sure that we as a North American jurisdiction within the North American free trade area prove that Mr. Bush is wrong when he said it would be so damaging to the U.S. economy," he says.

Six months ago, few people would have predicted that Canada would be in the camp of ratifying countries.

It was widely assumed that Canada would follow the U.S. lead in withdrawing from the climate treaty. There was great surprise when Prime Minister Jean Chretien announced in September that Canada would ratify before the end of the year.

While some business leaders were outraged, the move won Chretien new respect from many, especially environmentalists, youth and nationalists. In the eyes of Chretien's new fans, ratification was not just about protecting the environment, but an affirmation of Canadian sovereignty. Anderson chides those who doubted the government's willingness to choose its own course. "We have people saying we've lost our sovereignty for all intents and purposes, saying we can do nothing unless the Americans do it first. "I reminded those people we were at war with Germany some two years before the United States came in."

The political battle over Kyoto over the past few months has been one of the fiercest in recent history. Almost every day brought new warnings of the devastation Kyoto would wreak.

Alberta Premier Ralph Klein threatened a constitutional challenge and suggested at one point his province might be driven to separate from Canada. Anderson says U.S. companies were heavily involved in the fight.

"We've been up against some of the oil and gas industry and they are a pretty tough crowd. They've got some very heavy-duty U.S. communications companies assisting them." Anderson expects measures in the next budget to encourage emissions-cutting, but warns that they will be just one step in a long process.

"I would expect measures . . . and I would expect when they come out people will say: 'Ah, but it doesn't do enough.' 'Of course they're right, but . . . it's part of a program that will see us ramp up to 2008 and indeed to the final 2012 year.'" Under the Kyoto agreement, Canada's average emissions over the 2008-2012 period are required to be six per cent lower than 1990 levels.

The government has promised it won't introduce new taxes to discourage the use of fossil fuels. That leaves regulations, incentives and investments as its tools. The course ahead has been sketched in a federal action plan released in October. Some measures: - Make existing buildings more energy efficient and set high energy efficiency requirements for new buildings. Subsidize energy audits for homeowners. - Increase use of ethanol-blended gasoline. Develop fuel cell technologies that would run vehicles on hydrogen. Improve standards for equipment and appliances. Provide incentives for wind power. - Negotiate a 25 per cent improvement in the fuel efficiency of new vehicles by 2010. Improve mass transit and urban planning.

Limit greenhouse emissions by big industry and let industry figure out how to do it. Set up an emissions-trading system so companies have greater flexibility. - Buy emissions credits on the international market to reduce the amount we have to cut ourselves.

Probably the biggest question about Kyoto is: What will it cost? The Canadian Manufacturers and Exporters estimated the treaty could cost 450,000 manufacturing jobs by 2010, while resulting in sharply increased energy costs and \$3 billion in spending for international emissions credits. Ottawa maintains there is no reliable way to estimate in advance the total bill for such a large and long-term national effort. Federal officials note that many key factors, from the cost of oil to the success of fuel-cell technology, cannot be forecast with any reliability. Economic forecasts commissioned by Ottawa suggest that a Kyoto-bound economy will continue to grow in coming years, but not quite as fast as it would have in a business-as-usual scenario. "I think we can show that you can achieve climate change measures effectively and do it without damaging your economy," says Anderson.

### 33) PLANNED EU EMISSIONS SCHEME TRIGGERS FIRST TRADES

Planet Ark

December 23, 2002

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/19187/story.htm>

FRANKFURT - The EU's emissions trading scheme, agreed by the bloc's environment ministers last week and due to go live in 2005, has led to the first speculative trades, German energy industry and government sources said. This showed European industries had already accepted the scheme, which is key in the EU's effort to fight global warming, although it still faced bureaucratic and practical hurdles, the sources said.

"The German government has initiated the first legal steps and initial trades in the forwards market show that the industries are firmly convinced that emissions trading will definitely come," the head of the German government's Federal Climate Working Group Franzjosef Schafhausen told Reuters.

Traders are already brokering first speculative trades of carbon dioxide (CO2) certificates between companies, including German utilities, even though it is unclear whether they will be of value when the EU scheme officially begins. "Volumes in the forwards market are still limited and it is unclear whether these certificates will be of any value in the future, but current trading activities should be seen as a test," said Michael Weltin, energy policy adviser at German utility E.ON (EONG.DE). Once the EU scheme is

officially put in place and market liquidity is on the rise, a bourse will offer emission rights trading, the energy industry sources said. The UK's London Stock exchange (LSE.L), German rival Deutsche Boerse (DB1Gn.DE) as well as the country's EEX power bourse are all said to be examining the issue.

But the launch of the EU's trading scheme still faces major hurdles before its launch and some players in the industry doubt that it will start in 2005. "I believe that January 1 2005 is a very optimistic date, as there are still a lot of bureaucratic and practical hurdles to overcome," said Henning Rentz, head of German utility RWE's (RWE.G.DE) environmental policy division. Following the EU parliament's approval, which is expected as late as autumn 2003, each country in the 15-nation bloc will be under pressure to present plans on how to allocate emission rights in their industries, Schafhausen said. "Countries by March 31 2004 need to submit a national allocation plan that puts caps on amounts of CO2 their industries, traffic and private households can emit - that leaves little time," he said.

#### 34) GLOBAL WARMING EVIDENCE MOUNTS; FLURRY OF REPORTS SHOW A WITHERING ICE CAP

SFgate.com

December 23, 2002

Internet: <http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2002/12/23/MN226990.DTL>

From the tropics to the poles, evidence is growing stronger than ever that Earth's climate is warming dangerously. In the Arctic Ocean, floating masses of sea ice are shrinking and splitting apart, and the massive Greenland ice cap melted more this past summer than ever before. Meanwhile, warming ocean temperatures are endangering coral reefs in the tropics. At the annual fall meeting of the American Geophysical Union in San Francisco earlier this month, a flurry of new reports examining evidence of global climate change all tell the same story. If the trends continue unchecked, scientists say, rising sea levels will drown coastlines. Droughts in some regions -- and increased rainfall in others -- will alter harvests drastically. And other climate disruptions will destabilize regional ecologies and global economies. Some of these alarming phenomena may be due to the natural climate variability that the planet has seen over millions of years. But most scientists agree, after years of debate, that humans and their addiction to fossil fuels are at least partly to blame. "It is humans who are clearly forcing the abrupt climate change we see right now," said Richard B. Alley of Pennsylvania State University, who recently chaired a National Research Council committee looking specifically at climate change. So-called greenhouse gases trap the sun's radiation much the way glass windows trap heat inside a home or a greenhouse. The most powerful of those gases is carbon dioxide, which comes primarily from burning fossil fuel, while other gases include methane, sulfur dioxide and ozone.

#### THE BUSH REPORT

A recent NRC report, which the Bush administration requested last year when scientists criticized the White House for its slow response to growing evidence of global warming, concluded that "human-induced warming" will continue through the 21st century. While it conceded great uncertainties in the many models of climate trends that experts have produced, the report predicted that the planet's climate would warm by 2.5 to 10.4 degrees Fahrenheit by the century's end due to human activity. Signs of the striking pace of that trend came in reports from many scientists who monitor the ice of the globe's far north. The Arctic's sea ice -- large masses of snow-covered ice that float everywhere around the polar latitudes -- usually covers 2.4 million square miles of the ocean north of Canada, Greenland and Russia in September, the height of the ice season. This past summer, however, measurements showed that the sea ice had decreased by nearly a half-million square miles. The flat ice floes left wider sections of open water between them and became extremely thin in many areas, reported Ted Scambos of the National Snow and Ice Data Center in Boulder, Colo. It marked the most abrupt change in the ocean's ice cover that scientists monitoring the region have seen in 24 years, said Mark Serreze of the data center. Records kept by Icelandic fishermen indicate the cover may not have been so low for centuries. "I was really surprised by the change," Serreze said. "This was the craziest summer season I've ever seen up there."

#### MELTING FASTER THAN EVER

Equally ominous was a report by Konrad Steffen, a glaciologist at the University of Colorado, on Greenland's vast ice cover, second only in size to Antarctica. It was melting faster this year across nearly 265,000 square miles than at any period in recorded history, Steffen said. The ice sheet is a mile and a

half thick in some places. As meltwater from the surface seeps through crevices in the ice, it loosens the edges of the sheet and causes the ice to flow more swiftly to the sea, where it breaks off into icebergs. If the entire Greenland ice sheet were to completely melt -- admittedly an unlikely event, at least in the near future -- then scientists calculate that sea levels would rise by a globally disastrous 23 feet. Steffen had a firsthand experience of the dangers of melting ice. He and his colleagues were camped on the normally hard-frozen Greenland ice last June when their camp and equipment were flooded under a foot of meltwater and they had to be rescued by helicopter. The high Arctic is by no means the only part of the world where climate change is becoming more dramatic. Scientists are equally concerned about the impact of changes on tropical oceans.

#### KILLING CORAL

Coral reefs are living creatures. As they die, their calcite skeletons build up the reefs over millions of years. They are a crucial part of the world's marine ecosystems, vital to the productivity of many tropical fisheries. Most reefs are in shallow waters near continental and island coasts, where human-caused destruction is widespread from coastal pollution, from tourists trampling the reef organisms, from fishermen ravaging them, and from the hulls of ships grinding over them. But five years ago, the corals in many parts of the world were afflicted by a mysterious episode of bleaching that slowed their growth and in many regions killed them outright. Researchers note that the bleaching has coincided with increasing ocean temperatures. "There is growing agreement that doubling of the carbon dioxide in the atmosphere means a 15 percent decline in the coral population," said Robert W. Buddemeier, a senior chemist with the Kansas Geological Survey, who has studied the impact of climate change on coral reefs. "By the end of the century, with the effects of increasing levels of carbon dioxide on temperature and on ocean chemistry, the corals will be in the worst shape we've seen in the past 50 million years. Things are really dicey," he added.

#### NO TOUGH MEASURES

The growing evidence of damage from climate change has goaded the Bush administration to push its own research program, although the president does not support any tough measures to control greenhouse gas emissions, including the Kyoto Protocol agreed to by most industrialized nations. Earlier this month, Assistant Secretary of Commerce James Mahoney, an atmospheric physicist who is Bush's point man on global warming, staged a "workshop" in Washington where 1,500 people from industry, government, academic and environmental organizations worked on plans for a "strategy for climate change research." "There are still any number of science questions to be resolved," Mahoney told reporters at the AGU meeting in San Francisco. He conceded, however, that already "we will most likely need profound changes in greenhouse gas emissions." But to many analysts, time is wasting. Global warming will cause "major political instabilities in the developing world that could disrupt the global economy," said Lester R. Brown, founder of the Earth Policy Institute and a noted environmental analyst who spent 10 years as a policy adviser in the Department of Agriculture.

#### FOOD SUPPLY IMPACT

If measures aren't taken soon to curb greenhouse gas emissions, the changes in climate will force rapid changes in the way the world's food crops are grown. That has important implications for feeding the world's growing population, expected to increase to at least 9 billion by 2050. "The vast corn belt of the Northern Hemisphere, for example, will become hotter and dryer, and that change can't be resolved merely by creating new corn belts further north, because the soils further north are not the same at all," Brown said. "Each global increase of 1 degree Celsius (1.8 degrees Fahrenheit) around the world will reduce grain yields like rice and wheat, as well as corn, by at least 10 percent," he said. And because aquifers are being tapped at an increasing pace throughout the world and water tables are falling, the outcome will soon mean a devastating blow to agriculture -- particularly in the developing world, he said.

"This disruption by a combination of climate change and water shortages has the potential for creating political instabilities on a scale that we can't even foresee," Brown declared.

#### 35) GREENHOUSE GASES DECREASE EXPERTS CITE U.S. ECONOMIC DECLINE, WARM WINTER

Washington Post  
December 21, 2002

Internet: <http://www.washingtonpost.com/wp-dyn/articles/A19739-2002Dec20.html>

U.S. emissions of carbon dioxide and other greenhouse gases decreased by 1.2 percent last year, the largest annual decline in more than a decade, according to a new government report. Experts said the decline had nothing to do with government policy changes, but instead was the result of an economic slowdown and an unseasonably warm winter that sharply reduced demand for fossil fuels. Many scientists blame the burning of such fuels for the Earth's rising temperature. "This is just one year's worth of data, and our projections don't indicate the beginning of a new trend," said John Cogan, a spokesman for the Energy Department's Energy Information Administration, which prepared the report. "This is perhaps an anomaly driven more by lower economic growth than anything else."

Greenhouse gas emissions totaled 1.883 billion metric tons of carbon equivalent last year, compared with a record 1.907 billion in 2000, the study showed. The drop in emissions was mainly linked to the overall decline in the nation's economic growth to 0.3 percent in 2001, down from 3.8 percent in 2000; a 4.4 percent reduction in manufacturing output; and the warmer winter weather of 2001-02, which cut demand and combustion of coal, oil and gas. Even so, overall emissions are 11.9 percent above the 1990 level, and the United States remains the single largest contributor to the emissions linked to global warming, which many experts say could result in long-term disruptions in weather patterns, the melting of the polar ice caps and flooding of populated coastal regions. This year has been the second warmest in recorded history, according to NASA scientists who monitor global air temperatures. The earth's average temperature during 2002 was 58.35 degrees Fahrenheit, more than one degree warmer than the long-term average of 57.2 degrees, according to climate scientists at the NASA Goddard Institute for Space Studies.

Environmentalists and some scientists warn that dangerous signs of global warming are already evident. For example, an Antarctic ice shelf the size of Rhode Island shattered and collapsed into the sea in March, the permafrost in parts of Alaska has begun to thaw, and glaciers in the Bolivian Andes mountains are melting at an alarming pace. The Bush administration has acknowledged that global warming poses serious problems, but senior officials speaking at a Commerce Department conference earlier this month said numerous uncertainties remain about global warming's cause and effects. They urged caution in committing the United States to long-term solutions that might hurt the economy. Earlier this week, Canada became the 100th country to ratify the Kyoto Protocol, the 1997 agreement that would require the world's nations to reduce emissions of carbon dioxide and other heat-trapping gases by an average of 5.7 percent below 1990 levels by 2012. Although the United States signed the agreement in November 1998, President Bush disavowed it last year, arguing that it would seriously harm the U.S. economy while exempting large, developing countries including China and India. Some economists say the United States would have to curtail its energy use by as much as 30 percent to achieve the goals spelled out in the Kyoto treaty.

Bush instead has called for more research and a series of incentive programs for industry to encourage voluntarily reductions in their emissions. "While people can and are using energy more efficiently, a growing economy with a growing population will require more energy, not less -- which means more greenhouse gas emissions," said William O'Keefe, a former petroleum industry executive who is now president of the George C. Marshall Institute, a science policy think tank. "Right now, there is no viable alternative to coal and oil and gas, which provide close to 90 percent of our energy." But Jennifer L. Morgan, a climate change expert with the World Wildlife Fund, said that "If the administration really rolls up its sleeves and puts together a strong plan, we could go a long ways towards tackling global warming."

### 36) KYOTO WILL ONLY POSTPONE GLOBAL WARMING

Edie  
December 20, 2002

Internet: [http://www.edie.net/gf.cfm?L=left\\_frame.html&R=http://www.edie.net/news/Archive/6435.cfm](http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6435.cfm)

The Kyoto agreement to cut carbon emissions will have little effect on global warming, according to Danish environmental skeptic Bjørn Lomborg. Money allocated to climate change abatement could be better spent improving health, education and sanitary conditions across the world. In the Christmas issue of the British Medical Journal, the Director of the Danish Environmental Assessment Institute says that

the costs of the Kyoto protocol will be large while the benefits will be marginal, postponing the planet's temperature rise a mere six years from 2100 to 2106. For the same amount of money that Kyoto will cost the European Union every year, the UN estimates that we could provide every person in the world with access to basic health, education, family planning, and water and sanitation services, says Lomborg in his paper *How healthy is the world?*. But in an accompanying commentary in the *BMJ*, Anthony McMichael of the Australian National University argues that Lomborg's views ignore the ecological and social implications of global environmental change, adding that the recognised marginal impact that the Kyoto protocol will have on global warming only increases the urgency for more radical and politically challenging cuts in emissions.

### 37) GREENHOUSE GAS EMISSIONS FROM TRADING: THE FORGOTTEN FIGURES

Edie weekly summaries

December 20, 2002

Internet: [http://www.edie.net/gf.cfm?L=left\\_frame.html&R=http://www.edie.net/news/Archive/6414.cfm](http://www.edie.net/gf.cfm?L=left_frame.html&R=http://www.edie.net/news/Archive/6414.cfm)

A new study warns that the impact of trading in goods and services on climate change can be forgotten in calculations of greenhouse gas contributions to global warming. The report, *Environmental Impact of Swedish Trade*, shows that Sweden's imports of goods and services in 1998 resulted in 40 million tonnes of carbon dioxide released in other countries. Sweden's own exports contributed to 27 million additional tonnes of CO<sub>2</sub> emitted in the same year. Around a third of all CO<sub>2</sub> emissions related to Swedish consumption were generated abroad, with 60% of sulphur dioxide emissions also being generated overseas. These calculations do not appear in the country's official statistics, which are solely based on emissions within Sweden's borders, says the report by the Swedish Statistics Bureau (SCB). Energy trading is also omitted from climate calculations, where for example, Swedish imports of electricity in 1995 were responsible for five million tonnes of CO<sub>2</sub> overseas. Variations in temperature and demand mean that the impact of electricity trading will vary from year to year, and should be taken into account.

Meanwhile, Sweden's energy authorities are investing in a two-year research and development programme to improve the energy efficiency of a range of industries. The 150 million Swedish krona invested will go to projects on water turbine technology, biomass development, improving energy use in the steel and paper industries and refining paper and mass production processes. The country is also launching a Climate Campaign to raise public awareness and change attitudes on global warming. The campaign, which runs to 2004, will highlight local initiatives and opportunities for Sweden to contribute to climate change abatement, through TV and poster advertisements.

### 38) OAKLAND JOINS SUIT ON GLOBAL WARMING

East Bay Business Times

December 20, 2002

Internet: <http://eastbay.bizjournals.com/eastbay/stories/2002/12/16/daily63.html>

Oakland has become the second U.S. municipality to join a lawsuit claiming two federal agencies are violating environmental law through \$32 billion in loans for foreign oil fields, pipelines and coal-fired power plants over the last 10 years. Boulder, Colo., earlier joined the suit, filed in U.S. District Court in San Francisco by two environmental groups, San Francisco-based Greenpeace and Friends of the Earth. The suit alleges the Export-Import Bank and Overseas Private Investment Corp. funded the fossil fuel projects without first assessing contribution to global warming or effect on the U.S. environment as required by the National Environmental Policy Act. Ex-Im and OPIC are taxpayer-funded agencies that provide financing and loans to U.S. corporations for overseas projects rejected by commercial banks.

According to the Global Warming Project, Oakland and the Bay Area could face increased risk of saltwater contamination in groundwater aquifers as a result of sea levels rising from the effects of global warming. Oakland International Airport, built on a former wetland about 10 feet above sea level, would be susceptible to flooding from extreme tides coupled with flood conditions and storm surges, according to the environmental groups.

### 39) UN ENVIRONMENT AGENCY WELCOMES CANADA'S RATIFICATION OF KYOTO PROTOCOL

United Nations

December 19, 2002

Internet: <http://www.un.org/apps/news/story.asp?NewsID=5712&Cr=kyoto&Cr1=protocol>

19 December – Canada’s decision to ratify the Kyoto Protocol, the five year-old agreement to reduce greenhouse gas emissions, showed “courage and leadership” and recognized the overwhelming scientific and moral arguments for fighting climate change, the head of the United Nations environment agency said today. “Global warming is the greatest environmental threat this planet faces,” said Klaus Toepfer, Executive Director of the Environment Programme (UNEP). “The scientific evidence, that pollution from sources such as factories, power plants and vehicles is changing the world’s weather systems, is already with us. The moral arguments are equally compelling as it is the poorest of the poor, on continents like Africa, who stand to suffer most from an upsurge in extreme weather events such as floods and droughts.”

Canada’s move means that those developed countries that have so far ratified represent close to 44 per cent of the 1990 emissions of carbon dioxide, the principal greenhouse gas. In order for the Protocol to enter into force, 55 per cent of the developed world’s 1990 emissions must be covered. Russia, with over 17 per cent of the emissions, is crucial for the Protocol to become international law. Mr. Toepfer said Canada’s ratification was even more impressive given that country’s high reliance on coal, gas and oil. “The fact that Canada believes it can achieve its reduction targets, despite being a big user and producer of fossil fuels, gives the clear signal to others that fighting global warming is not economic suicide,” he said. “It shows that reducing the risks of climate change are realistic and necessary which, if managed sensibly, can have important economic benefits in terms of the development of new technologies, jobs and financial markets

#### 40) UK ENERGY PAPER TO PLAN AHEAD HALF A CENTURY

Planet Ark

December 19, 2002

Internet: <http://www.planetark.org/dailynewsstory.cfm/newsid/19127/story.htm>

LONDON - British Trade and Industry Secretary Patricia Hewitt said on Wednesday that a government paper on restructuring the energy sector to be published in the New Year will set out plans for the sector for half a century. Hewitt said the White Paper, which sets out the government's legislative plans, will address four main long-term objectives. The paper will look at the scarcity of energy supply, at environmental issues such as climate change and will address "economic competitiveness" to ensure British energy firms can compete against rivals across the world. The paper will also seek to ensure that everyone has access to heating and lighting, which basically entails dealing with the problem of old, dark, damp houses, Hewitt said. The paper will also look at the role of nuclear power, she said, without going into details. The nuclear industry shot to the top of the political agenda earlier this year when privatised nuclear firm British Energy Plc (BGY.L) went to the government for a loan to keep it from going bust. A government-backed restructuring plan is being fiercely contested by anti-nuclear groups. "It's really looking 50 years ahead, but particularly 20 years ahead because that is the timespan one has to look at with energy," Hewitt told reporters at a lunch event. In May, the government launched a prolonged consultation process over its energy strategy with a view to publishing a White Paper. A White Paper can later be drafted into a bill to pass through parliament into law.

A government-commissioned report, released in February, said Britain should raise its target for energy supplied by renewable sources to 20 percent by 2020 but also keep open the option to invest anew in nuclear power. Then, Energy minister Brian Wilson signalled support for the conclusions of the Performance and Innovation Unit, a thinktank set up by Prime Minister Tony Blair. That unit suggested that the government should set overall domestic targets for a 20 percent improvement in energy efficiency by 2010 and a further 20 percent over the following decade. The government's existing target is for 10 percent of Britain's energy supplies to come from sources such as wind and solar power by 2010. Hewitt said the environmental side of the paper would look beyond the Kyoto protocol "at what our climate change targets ought to be and how we create an energy policy and market that will actually deliver on...climate change but other environmental goals too. The global Kyoto protocol aims to reduce the amount of greenhouse gases emitted by developed countries by 5.2 percent on 1990 levels by 2008-2012.

Under the Kyoto pact, Britain agreed to cut its greenhouse gases by 12.5 percent in the same period

#### 41) FOCUS SHIFTS TO RUSSIA AS KYOTO CLUB REACHES 100

Economic Times  
December 19, 2002

Internet: <http://economictimes.indiatimes.com/cms.dll/xml/comp/articleshow?artid=31698818>

NEW DELHI: Canada's ratification yesterday, of the 1997 Kyoto Protocol on climate change, brings the agreement's total membership to 100. To enter into force the protocol now requires only the ratification of the Russian Federation. The Russian Parliament is expected to act within the next several months. "Achieving the symbolic threshold of 100 ratifications demonstrates that the Kyoto Protocol has widespread international support," says Joke Waller-Hunter, executive secretary, United Nations Framework Convention on Climate Change, under which the protocol was adopted. The Kyoto Protocol establishes a "double trigger" for entry into force. The first trigger is ratification by 55 governments — a requirement that was met earlier this year. The second trigger is that the ratifying governments must include developed countries representing at least 55% of that group's 1990 carbon dioxide emissions. With the receipt of Canada's ratification, and that of Poland earlier this month, developed country ratifications now account for 43.7% of 1990 CO<sub>2</sub> emissions (as determined in 1997 when the protocol was adopted). Russia's 17.4% will be essential for pushing the tally over the required 55% limit.

"Most industrialized countries are now on board and have cemented their commitment to reversing the historical rise in greenhouse gas emissions that started with the industrial revolution. But these countries have only 10 more years to meet their Kyoto emissions targets, and the evidence today is that most of them still have a great deal of work to do to reduce their greenhouse gases," she said in a UNFCCC press release here today. Ms Waller-Hunter also pointed to the large number of developing countries that had ratified the protocol. She said this was "a sign of their commitment to the protocol as an instrument of global co-operation to address a global problem." Japan as well as the European Union and its member states have already ratified. Aside from Russia, ratification is also pending in about half a dozen, mostly smaller, industrialized countries and countries with economies in transition; all of these countries together, however, are not sufficient for reaching the 55% mark.

#### 42) MINISTRY PUSHES NEW GASOLINE BLEND; FUEL CONTAINING PLANT-DERIVED ALCOHOL SEEN AS KYOTO PROTOCOL WINNER

The Japan Times  
December 17, 2002

Internet: <http://www.japantimes.co.jp/cgi-bin/getarticle.pl5?nn20021217a7.htm>

The Environment Ministry has decided to promote the use of gasoline containing alcohol derived from agricultural resources such as sugarcane and corn, ministry officials said Monday. The move is aimed at cutting greenhouse gases, which are believed to be a major cause of global warming, the officials said. By 2008, the ministry is aiming to replace all current forms of regular gasoline with the blended fuel, which would contain about 10 percent ethanol, the officials said. They added that this should force the auto industry to start producing vehicles capable of running on the new blended fuel beginning in fiscal 2003.

A ministry study group headed by Katsuya Nagata, professor at Waseda University's Science and Technology Department, proposed the policy as a step toward creating cleaner vehicle fuel. Vehicles that are capable of running on fuel containing 10 percent ethanol have already been released in the United States, where this type of gasoline holds a 12 percent market share, the officials said.

In fiscal 2003, the ministry will study the safety and environmental benefits of a low-concentration blended gasoline featuring between 1 percent and 5 percent plant-derived ethanol, they said. The ministry will also start selling the low-concentration blended fuel in some parts of the country, they added. The blended fuel is viewed as being one way of helping Japan meet its greenhouse gas reduction targets under the Kyoto Protocol. This is because the carbon dioxide released from the fuel would be regarded as having derived from plants and would not thus be counted among the nation's greenhouse gas emissions.

Should regular gasoline be fully replaced by blended fuel, it would be possible to cut greenhouse gas emissions by more than 1 percent from 1990 levels, the officials said. The 1997 Kyoto Protocol requires industrialized countries to cut their greenhouse-gas emissions from 1990 levels by an average of 5.2

percent between 2008 and 2012. Japan must cut its emissions by 6 percent. The pact will come into force after being ratified by 55 countries representing 55 percent of the carbon dioxide emissions of industrialized countries in 1990.

## EDITORIALS

43) LOOK WHAT POLITICAL WILL CAN DO by Christopher Flavin and Gary Gardner

International Herald Tribune

January 9, 2003

Internet: <http://www.ihrt.com/ihrtsearch.php?id=82649&owner=&date=20030108161817>

Flavin is president of the Worldwatch Institute. Gardner is director of research at the institute and project director for its annual State of the World survey.

WASHINGTON: Here, for a change, is some hopeful news about the environment: Although global economic and environmental cooperation seems to be crumbling everywhere, sprouting through the cracks are a slew of hardy perennials. They include advances in renewable energy, materials reduction and control of infectious disease. They also include seeds for raising incomes of the poor, which, if nurtured, could bring a historic new economy and help solve the problem of global warming.

The use of solar energy and wind power has grown by more than 30 percent annually during the past five years, compared to 1 or 2 percent for fossil fuels. Some regions in Europe now get as much as 20 percent of their electricity from wind power alone. The World Health Organization's Global Polio Eradication Initiative has reduced the number of polio cases from some 350,000 globally in 1988 to a few hundred per year today. The WHO also halved the global prevalence of iodine deficiency in the last decade.

The Netherlands has achieved an 86 percent recycling rate for cars, while Denmark has banned aluminum cans in favor of reusable glass bottles. The building blocks are appearing for an economy whose materials circulate, rather than migrate from mine to consumer to landfill. Micro-loans of as little as \$50 have helped millions of the world's poorest people, such as the waste pickers of the Payatas landfill near Manila, to secure capital for small enterprises, land and housing. In the United States, the Community Reinvestment Act has helped push lending in poor U.S. neighborhoods from an average of roughly \$3 billion per year in the 1980s to \$43 billion in 1997.

We do not deny the clear downward slope of many critical global trends. Some 5,500 children die each day from diseases linked to polluted food, air and water. Bird extinctions are running at some 50 times the natural rate due to habitat loss and other consequences of human activity. The global rate of ice melting has more than doubled since 1988 and could raise sea levels by 27 centimeters by 2100. The difference between the good news and the bad news boils down to our choices. Whether the success stories of the past decade can be multiplied to the point at which they put global trends on a sustainable course will be determined by where societies choose to put their creative efforts. If we can build spacecraft powered by clean fuel cells that emit only water vapor, why not build cars that run the same way? If we can extract copper and other metals from deep within poisonous mines, why not do so from more accessible landfills, which in the United States contain a supply of copper equal to more than half of the stock currently in use. If we can routinely protect tourists from malaria, why not do it for people who live with the threat every day?

Political will is often the missing element in moving solutions from the shelf to the street. Yet the will to build a sustainable world is emerging. In 2001, Brazil and Germany announced major new commitments to the development of renewable energy. Last year the state of California defied U.S. government policy by announcing the world's first mandatory limits on global warming emissions from cars. And just a few days ago Brazil's newly inaugurated president, Luiz Inácio Lula da Silva, suspended the purchase of fighter planes for his country, declaring that combating hunger is a higher priority. Political will is alive and well, at least in some quarters. When exercised on behalf of people and the planet, it is proving surprisingly potent. By learning from the scores of successful initiatives pursued in the past decade, world leaders can begin to turn around many of the trends that seem so intractable today. In doing so they could create a healthier and more sustainable economy

#### 44) INSURERS SHOULD FIGHT TO PROTECT THE ENVIRONMENT by Kalliope Gourtis

International Herald Tribune

January 7, 2003

Internet: <http://www.iht.com/articles/82403.html>

The writer works for the insurance company Generali Hellas, a subsidiary of Assicurazioni Generali.

The terrorist attacks of Sept. 11, 2001, sent the global insurance industry into a tailspin, with damages amounting to approximately \$50 billion. Insurers' share prices and capital reserves plunged to alarmingly low levels. Before the industry could recover from these blows, Central and Eastern Europe suffered unprecedented floods. The amount that insurers will pay out for flood damage in the region is only a small part of the total cost because only a small percentage of homes and businesses were covered against floods. But the next time around may not be so inexpensive.

Most scientists accept that global warming and subsequent climate change are primarily responsible for the increase in rainstorms and severe flooding. The United Nations Intergovernmental Panel on Climate Change, in its Third Assessment Report on Climate Change, says: "An increase in climate variability and some extreme events is projected. Models project changes in frequency, intensity, and duration of extreme events."

The insurance industry has drawn the same conclusions. According to Michael Huber of the Center for Analysis of Risk and Regulation at the London School of Economics, reinsurers and insurers have, for a while now, been pressing for significantly higher premiums or the exclusion of coverage related to extreme weather events. "This is because, in recent years, insurers have made the connection between climate change and extreme weather conditions," Huber says.

Yet if the insurance industry's response to a new set of risks is to avoid them, either by not accepting them or by pricing them at such rates that they become unaffordable, then what purpose will insurance serve? Will insurance companies become fair-weather business partners, there in the good times, absent when things turn bad? Insurers have the chance to play a proactive role in this stormy scenario, while at the same time protecting their core interests and financial well-being.

An obvious first step is to follow the example of major energy companies and automobile manufacturers. Both have been staunch lobbyists blocking environmental protective measures and legislation. No doubt they have contributed to the U.S. refusal to ratify the Kyoto Protocol, which calls for the reduction of greenhouse gas emissions. Insurers can sit on the other side of the fence - lobbying hard in favor of legislation that would protect the environment. Not only is it in their best interests to do so, it's their responsibility. Insurance is meant to protect against unexpected loss.

A more proactive and direct alternative is for insurers to create a new risk-assessment tool for environment-friendly behavior. For example, an insurer could rate that a drug manufacturer's conduct based on how well it handles, stores, and disposes of biological agents and chemicals that have the potential to damage the environment. Insurers can work with other experts to draw up industry-specific guidelines that evaluate companies' environmental practices - and reward the best performers with lower premiums for risks such as flood, storm, and other extreme weather events.

If a company takes proper measures to protect the environment this does not necessarily reduce its chances of suffering flood damage, at least not in the near future. But over the long term, what companies do today will affect the extent and number of claims insurers pay out in the future as a result of extreme weather events. Considering that of the top five European insurers, four have been around since the 19th century and the fifth goes back to the 18th century, it is safe to assume that they can afford to make long-term investments. After all, the concept of taking out a policy today and waiting a certain period before it acquires value is not foreign to the insurance industry; nor is the fact that the earlier one buys a policy, the greater the benefits to be had when it reaches maturity.

Insurers can reap many benefits by becoming the driving force behind environmental policy. They will be protecting their own financial interests and perhaps their very existence, not because they avoided risk but because they helped minimize it. For years insurers have given advice and stressed the need to plan for the future. Now, they have the chance to demonstrate how it's done.

45) CLIMATE CHANGE "ADAPTATION": OPPORTUNITY AND THREAT FOR RIVERS by Patrick

McCully  
World Rivers Review.  
January 2002  
Internet: [www.irm.org](http://www.irm.org)

Patrick McCully, is the Campaigns Director for the International Rivers Network (IRN) and author of *Silenced Rivers: The Ecology and Politics of Large Dams* <<http://irm.org/pubs/paddy.html>>, co-published by Zed Books (London) and IRN in 1996.

The latest round of international climate talks, held in New Delhi in late October, had almost as much emphasis on how to adapt to climate change as on how to prevent it. Anything that deflects international attention from the urgent need to cut climate pollution should be regarded with caution. Even more so, when as with the issue of adaptation, it suits the interests of the fossil fuel-addicted Bush Administration. "We're welcoming a focus on more of a balance on adaptation versus mitigation," a senior US negotiator in New Delhi told the New York Times.

Yet, under even the most wildly optimistic scenario for cutting climate pollution, societies are going to have to adapt to its impacts. The worsening droughts and floods scientists have warned about are already being experienced, and there can be little doubt that much worse is on the way. Most at risk are people who are directly dependent on ecosystems for their survival - peasants, indigenous people and fisherfolk, as well as those forced by poverty to live in zones at high risk from landslides and floods. These are the people who are least responsible for climate pollution (and thus can do least to prevent it) and who also can least afford the costs of adaptation.

The arguments at Delhi over adaptation centered on who should provide how much money to poor countries to pay for it. Three separate funds are being set up to assist developing countries with climate change-related activities, primarily adaptation. All the funds would be administered by the Global Environment Facility, based in the headquarters of the World Bank in Washington, DC. It still unclear how much will be paid into these funds. However, the EU and other developed countries (with the notable exceptions of the US and Japan) have promised \$410 million a year in "new" climate change funding starting in 2005. Whether this funding will actually appear - and whether it will quietly be accompanied by cuts in other aid programs - remains to be seen.

But even if there is little new money from aid budgets for adaptation, there are likely to be lots of new adaptation projects. Some money will be diverted from existing aid budgets, and some projects that would have gone forward anyway will be relabeled as "adaptation" projects. While there was lots of discussion about funding for adaptation, there was very little discussion in Delhi of what adaptation might actually mean in practice. Money and attention for adaptation to worsening floods and droughts could theoretically help reduce the vulnerability of the poor to climate change. But given past approaches to water management it could also prove highly damaging to economies and rivers.

It is not overly cynical to foresee that bureaucrats in aid agencies and water ministries will push for the same kinds of projects to adapt to global warming as they have always pushed as responses to floods and droughts. Business-as-usual in water management would mean "adaptation" funds going to big dams, inter-basin water transfers, and flood-control embankments. Yet these strategies have proved counterproductive in the past and are largely responsible for the epidemic of water mismanagement that now affects almost every part of the globe. More dams and embankments will also compound the stress that climate change will put upon freshwater ecosystems.

A serious attempt to assist those countries and sectors of society most at risk from climate change would instead focus on flood management strategies (including better watershed management and urban planning, wetland restoration, flood shelters and early warning systems); rainwater harvesting and, most important of all, reducing water demand through conservation and efficiency. Adaptation to climate change is also for many countries going to require diversification of electricity supply away from drought-vulnerable hydropower.

These strategies would not only be much cheaper than the conventional river-destroying approach to flood and water management, but they would also work much better and thus save many lives. Perhaps most important of all, such strategies would also bring great benefits even in the absence of any drastic climate change. "Adaptation" threatens to become the next "sustainable development" - an empty catch phrase that among other abuses is used by aid bureaucrats to give legitimacy to destructive projects. Or it could become a focus for efforts to reduce the vulnerability of societies to climate change, while improving people's lives and regenerating rivers.

46) END OF YEAR EDITORIAL by Klaus Toepfer:

UNEP

Internet: [http://www.unep.org/home/Documents/2002\\_ED.htm](http://www.unep.org/home/Documents/2002_ED.htm)

Klaus Toepfer is the Executive Director of the United Nations Environment Programme (UNEP)

2002 Marks the 30th Anniversary of UNEP. Has it been a Happy Birthday for the Environment? Nairobi, December 2002 -We do not fully possess the telescope of time to know how the year 2002 will be viewed by future generations. But it is my hope that, when the historians' pencils are sharpened to weigh the impact of the whirlwind of environment-related meetings, conferences and summits, they may record that the second year of the new millennium and UNEP's 30th anniversary was a defining moment in the long march towards a more environmentally-sound, sustainable, healthier and fairer world.

It is too easy to view events such as the World Summit on Sustainable Development (WSSD) in Johannesburg or the Finance for Development meeting in Monterrey, Mexico as just another round of high level nibbles, of political get-togethers that are merely prolonging the agony of the planet and the poor.

I believe we have, as a result of the negotiations and agreements that have marked 2002 and culminating in the WSSD, witnessed some real stirrings of intent, some clear routes of progress, that can transform the fine words of previous years and decades into real and genuine action. The Plan of Implementation, and the many partnerships, agreed in South Africa has targets and it has time-tables on issues such as fisheries and wildlife to ones on drinking water and sanitation. It is already focusing the work of the United Nations Environment Programme (UNEP) along with many other organizations and groups across the whole spectrum of society. Indeed when environment ministers from across the globe meet at UNEP's headquarters in Nairobi, Kenya, in early February, 2003 the WSSD Plan and the challenge of taking it forward, of delivering real and meaningful results, will be at the centre of the talks, at the centre of the decisions.

At WSSD, financial commitments were made in support of the Plan of Implementation, partnerships and the Millennium Declaration goals in the areas of water and sanitation. These include \$970 million from the United States some 21 water- and sanitation-related initiatives worth at least US\$20 million.

Similarly, the Plan of Implementation commitment on energy access will be accompanied by financial commitments from the EU of \$700 million, the US of \$43 million and 32 separate partnership initiatives worth up to US\$26 million.

Optimism also comes from the decision by Canada to ratify the Kyoto Protocol on climate change. The eyes of the world are now on Russia to put its pen to this paper so it can come into force. Meanwhile the new spirit of cooperation, the new vision, espoused by African leaders and ministers in the guise of the New Partnership for African Development or Nepad give us a new start for this most wondrous of Continents, from where the human race took its first unsteady steps towards the diversity of civilisations and cultures we see today. Many African countries recognise that, only through partnership with each other, can a new dawn for this Continent come. There is also a real recognition that developed nations, committing funds to assist developing ones, need re-assurance that the cash will be well and effectively spent. WSSD may have been a milestone but should not be seen in isolation from events such as the Doha, Qatar, trade talks and the Monterrey, Mexico Finance for Development meeting. I am also particularly delighted over the outcome of our Global Judges Symposium held just prior to the Summit. Strengthening the use, development and awareness of such laws is one of the keys needed to unlock the environment for development agenda.

The International Year of the Mountains, ending in the summit in Bishkek where funds were pledged to clean up old nuclear dumps in Central Asia, was I believe a success. The International Year of Eco Tourism with its summit in Quebec, has given us some good pointers as to how we can match the modern enthusiasm for tourism and leisure with conserving nature and generating income for local people. However we clearly need to urgently re-visit this issue to chart a more robust and effective course.

UNEP this year also published two land-mark publications-the Global Environment Outlook 3 and the Africa Environment Outlook. These have not only contributed to our understanding of the threats and improvements human-kind is creating for life on Earth, but also are building strong networks of researchers and centres in developing countries where environmental and developmental science is flourishing.

Working closely with the Global Environment Facility, the multi billion dollar environment fund, we have launched important new projects on trying to restore damaged and degraded drylands in Africa to unraveling the mysteries of the humble organisms that populate and bring fertility to the soils of tropical countries. We are also partners in the largest ever project undertaken to build the skills of developing nations in the area of genetically modified crops and foods. At the Global Ministerial Environment Forum in Cartagena, Columbia, countries agreed a new, strengthened UNEP and it is gratifying to see that our funding is on the rise from a wider group of nations. This is a vote for the environment and a vote for UNEP's improved ability to deliver. We have every intention to live up to our new and increasing responsibilities, not only in this 30th year of UNEP's birth but in the months, years and decades to come.

47) AMERICAN CONGRESS CAN AFFECT GLOBAL WARMING by James Gustave Speth

YaleGlobal,

December 27, 2002

Internet: <http://yaleglobal.yale.edu/display.article?id=662>

James Gustave Speth is Dean, Yale School of Forestry and Environmental Studies.

Future generations may look back on President Bush's victory in the 2002 Congressional elections and see a casualty other than the Democrats. In the world beyond 2050 - our children's world - far-reaching shifts in the earth's climate could easily be a paramount concern. Yet the Republican Party's mid-term triumph could doom for another protracted period efforts to forge a responsible U.S. policy on global climate change - a further delay we cannot afford. In the Senate, outgoing environment committee chair James M. Jeffords has authored a bill to control power plant emissions of carbon dioxide, the most important climate-changing gas, as well as three other air pollutants. Electricity generation accounts for roughly one-third of U.S. carbon dioxide emissions. Transportation is responsible for another third, and efforts have been made in Congress to increase auto fuel economy. President Bush opposes both measures, and the Republican domination of the Congress resulting from the 2002 elections does not auger well for either, nor for other climate legislation with any bite in it.

We have known since the Carter Administration that global climate change was a serious threat requiring, among other things, new energy policies here and abroad. As early as 1979, the National Academy of Sciences warned that "a wait and see policy may mean waiting until it is too late." And a 1980 report from the President's Council on Environmental Quality urged that "the global warming problem should become a factor in making energy policy and not simply the subject of scientific investigation." It is easy to forget how long this issue has been around. U.S. leadership is particularly important given that about 30 percent of the cumulative emissions of carbon dioxide - the principal greenhouse gas - has come from U.S. sources. Yet every President since has badly neglected the issue, and recent administrations - Democratic and Republican - have actively sought to weaken international efforts to control the buildup of greenhouse gases in the atmosphere. Precious time has been lost, and devastating climate change becomes ever more likely.

How serious could these changes be over this century? The best current estimate is that, absent major corrective action (especially by the principal polluters), global warming in this century could wreak widespread havoc, including in the United States. For instance, it would make it impossible for about half of U.S. lands to sustain the types of plants and animals that now inhabit them. A huge portion of the United States' protected areas - large and small - is now threatened. In one projection, the much-loved maple, beech, and birch forests of New England will disappear in this century. Another projection shows

that much of the Southeast will become a huge grassland savanna too hot and dry to support forests. Extreme weather events, rise in sea level, coral bleaching, and new public health risks are among the other predicted consequences.

There is a number that future generations will focus on like we follow quarterly economic reports: the amount of carbon dioxide in the atmosphere, measured in parts per million (ppm). The environmental consequences just noted are what could unfold if atmospheric carbon dioxide concentration rises from today's 370 ppm to about 700 ppm by 2100. (The pre-industrial level was about 280 ppm.)

The central goal of the international climate protection treaty signed ten years ago is to prevent this number from rising to a "dangerous" level. An important effort to define "dangerous" was recently undertaken by Brian O'Neill and Michael Oppenheimer at Brown and Princeton Universities respectively. Published in the journal Science, the article concluded that it would indeed be dangerous to risk catastrophic sea level rise associated with the melting of the West Antarctic ice sheet or the disruption of major ocean currents such as the Gulf Stream. To contain these risks, O'Neill and Oppenheimer conclude that nations should prevent carbon dioxide concentrations from exceeding about 450 ppm. In a business-as-usual scenario, we are scheduled to reach this level by about 2030. To achieve the ambitious goal of halting the buildup of carbon dioxide at 450 ppm or below, the authors further suggest that compliance with the Kyoto Protocol would be enormously helpful. The Kyoto Protocol, which President Bush rejects but which Europe, Japan, Russia and Canada now support, would require that U.S. carbon dioxide emissions be reduced to seven percent below its 1990 level by 2010.

Conventional wisdom holds that complying with Kyoto's goals would be prohibitively costly, and no doubt full U.S. compliance would come with a significant price tag at this late date. In an earlier era, the United States did one thing that is now needed. During the 1973-1986 period, as a result of oil price shocks and energy efficiency policies, overall energy efficiency in the United States improved by an annual rate of 2.5 percent. It is often thought that these were years of poor economic performance, but between 1970 and 1988, the U.S. economy expanded at a real rate of 3.3 percent per year. Comparable efficiency gains, together with switching to natural gas, afforestation, and emissions trading, would allow the United States to participate meaningfully in the Kyoto process. There are rays of hope, including a public increasingly awake to the issue. Perhaps the brightest of these rays is that over half the states are pursuing initiatives that reduce greenhouse gas emissions. New Hampshire has legislation to cut power plant emissions of carbon dioxide, and, despite the Bush administration's opposition to the legislation, California has moved to regulate carbon dioxide emissions from auto exhausts, to mention two leading examples. If more states go in these directions, Congressional action will not be far behind. The earth's climate should not and need not become an accidental casualty of the American electoral process.

#### 48) BIG RETHINK NEEDED ON ELECTRICITY by John Blakeley

New Zealand Herald  
December 20, 2002  
Internet:

<http://www.nzherald.co.nz/storydisplay.cfm?storyID=3048005&thesection=news&thesubsection=dialogue>

John Blakeley, a research fellow at Unitec, is convenor of the Sustainable Energy Forum.

As we enter summer, the prospect of winter electricity shortages may seem a long way off. But the New Zealand Energy Conference in October was told that one of our key challenges over the next few years lies in maintaining secure electricity supply. Demand is continuing to increase, the Maui gas field is running down and there is an ever-present risk of water shortages in our hydro-generation system in a dry year.

Over the next two years the output from Maui may start to diminish significantly and it could run out about three years after that. In fact, the output from Maui is starting to decline and it is losing the capacity to supply large amounts of additional gas for electricity generation in a dry year, such as we experienced in 1992 and 2001.

The replacement for Maui will be several smaller gas fields, but the rate of discovery of new gas in the past few years does not give much confidence that new fields will be able to fully replace Maui in the

longer term. If electricity demand continues to increase, coal may have to be considered as a substitute for natural gas in thermal power stations. The consequences would be an increase in carbon dioxide emissions for each unit of electricity generated, and other environmental issues to be remedied. One obvious step for the Government would be to take a more active leadership role and seek to limit, or even reverse, increases in electricity demand which have averaged 1.5 to 2 per cent annually over the past decade.

This would have an immediate national benefit of limiting price rises, since we are often told that the price of all electricity will have to rise before any generating company builds the next big power station. Major industries processing and adding value to farming and forestry products have often said that significant price rises will help to destroy an international competitive advantage that New Zealand has in relatively low energy costs. At the energy conference, the Energy Minister, Pete Hodgson, said that most businesses could cut their energy costs by 20 to 30 per cent through efficiencies. The same is true for owners of domestic houses, especially if they were prepared to install a solar water-heating system. If the Government were to actively promote a national campaign for zero increase in electricity demand, there might be surprising benefits. But that presents a conflict of interest because the Government owns three of our four major electricity companies and thus has a vested interest in seeing these companies grow and generate increasing profits.

The situation is further complicated by our ratification of the Kyoto Protocol, under which we must seek to limit greenhouse gas emissions. One obvious way to do this is to more actively promote conservation and more efficient use of energy and more renewable energy generation. In October, the Government set a target for additional renewable generation by 2012 equivalent to 30 times the amount of electricity used annually by a city the size of Nelson. At the time, Mr Hodgson said the target was challenging but within reach. But it may not be achievable with present Government policies. Renewable energy projects are often smaller ones, such as wind farms or smaller hydro or geothermal developments. These tend to be promoted by smaller, innovative companies. Large generating companies favour major projects.

Until the Government deals with the conflict it has between wanting to receive increasing profits from its large generating companies and wanting to limit electricity price rises, maintain security of supply and meet its commitment to the Kyoto Protocol, we will not be heading towards a sustainable energy future. A first step towards resolving this conflict might be for the Government to state that, unlike its other wholly owned businesses which are expected, as cash cows, to increase their sales and profits and give a good return on investment, the three electricity companies have a different set of objectives. Perhaps these could be to take some responsibility for maintaining security of supply, to try to reduce electricity sales by active promotion of conservation and efficiency, and to require that these companies' new investments in generation use renewable energy. Unless and until such action is taken, it will remain easy to think that the Government's commitment to the Kyoto Protocol is based more on possessing large carbon credits from pine forests than a genuine commitment to reducing greenhouse gas emissions.

The Government's thinking must change. Generating and retailing electricity should no longer be seen as a free-market activity such as producing and selling baked beans. It is a vital national service that must soon face up to four big challenges: maintaining an electricity price that is comparatively low internationally, so our export industries retain a competitive advantage; responding to the running down of the Maui gas field; maintaining security of supply, especially in a dry winter; and committing to the Kyoto Protocol to reduce greenhouse gas emissions. Greater emphasis on the need for more conservation and efficiency in electricity use is at the heart of a solution to all these challenges.

#### 49) WMO STATEMENT ON THE STATUS OF THE GLOBAL CLIMATE IN 2002: GLOBAL SURFACE TEMPERATURES SECOND WARMEST ON RECORD, RETURN TO EL NIÑO CONDITIONS

WMO

December 17, 2002

Internet: <http://www.wmo.ch/web/Press/Press684.pdf>

GENEVA, 17 December (WMO) - The global mean surface temperature for 2002 is expected to be approximately 0.50 °C above the 1961-90 annual mean value, according to records maintained by Members of the World Meteorological Organization (WMO). Consequently, 2002 will supplant last year (2001) as the second warmest in the instrumental record. The warmest year in the 1860 to present record

for land and sea surface areas remains 1998. The ten warmest years have all occurred since 1987, nine since 1990. While the trend toward warmer globally averaged surface temperatures has been uneven over the course of the last century, the trend for the period since 1976 is roughly three times that for the past 100 years as a whole. The rise in global average surface temperatures since 1900 now exceeds 0.6° C.

El Niño conditions returned to the tropical Pacific over the course of 2002. The potential for transitioning from more neutral to El Niño conditions was evident by the end of 2001. By midyear 2002, characteristic El Niño sea surface temperature and then sea level pressure patterns became well established. In the latter half of 2002, climate anomalies in many regions were broadly consistent with a maturing El Niño episode of moderate intensity. Warm (positive) sea surface temperature anomalies in the tropical Pacific and indeed across much of the land and sea surface of the globe in general contributed to the near record temperature ranking for the year.

#### REGIONAL TEMPERATURE AND PRECIPITATION PATTERNS

Though the magnitude of the present El Niño episode is smaller than the 1997-98 event, the transition from neutral to El Niño conditions was nevertheless accompanied by a coincident transition in climate anomalies across some regions of the world. This was especially true across regions of the western Pacific. In the Southwest Pacific, nations in the more northerly latitudes of the region (closer to the equator) transitioned from drier than normal conditions before May 2002 to wetter than normal conditions after the onset of El Niño. In September, some stations in the Republic of Kiribati received rainfall in excess of 10 times the average value. Indonesia, Papua New Guinea, New Caledonia, Tonga, Niue and the southern Cook Islands, however, recorded well below average precipitation in some or all of the months following May 2002. The north of the South Island of New Zealand was drier than normal, while the west and south was wetter than normal. In Australia, near normal rainfall and cooler than normal temperatures observed in January and February 2002 gave way to warm and dry conditions beginning in March. Widespread drier and warmer than normal conditions persisted thereafter. The pattern of dry conditions in the southern and western Southwest Pacific and wet conditions in the northern Southwest Pacific is typical of the region during El Niño episodes.

Widespread warmer than normal conditions for the year as a whole occurred across most of Asia, especially in Mongolia and regions immediately to the north. Annual precipitation totals were above normal from central Asia eastward to northern China and the Korean Peninsula. Monthly mean temperatures in East Africa Region were generally higher than average for much of the year. In southern Tanzania, heavy rains were reported in January and widespread near normal to wet conditions were found across much of the country through February and March 2002. Wet conditions were also observed in much of western and central Kenya and parts of Uganda in March and May where some locations recorded the wettest or near wettest conditions since 1961. Heavy rain also occurred during October and November in Uganda. The regions of central and southern Ethiopia, however, experienced a general failure of the rains in period from June to September.

After a mild 2001-02 winter in many areas, especially in the Great Lakes region, Canada recorded its fifth coldest spring overall. In parts of western Canada, spring was the coldest on record. Moisture deficits present at the end of 2001 in much of western regions of Canada and the United States were exacerbated by less than normal precipitation during winter and spring 2002. In Sweden, the average temperature in all months of the year through September 2002 was above normal and the warmest summer ever in the period 1860 to the present was reported. Heavy precipitation occurred in parts of the northeast region of Spain during the Northern Hemisphere summer and autumn. Persistent high temperatures were observed in June in Switzerland. Abnormally high temperatures were observed during April across India and a prolonged heatwave over northern regions from mid-April through the third week of May caused hundreds of fatalities. On 10 May the maximum temperature at Gannavaram reached 49°C.

#### TYPHOONS, HURRICANES AND FLOODS

During the first two weeks of August, exceptionally heavy rains in parts of central Europe (including Germany, the Czech Republic, Austria, Romania, Slovakia) caused flooding of historic proportions, notably on the Elbe and Danube rivers. More than 100 deaths were reported with more than 450 000 forced to evacuate. Damage was estimated at US\$ 9 billion in Germany alone. A number of rainfall records were set and the flood exceeded all historic levels in some places. In southern France, severe flooding led to 24 deaths and induced damage estimated near US \$1 billion in September. The greatest

precipitation total in the region was nearly 690 mm, which fell in roughly a 24 hour period. In East Africa, flooding was observed in southern Tanzania in January and in Kenya and Uganda from March to May 2002. Flooding was also reported in Uganda during October and November 2002. The flooding episodes resulted in a number of impacts including land slides and loss of life.

During the Atlantic hurricane season (June – November) only four tropical storm systems developed to hurricane strength. Nevertheless, twice the normal number of storm systems (eight) affected the United States, including Hurricane Lili, the first land-falling hurricane to strike there since the 1999 hurricane season. September 2002 was also the most active tropical storm month on record in the Atlantic Basin. In October, Hurricane Kenna made landfall near San Blas, Mexico. The storm was the third strongest in terms of wind intensity to strike Mexico from the Pacific and resulted in three deaths, thousands of homeless and tens of millions of dollars (US) in damage. Typhoon Rusa made landfall on the Korean Peninsula at the end of August resulting in flooding and more than 240 dead or missing. The one-day rainfall total of approximately 870 mm set a national rainfall record for records that date from 1911.

The Asian summer monsoon and several typhoons brought heavy rains to the region from southern China to the Indochina peninsula. Flooding along the Changjiang and Mekong rivers resulted in several hundreds of deaths. The monsoon in eastern India, Nepal and Bangladesh was also active, leading to severe flooding in parts of the region and about 1000 fatalities. At the end of October, a powerful wind storm caused damage across northern Europe, from southern England to the Baltic regions. Wind speeds over 140 km/hour were reported at numerous locations.

#### DROUGHT PRESENT IN MANY REGIONS

The seasonal rainfall during the summer (southwest) monsoon (June-September) in India as a whole was 19% below normal, qualifying 2002 as the first all-India drought since 1987. Rainfall deficits during July were most noteworthy, at a historical low of 49% below normal. Remarkable recovery in rainfall occurred in August and prevented the situation from worsening. In November, during the northeast monsoon season, good rainfall amounts were widely reported. In Afghanistan, spring rains brought some relief to the four-year drought. Across West Africa, precipitation was below normal in the Sahel and the Guinea Coast region throughout much of their wet season. In the Sahel, countries in the far west, especially Mauritania, Senegal, and Gambia, accumulated the greatest rainfall deficits, with some locations receiving only 25% to 50% of their normal rainfall by the end of September. In the Greater Horn of Africa region, drought conditions that date to mid-1998 continued unabated in parts of the region, especially in central and southern Ethiopia.

For the second Northern Hemisphere summer in a row, dry conditions were experienced across much of Central America and parts of Mexico. As in the case of the severe drought last summer (2001), the countries most affected this year were Honduras, Nicaragua, El Salvador, and Guatemala where significant agricultural impacts were reported.

In the eight months from March to October 2002 approximately 70% of the Australian continent received rainfall totals in the lowest 10% of all March to October periods since 1900. Nearly all remaining areas of Australia experienced drier than average conditions. Dry conditions were accompanied by higher than average maximum temperatures. The Australia-wide average maximum temperature during the Southern Hemisphere autumn, winter and spring of 2002 was the highest since high quality temperature records commenced in 1950. In Canada, drought particularly affected central and northern areas of the Prairie Provinces, somewhat north of the region most impacted in 2001. In the United States, drought conditions worsened in the west, but some improvement was seen in the east. Persistent dry conditions in the western United States contributed to the second worst wildfire season in history.

#### ANTARCTIC OZONE HOLE

During 2002, the Antarctic ozone hole was the smallest since 1988. In late September an unprecedented event occurred when the ozone hole split into two. The two holes were relatively small and each contained a core depleted of more than 50% of its ozone. The ozone hole briefly intensified until mid-October, but then disappeared in early November. Not only was the 2002 ozone hole the smallest since 1988, it was also the shallowest and the shortest lived. The size, depth and persistence of the ozone hole varies from year to year owing to natural changes in the meteorological conditions in the stratosphere.

## ARCTIC SEA ICE

The extent of the sea ice cover in the Arctic Ocean in September 2002 was lower than in any previous September in the satellite observation period, which dates to 1978. Throughout this period of record, there has been a general downward trend in the Northern Hemisphere summer minimum arctic sea ice extent, but there is also considerable variability in minimum extent from year to year. The total area of surface melt on the Greenland Ice Sheet during 2002 also was reported to be greater than in other known records.

### \*\*\*Information Sources

This preliminary information for 2002 is based on observations up to the end of November from a network of land-based weather stations, ships and buoys. The data are collected and disseminated on a continuing basis by the National Meteorological and Hydrological Services of the WMO Member countries.

It should be noted that following established practice, WMO's global temperature analyses are based on data sets maintained by the Hadley Centre of the Met Office, UK, and the Climatic Research Unit, East Anglia University, UK as well as another authoritative global surface temperature data set, which is maintained by the USA Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Results from these two data sets are comparable; both project that 2002 will be the second warmest year globally.

More extensive, updated information will be made available in the annual WMO Statement on the Status of the Global Climate in 2002, to be published in late March 2003.