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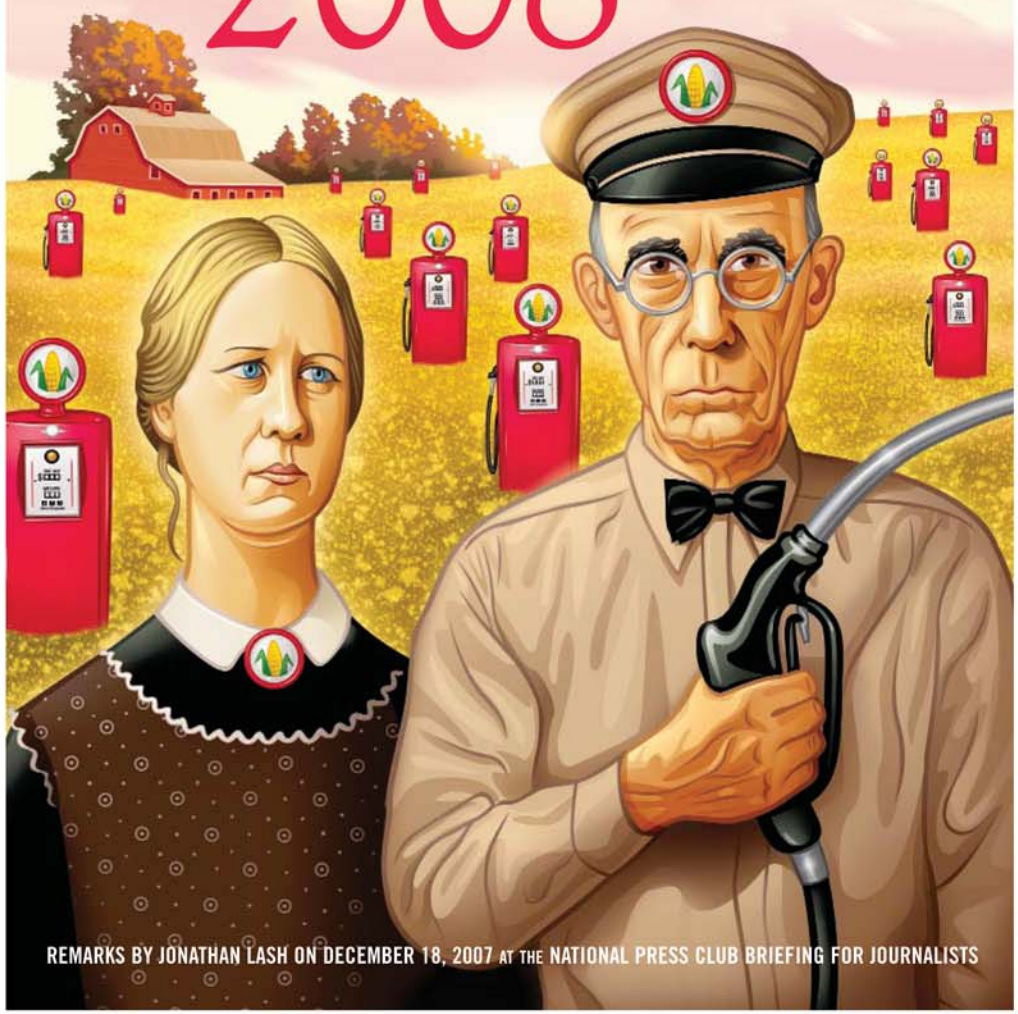
Environmental Stories to Watch *in* 2008



REMARKS BY JONATHAN LASH ON DECEMBER 18, 2007 AT THE NATIONAL PRESS CLUB BRIEFING FOR JOURNALISTS

OPENING REMARKS

This is the fifth year that WRI has invited members of the press to join us and talk about what we think will be the environmental issues to watch in the coming year. Our conversation today will be dominated by climate change, but I will try to connect it in several places to other environmental issues.

In past years, we have talked about the rising importance of the private sector in driving the politics of climate change. We predicted last year that a group of influential companies would recommend to Congress mandatory cap-and-trade legislation, and in fact, a month later that happened. The group, called the U.S. Climate Action Partnership, is now comprised of six environmental groups (including WRI) and 27 companies with a combined market capitalization of $2.2 trillion.

The year before, we said to watch action in the states. At that time, states in the Northeast were developing an agreement to limit their emissions and impose a cap-and-trade system. That agreement was reached and the implementation is well underway. Midwestern and Western states are following suit.

This year, I want to talk about seven issues:

- What is likely to happen on the international climate front?
- What will Congress do about climate change during 2008?
- Does the Environmental Protection Agency have a surprise for us?
- What will be the direction of biofuels?
- How is China going to act with regard to climate change over the coming year?
- What new emerging environmental technologies can we expect?
- Could weather play a role in the upcoming U.S. elections?

Two of my colleagues join me today. Dr. Jonathan Pershing directs WRI's Climate and Energy Program and was a long-time negotiator in the process building up to the Kyoto Protocol. Dr. Nancy Kete directs WRI's EMBARQ Center on Sustainable Transport.

International Climate Negotiations – The Road from Bali

The big issue in December's U.N. climate change conference in Bali was not one of science, but of political will. Would nations agree to try to negotiate an agreement to reduce greenhouse gas emissions? The answer – barely – was yes. The "Bali roadmap" creates a process and set of principles for negotiating a successor to the Kyoto Protocol, which expires in 2012. The negotiations will continue in 2008 in Poznan, Poland, and must conclude by the next U.N. climate change conference in Copenhagen in 2009.

If Bali produced a roadmap, however, it is a strange one, because we don't know where the road ends.

I want to make four observations about what happened at Bali.

First: there were several thousand attendees from the private sector and their presence was a positive force. While this group might have been negative in the past, at this meeting it was notable that a group of major U.S. and European companies, along with NGOs, joined forces in calling on the negotiators to move as quickly as possible.

Second: both developed and developing countries agreed to negotiate about commitments to reduce emissions. Developing countries may make different kinds of commitments than developed countries, but the negotiations will address both.

Third: Europe led in these negotiations. The Europeans led both by the commitments they have made to reduce their own emissions and by what they called for in the negotiations.

Fourth: the United States failed to lead. Bush Administration negotiators were basically alone in resisting an agreement, and, in an unprecedented public defeat, were ignored – pushed aside is more like it – as negotiators forged ahead with creating the Bali roadmap.

The U.S. will be a lame-duck participant in the upcoming 2008 meetings in Poznan. What will the instructions to the U.S. delegation be? Will they help the world find an agreement or will they refuse to commit the U.S. government to anything, pending a new administration? Will they lay landmines for the succeeding administration?

I think it's most likely that the U.S. plays a passive role in the coming year and leaves a huge set of decisions for a new administration. The meeting in Poznan will take place after the election, but before the inauguration. There will be a set of meetings leading up to Copenhagen, which will present urgent questions for the new administration.

Will Congress Address Climate Change in 2008?

The U.S. role in international negotiations will also be influenced by whether or not Congress has acted in the interim. Congress will enact national legislation to limit greenhouse gas emissions in the foreseeable future. But, will Congress act in 2008? If it does, will it act on a bill that sets a strong target for emissions reductions? Will that legislation include a safety valve, i.e., a cost cap that allows reductions only up to the point that it costs a certain number of dollars per ton of carbon, and then stops mandating reductions?

I think it is very possible that Congress will act in 2008, but let me first mention one of the key drivers of this action. Three years ago we talked about states becoming increasingly active in developing their own approaches to reducing emissions because of the failure of the federal government to take action.

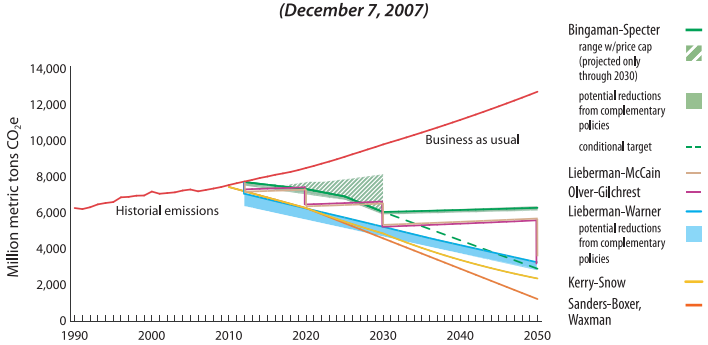
There are now three groups of 21 states with legally binding greenhouse gas reduction agreements, representing more than 50 percent of the U.S. population, more than 50 percent of the U.S. economic output, and about 37 percent of U.S. emissions. The number of states has grown each year. This presents a significant problem for businesses that want to reduce emissions. They face the prospect of having to deal with one system in the West, another system in the Midwest, a third one in the Northeast, another one in the states that haven't taken action, and still another one in Europe. More and more companies want the federal government to resolve the differences under one comprehensive policy.

Here is the case for Congress acting in 2008. First, most of the major environmental legislation in the U.S. has passed in the two months before a national election. Second, most of the major environmental legislation in the U.S. was signed by Republican presidents who were not necessarily avid environmentalists, but acknowledged political reality. Third, the

Senate Environment Committee voted out a solid bill introduced by Senators Lieberman (I-CT) and Warner (R-VA), and Senator Reid (D-NV) is signaling that he wants to bring it to a vote.

Comparison of Legislative Climate Change Targets in the 100th Congress, 1990-2050

(December 7, 2007)



There is no major bill pending in the House of Representatives. Congressman Dingell (D-MI) and Congressman Boucher (D-VA) have said they will propose legislation. If they start early in 2008 to outline the key elements of a bill, that will signal an intention to bring something before the Congress by the end of 2008. If their pace is relatively relaxed, they will be acknowledging there is no possibility of getting action on the floor of the House and then through a conference committee process to put a bill before the President this year.

If Congress passed a global warming bill in the summer and sent it to President Bush, I believe he would sign it. He would do so in part because of the politics of the presidential election and in part to cement his own legacy. I don't think he will face this test. Despite what may or may not happen in 2008, the groundwork is being laid for 2009.

A Surprise from the Environmental Protection Agency?

Even if Congress doesn't act in 2008, the Environmental Protection Agency may. The Supreme Court in April of 2007 in *Massachusetts v. EPA* held that carbon dioxide and the other greenhouse gases are pollutants and therefore within the scope of the Clean Air Act, under which the EPA has an obligation to protect public health and welfare. About a month later, President Bush issued Executive Order 13432 authorizing the EPA to move ahead with regulatory proceedings in response to the court ruling.

At the end of the year, I believe the EPA will issue a program in response to the Supreme Court decision. Unlike the energy legislation which Congress recently passed which tightened fuel-economy standards, and unlike the provisions of the energy legislation which require increased production of biofuels, the EPA's approach will be based not on a focus on fuel economy, but on health and welfare. The Clean Air Act requires an integrated approach to address automobile emissions that affect climate, so the EPA will need to regulate both cars and fuels. What the EPA comes out with — probably just after the election — could be a blockbuster and increase the pressure on Congress to act in 2009, if it has not acted in 2008.

OMAR TORRES/AFP/GETTY IMAGES

Food, Fuel, and Forests

2007 began with tortilla riots in Mexico and ended with grain riots in China as high energy prices and ethanol production drove up corn and grain prices. Forests are being cleared from Sumatra to the Congo to make way for oil palm plantations to meet the demand for biodiesel. In the U.S. alone there are 250 million vehicles with tanks that need to be filled with liquid fuels. The demand for petroleum alternatives—for both energy security and global warming reasons—is not going away.

In 2008, we anticipate some negative reactions to what's been occurring with biofuel production, first in Europe, then perhaps in the U.S. The EU will develop standards to exclude fuels created by destroying forests and encourage those made from wastes. Both Europe and the U.S. will focus on more efficient second generation technologies that produce greater climate benefits at lower environmental costs.

Will China Lead or Lag on Climate Change in 2008?

China is poised to become the world's largest source of greenhouse gas emissions. Together, China and the U.S. account for close to half of global greenhouse gas emissions. Until the two nations take action, the world cannot make significant progress in slowing global warming. China was a big topic at the recent international climate negotiations in Bali and will be an issue in any Congressional climate debate. Will China lead or lag this coming year when it comes to dealing with climate change?

The Chinese knew five years ago they faced energy-security problems. They're not a major oil producer – and their energy needs are increasing rapidly. One hundred new coal-fired power plants come on line each year and they're also building nuclear power plants. They do have a vigorous energy-efficiency program.

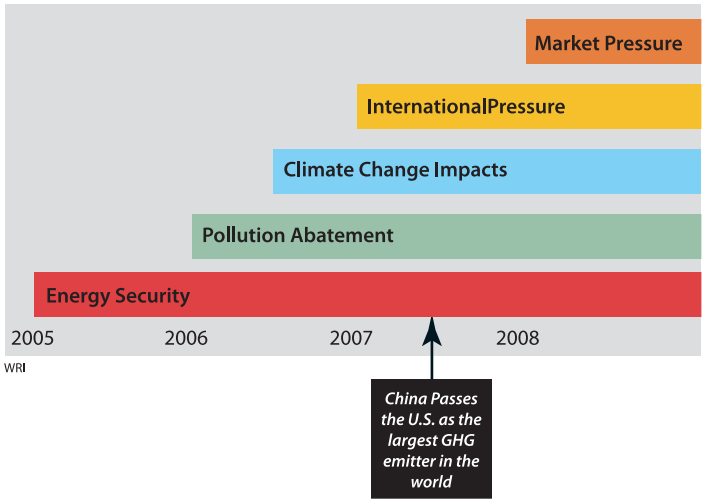
China faces increasing domestic pressures because of localized pollution which the government has acknowledged and is trying to address. The supply of water in China per person is about one-ninth of the average worldwide.

As a major emitter and a major seller into world markets, the Chinese will face increasing international pressures, particularly supply-chain pressures. Large entities that purchase products from China will begin to insist that manufacturing process take CO_2 emissions into account. Look for this pressure to heat up in 2008.

The Chinese certainly recognize that tomorrow's markets will be carbon-constrained and that there will be a huge and growing demand for low-carbon products. I'll come back to that in a moment.

During the Olympics this summer, the focus of the world will be on Beijing for three weeks. The Chinese are taking extraordinary steps to control air pollution during the games. The government is negotiating agreements with surrounding industries to temporarily close down in order to assure that the air is clean. Nearly 50 percent of the air pollution in Beijing at some points is due to construction; it's a very fast-growing city. The government has already imposed a construction slow-down, which will take effect in the spring. The Olympics most certainly will draw attention to China and to how China is engaging the international community on a variety of issues.

Factors Influencing China Climate Change Policy



The Chinese face an important choice. They are a great power and they will have to decide — in the international negotiations and in their approach to climate change — whether they want to be leaders in helping solve the problem. I think the decision will become clearer around the time of the Olympics, when one of the U.N. climate negotiating sessions leading up to the Poznan meeting will take place.

Clean Technology Developments

Last year, I suggested the key to understanding technology and innovation trends was to follow the money. Well, the money is pouring into clean technology. Clean technology has grown from three percent to over seventeen percent of venture capital investments in the last five years.

I think there's a bigger story here than these investment figures. There is no available data for the internal investments made by big corporations in their own research on these technologies. However, from my experience in working with various companies, it seems to me that those investments are growing enormously. I think that hidden corporate spending is going to drive a remarkable competition between the U.S., Europe, and China about

who is going to supply the world with new technologies. In 2008, we likely will see some of the first results of these investments. Even before the U.S. imposes a price on carbon, the technology pipeline is full of innovation.

It is frequently reported that solar technology is not yet economically viable. However, central-station solar power plants with concentrating technology are now competitive with conventional electricity plants in regions with significant sun exposure. There are now 5,800 megawatts of concentrating solar plants in operation and there were significant investments in 2007 in many countries, with Spain and the U.S. leading the way. Concentrating solar power is now growing almost as fast as wind power, and growth will accelerate in 2008.

Also emerging will be second-generation biofuels technology. Range Fuels, a project of venture capitalist Vinod Khosla will begin to produce cellulosic ethanol in 2008. Five other projects are in the pipeline with U.S. Department of Energy participation. Three of them utilize thermal-chemical processes and three fermentation processes. DuPont and BP will break ground either in late 2008 or early 2009 on a biobutenol plant. These technologies will all produce far more CO_2 reduction per gallon of biofuel than the current corn-based ethanol.

It is worth watching Syngenta and Delphi, both of which are playing a role in creating the engine technology necessary for U.S. automobiles to burn 85 percent ethanol. General Motors and Ford, who are building the cars, may get into the fuel business.

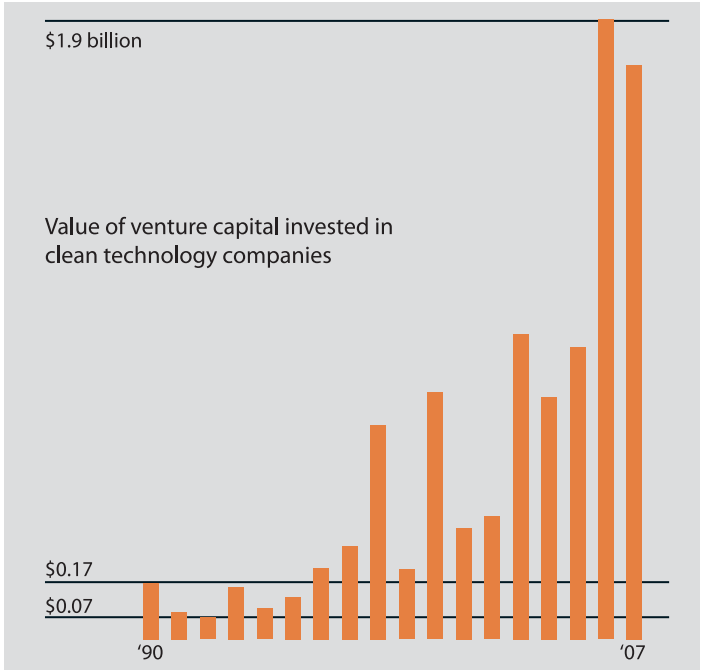
FutureGen recently announced that Illinois will be the site for its new carbon-capture and storage (CCS) facility. It will capture CO_2 from coal combustion and inject it underground for permanent storage. This will be the first demonstration plant in the United States. It's an interesting partnership with companies from four countries and eight U.S. states. Several more projects are in the pipeline in the U.S., and there's going to be a very interesting competition between the U.S., Australia, and the United Kingdom to see who breaks ground on the first plant. By 2010, there will be at least four CCS demonstrations in construction, and they will be in operation by 2012 or 2013.

Many people call CCS technology of the polio vaccine for global warming. If only we had it in place already.

In 2008, we expect the cost estimates for CCS to shoot up as the reality of designing and constructing these plants becomes evident. I hope that after 2012, as we see more facilities beginning operation, the costs will come back down.

Carbon-capture is a key part of the strategy for the world to use coal without accelerating warming. Imagine a carbon-capture scenario for biofuels. It could work by pulling CO_2 out of the atmosphere to make the cellulose which could then make energy. The CO_2 from the process would be disposed of underground. In theory, this would be a CO_2-reduction machine. Nobody is proposing this commercially, but the idea is appealing.

The Sustainable Investing Surge



* Through Sept. 30, 2007.

Source: Thomson Financial

FLICKR/MUNDOO

Could the Weather Play a Role in the Upcoming U.S. Elections?

Australia is suffering from a six-year drought. Sixty percent of its wheat crop has been lost. The price of beer has gone up. Power plants have had to shut down because there hasn't been enough water to cool them.

In November of 2007, Kevin Rudd defeated John Howard for Prime Minister in significant part because Howard had refused to deal with the climate problem. Rudd promised he would, and, indeed, his first act in office was to sign the Kyoto Protocol. Reducing emissions will be a significant challenge for Australia. It is the largest user of coal per capita of any country in the world.

Drought drove this turnaround in Australian public opinion on climate change. Could it happen here?

The drought in the Southeastern U.S. was relieved a little bit by rain in the early winter months. Georgia, however, is negotiating with Tennessee about whether it can build a several hundred mile pipeline to move massive amounts of water from the Tennessee River to Atlanta. Tennessee has

passed a law explicitly forbidding that transfer of water. If the drought takes hold again in the spring and summer as the forecasters are now predicting it will, we could see intense conflicts over where Atlanta is going to get water.

I want to make clear that you can't attribute any specific drought to climate change. But, all climate models predict increased droughts in the Southeast and in many other parts of the world. The public won't be troubled by scientific niceties if tanker trucks are pulling into downtown Atlanta full of water. It's not inconceivable that the weather, be it drought, heat waves, or major storms, could play a role not only in Congress this summer, but in the fall elections.

If you consider the range of the presidential candidates, the Democratic nominees recognize climate change as a significant problem, and all have recommended mandatory federal action. But only Senator McCain among the Republicans—who has been a leader on climate—has a strong position. If the issue becomes politically more important in the fall, it is likely to benefit the Democratic candidate.

QUESTIONS FROM JOURNALISTS

QUESTION: There are water shortages in the West and a drought in the Southeast. Do you expect to see drought becoming more widespread throughout the U.S., especially in areas where normally there would not be significant drought?

DR. PERSHING: The current science is a little bit ambiguous with regard to drought. Most of the projections predict that some parts of the country will see an increase in water and some a decrease.

I was in Minnesota recently, which is part of the Midwest Governors' accord climate change structure. One of the things they're worried about is an inadequate water supply for farm communities. Minnesota is known as the land of a thousand lakes, so it is telling when officials are thinking about a future that includes water duress.

Water is driving the climate debate in Arizona and in places you would not expect, like New York City. I've noticed a phenomenal increase in water stress around the country. It will be a big issue in the years to come.

QUESTION: What various economic sectors are having a major impact on climate change? I'm particularly interested in transportation and a related one, travel, along with construction and real estate.

DR. KETE: The big untapped resource in terms of ways to reduce greenhouse gases and slow the growth in greenhouse gases is in thinking about the built environment, particularly in cities and the way we travel within cities. Many U.S. cities, European cities, and increasingly developing country cities, are starting to focus on all the ways to reduce the amount of travel to move people and goods around. We're a long way from a ubiquitous set of strategies.

But, there is a set of design principles that are gaining prominence in Europe. And here, Arlington County is a model for transit-oriented corridors, along with Portland, Oregon. In New York City, more people don't use cars there than any other place in the country. Developers know the benefits of building along transit corridors.

DR. PERSHING: The aviation industry is the most rapidly growing sector in terms of transport emissions. The only group to have regulated aviation emissions or to even be proposing it is the European Union. My sense is that the regulations will not pass through the International Aviation Transportation Association meetings largely because the U.S. and developing countries are blocking it. There will most likely be restrictions, however, which will translate into higher prices in and out of Europe.

MR. LASH: The biggest short-term opportunity with respect to air travel is actually better management of the planes on the ground. The second biggest is better air traffic control. Then, you get to technology changes. The most interesting thing I've heard recently is that laboratories are working on the gasification technologies for creating liquid fuels from cellulose that could become jet fuels. I don't think we're going to see that in the next five years. In a decade, we might actually be talking about a biofuels mix for jet fuels.

QUESTION: Next year is a political year. Even if the country elects a Democrat as president, if a certain number of senators manage to block action, then nothing would happen on climate. Looking ahead, how many years does the world have before it becomes impossible to reverse the most dangerous climate impacts?

MR. LASH: The political problem in the Senate is that you need 60 votes to pass legislation. It's very hard to get to 60 without any votes from senators who are from states that are coal-dependent. Negotiation will have to provide some incentives to coal-dependent states.

One way would be to allocate some portion of the emissions rights to existing facilities producing electricity – which will reduce the cost to meeting cap-and-trade requirements. There are a number of environmental disadvantages to doing that, but I feel certain that Congress will use that instrument to reduce the costs for some of the Southeastern and Western states that are highly coal-dependent.

Another way would be to accelerate the construction of carbon capture-and-storage demonstrations, especially in regions that are highly coal-dependent. You could guarantee major investments in energy efficiency so that when electricity prices go up, electricity use will go

down, and the impact on the consumer is basically negligible. I think all those things will happen in the legislation. Each piece will be designed to gain one or two more votes. The legislation now is probably only six or eight votes short of what is necessary.

DR. PERSHING: There is an interesting debate that has been raging in the last couple of years around whether or not and at what point we would know if we reached the climate tipping point. From the scientific perspective, that means we end up seeing a very rapid acceleration in the kinds of changes that would reach the point where we couldn't easily slide back. We would no longer see steady growth. At some point, climate changes ramp up exponentially.

I believe that we may be in the middle of it. It's very hard for me to imagine the extent of Arctic ice cover we witnessed last September, down 30 percent from the previous year – without suggesting that we passed some kind of a threshold. It's very hard for me to imagine that the kinds of droughts we're seeing in the Southeast are not a large change as opposed to some small, incremental shift. Australians are discussing whether the aberration was not the drought but the wet period, and wondering if the country is back into a long-term dry period.

These impacts are consistent with what we would expect to see if we were to reach a tipping point. The problem with this kind of shift is you can't know until after the fact. You can't tell if you've got a distinction between some steady progression and some series of events, or you've got some rapid and unprecedented change. My own background is in geology. The geologic record is fraught and full of these intermittent but very rapid changes. Knowing whether those are natural or human-induced is one question. The odds are good that we're going to see a rapid change if we keep going in this direction; whether we're already there, or whether it's at two degrees or one-and-a-half degrees is probably still unknown.

World Resources Institute (WRI) is an environmental think tank that goes beyond research to find practical ways to protect the earth and improve people's lives.

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Because people are inspired by ideas, empowered by knowledge, and moved to change by greater understanding, WRI provides — and helps other institutions provide — objective information and practical proposals for policy and institutional change that will foster environmentally sound, socially equitable development.

WRI organizes its work around four key goals:

- **People and Ecosystems.** Reverse rapid degradation of ecosystems and assure their capacity to provide humans with needed goods and services.
- **Climate, Energy, and Transport.** Protect the global climate system from further harm due to emissions of greenhouse gases and help humanity and the natural world adapt to unavoidable climate change.
- **Markets and Enterprise.** Harness markets and enterprise to expand economic opportunity and protect the environment.
- **Governance and Access.** Guarantee public access to information and decisions regarding natural resources and the environment.

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