

Climate Change Cause and Effect, An Americas Perspective

By Tony Phillips | December 20, 2007

“We, the human race, have substantially altered the earth’s atmosphere. In 2005, the concentration of carbon dioxide exceeded the natural range that has existed over 650,000 years. Eleven of the warmest years since instrumental records have been kept occurred during the last 12 years. Therefore climate change is accelerating.”

Mr. Rajendra Pachauri, chairman of the IPCC

Nov. 17, 2007 in Valencia, Spain, more than 2,500 of the world’s greatest climate scientists spoke with one voice. Their spokesman was Dr. Rajendra Pachauri, a U.S.-educated industrial engineer, energy expert, and former board member of Indian Oil Corporation Limited. Pachauri chairs the Intergovernmental Panel on Climate Change (IPCC), a voluntary group of climate scientists working with the United Nations Framework Convention on Climate Change (UNFCCC) and the World Meteorological Organization¹ (WMO).

The Nobel Foundation catapulted the IPCC into the media limelight in October 2007 by awarding them the 2007 Nobel Peace prize, an honor they share with former U.S. Vice President Albert Arnold Gore Jr. While Mr. Gore is the star of the Academy Award-winning film, *An Inconvenient Truth*, it is the IPCC members who provide the intellectual foundations for his arguments.

In their rationale for choosing Gore and the IPCC, the Nobel Committee stated the following:

By awarding the Nobel Peace Prize for 2007 to the IPCC and Al Gore, the Norwegian Nobel Committee is seeking to contribute to a sharper focus on the processes and decisions that appear to be necessary to protect the world’s future climate, and thereby to reduce the threat to the security of mankind. Action is necessary

now, before climate change moves beyond man’s control.²

The IPCC received the award in recognition of its Fourth Synthesis Report (released on Nov. 17, 2007). This report explains the changes in the global climate with greater statistical certainty than ever, and establishes the causal relationship between climate change and human pollution. Not the first major report issued by the IPCC—it has presented reports at intervals of five or six years since 1990³—it is by far their most emphatic.

The scientific reports measure “changes” in the planet’s atmosphere. They also broach the sensitive subject as to what caused the changes and their relationship to pollution. IPCC scientists also analyze alternative future scenarios, each with projected costs and benefits, future patterns of weather change, sea-level rises, water shortages, etc.



Since 1988 the science has been improving and the experts have slowly been removing any doubt that it is our love affair with fossil fuels that is responsible for the drastic changes in our planet's climate. Their science provides the numbers behind the damage caused by consuming, (mostly burning), 12 billion barrels of petroleum each year. The damage to the planet's atmosphere and their drastic consequences have been explained every five years by the IPCC, but until the fourth report they received little media coverage, especially in the worst polluting nations of the world, the United States and China.

Report Three and the Lobbies

The third "Synthesis Report" was issued in 2002. At that time Dr. Robert T. Watson, an atmospheric chemist, chaired the IPCC. His term as chair was coming to an end and it was expected that he would be re-elected. Dr. Watson had long pressed for aggressive action to cut emissions of heat-trapping gases. This did not make him any friends in the oil and energy sectors, especially in the United States.

In a *New York Times* article published April 3, 2002⁴, Andrew C. Revkin noted the following:

"Auto manufacturers and oil companies have long seen Dr. Watson as a foe, and their lobbyists have said that Dr. Pachauri, who has worked with industry in the past, was clearly preferable. Some [IPCC] panel scientists said Mr. Bush might end up regretting the choice, noting that Dr. Pachauri has repeatedly criticized the president for not acting more aggressively to cut emissions from the United States, which is the largest source of heat-trapping gases."

The U.S.-based oil industry did all that it could to bury the third IPCC report. They saw climate

change as a threat to record profits and feared litigation for climate change-related damages. ExxonMobil, then the world's largest oil company, lobbied the U.S. government to remove Watson from the chair of the IPCC, citing his relations with the press and his relationship with the former Clinton/Gore administration.

On Feb. 6, 2001, A. G. (Randy) Randol III Ph.D., ExxonMobil lobbyist and "Senior Environmental Adviser" sent a fax⁵ to John Howard of the U.S. government's Council on Environmental Quality (CEQ) entitled: "Regarding: Bush Team for IPCC Negotiations."⁶ Howard is a Texas lawyer who specializes on environmental policy issues. He has moved from the CEQ and is now chairman of the Environmental Protection Agency's National Advisory Council for Environmental Policy and Technology. He also worked on President Bush's Federal Environment Executive and represented the White House in Bonn, 2001 on climate change.

Randol's fax read:

"The IPCC is headed by Robert Watson, an American who is also the chief science person at the World Bank (director, Environment Dept.). Watson was hand picked by Al Gore and served in the Clinton/Gore White House Office of Science and Technology policy. His tenure at the IPCC ends with the completion of the Third Assessment Report. However, he could be extended at an IPCC session this year or next. [...] Issue: Can Watson be replaced now at the request of the United States?"

The U.S. team did not endorse the re-selection of Watson. His tenure was not renewed and Pachauri took the chair of the IPCC. At that time the U.S. State Department was negotiating a nuclear treaty with India. They believed it

could be fortuitous for their relationship if they recognized an Indian scientist. The industry saw him as someone who was closer to its perspective than Watson. Video cameras focused on Watson in the audience in Oslo watching as Pachauri and Gore received their rewards.

The timing of the Fourth Synthesis Report gave policymakers a month to digest the science and suggest appropriate policy responses before the United Nations Climate Change Conference in Bali, Indonesia⁷ Dec. 3-14. In the words of Pachauri the “short and extremely readable ‘Synthesis Report,’ [is] explicitly targeted to policymakers.”

The Bali conference also hosted the third meeting of the Kyoto Protocol. This protocol signed by U.S. President Clinton when Gore was vice president was refused ratification by a Republican-dominated senate. Lobbies⁸ pushing for “unsigned” the Kyoto protocol included the Competitive Enterprise Institute (CEI), an organization that Greenpeace⁹ describes as being “at the center of the global warming misinformation campaign.” While the Kyoto protocol was never “unsigned” it was never ratified and has no effect in the United States. After days of arm-wrestling, the U.S. government finally agreed to commitments on emissions cutbacks in Bali.

The Kyoto protocol expires in 2012. Because of recent acceleration in global warming, scientists suggest its replacement by a more comprehensive agreement by 2010. Now that the new government in Australia has put climate change as its number one priority and signed on to the Kyoto protocol, the United States is the only developed country absent from the Kyoto agreement.

It is hoped that the 2010 agreement will include global participation including key polluters, the

United States and China. In the Bali consensus the U.S. government agreed to overall cutbacks and China, formerly exempt as a developing country, agreed to voluntary cutbacks.

Climate Change in the Western Hemisphere

In the technical jargon of climate change, the world consists of sources and sinks. A source is something that produces the greenhouse gas carbon dioxide, CO₂ (carbon). An example of a source is burning coal to generate electricity. Burning coal (a fossil fuel source) releases energy to make electricity (for example) but also releases carbon into the atmosphere. The carbon causes global warming.

A sink is the opposite; it is something (normally plant life) that absorbs the excess greenhouse gasses (carbon and others) from the air. An example is a forest. Trees are especially important in the South American sub-continent and the United States and Canada, where large tracts of forests still exist.

As Gore put it in his Nobel Peace prize acceptance speech:

“So today, we dumped another 70 million tons of global-warming pollution into the thin shell of atmosphere surrounding our planet, as if it were an open sewer. And tomorrow, we will dump a slightly larger amount, with the cumulative concentrations now trapping more and more heat from the sun.”

Climate scientists explain that sound policies should focus on stopping the dumping (reducing sources) and replacing them with sinks to repair the damage already done. Unfortunately, as explained below, the current situation in the

Americas is diametrically at odds with sound policy.

South America, Central America, and the Caribbean

Applying this sources and sinks perspective to the region demonstrates the climate change opportunities and challenges. Also, the analysis reflects the climate change effects experienced by the region, and what can be expected in the next few decades.

In the region global climate change effects are highly correlated with sources (such as burning oil, coal, and gas) but the continent also has many potential sinks.

With relatively small populations and economies, the region is not a major carbon emitter from the burning of fossil fuels.¹⁰ Two countries in Latin America are global energy players (Mexico and Venezuela) in the production of oil and gas for export. Though significant in the region, excluding Mexico, Latin America produced less than 9% of total global production in 2006.¹¹ When we add in Mexico (with nearly 5% of global oil production), all of Latin America's oil output is still less than that of Saudi Arabia. When it comes to land use the larger tropical and sub-tropical regions of South America can act as a significant global sink. By absorbing carbon from the atmosphere, the forests of South America in particular, play a vital role and help stabilize the regional climate.

Unfortunately recent changes in land use have taken Latin America in the wrong direction. Sinks are being removed at an accelerating pace. At the same time sources, especially oil fields, continue to be exploited to feed the energy markets in the region and abroad.

Large-scale felling of ancient tropical forests for wood production or to clear the way for agribusiness is bad for climate change. Much of the agribusiness products are produced as food for export, or to produce oil-replacing energy sources (agrofuels¹²) such as biodiesel and ethanol, consumed mainly in transport and electricity generation. Agrofuels supplement rather than replace the use of fossil fuels, so they are also bad for climate change. In fact, certain agrofuel production (such as making ethanol from corn¹³) often requires more fossil fuel inputs (transport, fertilizer, machinery, and processing) to produce an agrofuel which produces less energy when the fuel is burned. This paradox of energy economics can make perfect commercial sense given adequate state subsidies.

The IPCC devotes a whole chapter to Latin America entitled: *Climate Change 2007: Impacts, Adaptation, and Vulnerability* that explains how land use affects climate.

It states that, "Deforestation in Latin America's tropical areas will be one of the most serious environmental disasters faced in the region. Currently, Latin America is responsible for 4.3% of global greenhouse gas emissions. Of these, 48.3% result from deforestation and land use changes. By 2010 the forest areas in South and Central America will be reduced by 18 Million Hectares (Mha) and 1.2 Mha, respectively. These areas will be used for pasture and expanding livestock production.

If the 2002-2003 deforestation rate (2.3 Mha/yr) in Brazilian Amazonia continues indefinitely, then 100 Mha of forest (about 25% of the original forest) will have disappeared by the year 2020, while by 2050 (for a business-as-usual scenario) 269.8 Mha will be deforested. By means of simulation models, estimate[s] for [the] Brazilian Amazonia ... in the worst-case

scenario, by 2050 the projected deforestation trend will eliminate 40% of the current 540 Mha of Amazon forests, releasing approximately 32,000 million tons (109 tons/ha) of carbon to the atmosphere. Moreover, under the current trend, agricultural expansion will eliminate two-thirds of the forest cover of five major watersheds and ten eco-regions, besides the loss of more than 40% of 164 mammalian species habitats.”¹⁴

Hydroelectricity, Rivers, Glaciers, and Sea Levels

South America produces much of its energy from hydroelectricity, particularly Brazil, Venezuela, and Paraguay (a net exporter of electricity). But the IPCC projects that sea level rising, melting glaciers, and extreme weather events will adversely affect these same rivers. As sea levels rise, marine salt water moves upriver endangering water supplies for large delta cities such as Buenos Aires, Argentina, which takes its drinking water supply from the River Plate, the delta of the river Paraná.

Chile too derives a healthy proportion of its renewable electricity generation from hydroelectric plants from dammed rivers in the Andes, however melting glaciers in the high Andes compromises water supplies and hydroelectric supplies in all Andes nations from Colombia¹⁵ to Chile and Argentina. Glacial melting compromises year-round hydroelectric power production, and increases the risk of flooding in river valleys.

Oil-Producing Countries

From the carbon source perspective, the region has one major oil-producer, OPEC member Venezuela, and many minor players who export oil and gas to the United States or other countries in the region. These include: Bolivia,

Brazil, Peru, Ecuador, Argentina, Trinidad, Tobago, and Colombia.

All nations in the Americas are oil consumers. In most nations consumption is rising while supplies tighten, causing rising prices. Climate campaigners believe that it is critical that governments take measures to reduce consumption of fossil fuels and that they encourage research and production of alternative energy resources which are carbon neutral or carbon negative.

In most of the Americas their pleas have fallen on deaf ears. A few countries have begun to take measures to reduce energy use, primarily due to shortages rather than for climate-change reasons. Among them Cuba is a pioneer with various practical measures including mandatory replacement of tungsten light bulbs with energy-efficient halogen bulbs.

Some countries are facing energy shortages especially in the southern cone where high levels of economic growth in Argentina (still a net exporter of oil) and Chile are causing shortages of electricity and gas supplies.

Many of the smaller and poorer island nations in the Caribbean have found it difficult to pay for the rise in the price of oil imports. This has led to Venezuela subsidizing oil exports. Venezuela also subsidizes some underprivileged groups in the United States and the cost of oil used in public transportation by the London Bus services. Solidarity measures such as these may be positive for regional integration and do help alleviate the pain of the rising price of oil, but do little or no good for climate change.

Preservation not Growth

President Rafael Correa of Ecuador has presented some of the most innovative suggestions for

meeting the challenge of climate change. Ecuador is an oil-exporting country and faces extreme national public debt repayment problems. Conventional growth-orientated economic theory suggests increasing oil production for export in an effort to reduce debt obligations.

Correa, an economist himself, has chosen another path. He created a commission to evaluate the legitimacy of 30 years of debt accumulation authorized by the Credit Commission.¹⁶ He has also suggested that payments be made to his government to keep oil in the ground in ecologically sensitive areas in the Ecuadorian Amazon.

In a letter¹⁷ to the United Nations on Sept. 24, 2007 Correa laid out his proposal. The following is a translation of part of that letter:

“Climate change does not have borders; nevertheless it is necessary to underline that its distribution and impacts are inequitable. Whereas an average U.S. citizen generates six tons of carbon per year and an average European citizen generates nearly three tons per year, the world average carbon emission per capita is approximately 1.3 tons per year, a great asymmetry. This reality establishes with clarity where the major responsibilities reside in the environmental effects on the life of this planet. This situation does not pretend to ignore the increasing emissions of some developing countries, but rather, to demonstrate that the present model of growth, based on the intensive use of fossil fuel and over consumption, is an untenable one which benefit a ‘privileged’ minority in our modern society, but that does enormous harm to all of us.”

North America

In North America petroleum production in the United States and Mexico is dropping due to dwindling supplies. However, the two countries still account for 12 % of global oil production. In Canada, oil-sand production is growing steadily to nearly one million barrels per day in Northern Alberta alone.¹⁸ Canada’s oil exploitation accounts for about 4 % of global production. Marginal exploitation such as Canadian oil sands mining is costly, energy inefficient, and a significant source of pollution.

The United States remains by far the world’s largest economy and the world’s greatest energy consumer (approximately 25 % of global oil and electricity consumption). The use of the U.S. dollar as the global currency for energy in oil markets implies that the United States plays an active role in international energy relations. It also has the world’s largest military force that is becoming increasingly involved in “energy security.”

As U.S. oil production drops, internal consumption continues to rise. Rather than check national oil consumption and thus reduce the creation of greenhouse gases, the U.S. government chooses to replace its energy deficit with imports of foreign oil and increased use of other fossil fuels, along with other minor sources such as nuclear power. The United States is also replacing imported oil use with massive exploitation of national coal supplies, especially for electricity generation. Coal burning is even more damaging to climate change than burning oil.

Gore, in his acceptance speech, paid particular attention to the use of coal to generate electricity. He called for “... a moratorium on the construction of any new generating facility that

burns coal without the capacity to safely trap and store carbon dioxide.”¹⁹

To date U.S. energy policies have been counter-productive both in terms of increasing rates of consumption and sabotaging multilateral environmental agreements. Failure to ratify the Kyoto agreement has significantly damaged its international reputation. Although at first the U.S. government representatives at Bali resisted mandatory emissions controls, they finally agreeing to a watered-down consensus. The United States seems to be intent on continued resistance to carbon limits and taxation.

The powerful lobbies of U.S.-based multinational corporations dependent on the oil sector will be hard at work after Bali to prevent the country from entering into an agreement to replace Kyoto, however the United States is by no means the only country that is exposed to the economic risks of carbon taxation.²⁰

Europe and Japan will also face huge economic costs if such measures are put in place. The difference is that they actively supported such changes in Bali and encountered obstacles from the United States.

A Lack of Political Will

December 2007 was a key month for climate change awareness and policy action with the Nobel Peace prize awards in Norway, Dec. 10, and the Bali conference on climate change Dec. 3-14. While a roadmap agreement was reached, it was without hard limits (Carbon caps), and heavily diluted. Agreement on sources seemed to have stalled but sinks (mostly related to forestry) have shown some progress.

As Gore and Pachauri took the stage in Norway, world leaders were choosing policy options at

the climate change conference in Bali. Behind the scenes the world's energy and transport corporations lobby their governments furiously, spending millions on media “greenwashing” campaigns in an effort to further delay action on climate change. Their budget is far greater than Nobel's or the UNFCCC's. Future agreements and compliance will depend on public awareness, and media coverage of Bali and Oslo was relatively scant. In his Nobel Peace Prize acceptance speech Gore spoke of a blatant lack of political will on the part of world leaders as epitomized by the man who took the presidency from him in the 2000 elections in Florida. George W. Bush's final year in power is a crucial time for multilateral action on limiting the effects of future climate change. To date his presidency has consistently blocked such progress. Gore described this attitude by paraphrasing Winston Churchill's comment on the failure of world leaders to react to the threat of Adolf Hitler during the build-up to the Second World War:

“They go on in strange paradox, decided only to be undecided, resolved to be irresolute, adamant for drift, solid for fluidity, all powerful to be impotent.”

The burning question is whether consumption policies will continue or policymakers will finally realize the power they have to avert a major global disaster.

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END NOTES

- 1 http://www.wmo.int/pages/index_en.html.
- 2 <http://www.nobelprize.org/>.
- 3 The IPCC reports I, 1990, II, 1995, III, 2001, and IV, 2007 can all be sourced here:
<http://www.ipcc.ch/ipccreports/assessments-reports.htm>.
- 4 <http://query.nytimes.com/gst/fullpage.html?res=9B06E2D8133AF930A35757C0A9649C8B63>.
- 5 To read about the exposé and for a copy of the fax:
<http://www.nrdc.org/media/pressreleases/020403.asp>.
- 6 We might never have known of this fax had it not been for a freedom of information act (FOIA) request by the NRDC (see above).
- 7 <http://www.unfccc.int/>.
- 8 Ref: lobbying campaigns mounted by oil funded think-tanks such as the Competitive Enterprise Institute (CEI)
<http://www.cei.org/utills/printer.cfm?AID=3253>.
- 9 <http://www.exxonsecrets.org/html/orgfactsheet.php>.
- 10 Approx 2.5% of World.
- 11 http://www.bp.com/liveassets/bp_internet/globalbp/global_bp_uk_english/reports_and_publications/statistical_energy_review_2007/STAGING/local_assets/downloads/pdf/table_of_world_oil_production_2007.pdf.
- 12 Laura Carlsen, "The Agrofuels Trap," Americas Policy Program Special Report (Washington, DC: Center for International Policy, September 11, 2007): <http://americas.irc-online.org/am/4535>.
- 13 See Science, Vol. 312, p. 1747, 26 June 2006, for online copy see:
<http://petroleum.berkeley.edu/papers/Biofuels/BiofuelsTop.htm>, accessed 12/12/2007.
- 14 Magrin, G., C. Gay García, D. Cruz Choque, J.C. Giménez, A.R. Moreno, G.J. Nagy, C. Nobre and A. Villamizar, 2007: Latin America, *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 581-615, <http://www.ipcc.ch/ipccreports/ar4-wg2.htm> (accessed 11/12/2007).
- 15 The IPCC report notes that 80% of glacial ice is already compromised in Colombia and the problem is worsening.
- 16 Article on the CAIC in English by Gail Hurley, English representative on the committee:
http://www.cadm.org/spip.php?article2669&var_recherche=CAIC%20Ecuador.
- 17 The letter can be downloaded in PDF format here:
http://www.ecuador.org/bulletin_board/relative_docs/letter_climatechange.pdf (accessed 12/12/2007).
- 18 Alberta Department of Energy Website:
<http://www.energy.gov.ab.ca/OurBusiness/oilsands.asp>.
- 19 The technical feasibility of such measures is not beyond the bounds of possibility and indeed a few coal-burning stations do this but it is expensive as it involves pumping waste gases deep into the earth. For more details see George Monbiot's book: *Heat: How to Stop the Planet from Burning*.
- 20 The largest global multinationals are highly oil dependent; one only needs to look at the list of the 2006 Fortune Global 500 top 12. Of the 12, seven are based in the United States; six are oil companies (ExxonMobil, Royal Dutch Shell, BP, Chevron, ConocoPhillips, and Total), four are vehicle manufacturers (General Motors, DaimlerChrysler, Toyota, and Ford) one is an electricity manufacturer (General Electric) and the other is a retailer, also highly dependent on global transport (Wal-Mart stores).

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