

**American Science, Technology, and Environmental Policy:
The Case of Global Warming
—An Interview with Zuoyue Wang, Professor of History at California State
Polytechnic University, Pomona, USA**

By reporter Zhang Lei, *Guangming Daily* (a leading Chinese newspaper), July 13, 2009, p. 11.

The Early History of American Science, Technology, and Environmental Policy

Reporter: When were science and technology (*keji*) and the environment first connected with each other?

Wang: This was a gradual process. During the Great Depression in the 1930s, science was not viewed as key to economic recovery; some even thought that technology was a cause of unemployment. Yet, President Franklin Roosevelt (1933-1945) revived President Theodore Roosevelt's emphasis on the environment and resources. FDR also effectively utilized scientists during World War II.

In the US during the Cold War, science and technology were mainly used to serve national security. At the time, a majority of Americans held an attitude of technological optimism, believing that American science and technology, especially nuclear weapons, would certainly win for the US "the Cold War" against the former Soviet Union, just as they had done World War II. There was even a "suitcase joke" at the time: "We should not fear that the Soviets might sneak an atomic bomb in a suitcase into the US, because they have not perfected the suitcase yet." The launching of Sputnik in 1957, however, sounded the alarm. US President Eisenhower appointed a President's Science Advisory Committee (PSAC) which advocated basic research, science education, and appropriate technology. They opposed the nuclear arms race and the manned space program as a Cold War propaganda stunt. In general, they maintained an attitude of technological skepticism. PSAC was also involved in the debate over "radioactive fallout" and a nuclear test ban, which aroused the public's environmental consciousness. This was one of the early examples of how science, technology, and environmental problems were connected with each other.

The Beginning of the Modern Environmental Movement

Reporter: How was the first comprehensive environmental report of the US government first produced?

Wang: That the US government would get actively involved in environmental issues could be credited largely to Rachel Carson, a marine biologist and popular science writer. In 1962, her book *Silent Spring* was published, which sounded the alarm about the damages to the environment from the abuse of pesticides. This book opened the modern American environmental movement. Soon after its publication, PSAC delivered to President Kennedy its report *The Use of Pesticides*, which confirmed Carson's warnings,

and therefore brought the issue of the environment into the agenda of the federal government. In 1965, the committee delivered another report, *Restoring the Quality of Our Environment*, to President Johnson. It was the first comprehensive government report on the environment, which examined all aspects of the various pollution problems facing modern society, including the problem of global warming caused by the emission of carbon dioxide. It proposed a number of recommendations, including the formulation of economic incentives to reduce pollution, strengthening research efforts on environmental protection, and the training of environmental manpower.

So, if it was Carson who awakened the American public's environmental consciousness, it was PSAC which changed the consciousness of the scientific community, and transformed the issue into a matter of public policy at the presidential and federal level.

Carson and PSAC shared an attitude of technological skepticism. They both wanted the public to understand the limits of technology, arguing that before attempting to control nature we should first understand nature. They also advocated "appropriate technologies."

Reporter: Did the 1965 report make the federal government to pay attention to the problem of global warming?

Wang: In February 1965, President Johnson delivered a "Special Message to Congress on Natural Beauty" that was based in part on the research of PSAC. In it he announced that "This generation has altered the composition of the atmosphere on a global scale through radioactive materials and steady increase in carbon dioxide from the burning of fossil fuel." Regrettably, the federal government did not take immediate actions to slow down global warming. Even though the media produced some publicity on the environmental report and the presidential message, but the effects were not long-lasting; even scientists acknowledged that the problem of global warming was not fully understood and that it was not as pressing as water and air pollution. Some probably subconsciously believed that eventually technological solutions would be found for the problem. Quickly, the Vietnam War dominated the attention of Johnson and the whole country, putting the issue of global warming further into the back burner.

The Tortuous Road toward Re-establishing Science's Place in the White House

Reporter: What characterized the science, technology, and environmental policy of the recent US presidents?

Wang: Let's start with Clinton, who generally maintained good relations with the scientific community. He advocated that everything that the government did, including in the areas of science and technology, should be geared toward serving the economy. He supported investment in science and technology, especially the development of information technology. He emphasized technology more than science in the making of science and technology policy. Although he personally supported environmental

protection, and signed the Kyoto Agreement, but, under bi-partisan pressure, he eventually failed to send it to Congress for ratification.

Next, let's look at George W. Bush. After he became president, he delayed in the appointment of a presidential science adviser and director of the White House Science and Technology Policy. He did appoint a science adviser, but only after the 9/11 incident, and lowered the adviser's rank, making him reporting to the White House chief of staff instead of the president. During his tenure, there was rapid deterioration in the relationship between the president and the scientific community, with many scientists criticizing the Bush administration of using ideology to shape science and technology policy, of ignoring the problem of global warming, of allowing chiefs of oil companies to dominate the making of environmental and energy policies, and of blindly believing that technology would solve energy and environmental problems, therefore refusing to engage in reforms at the policy level.

The current American president Obama had actively worked with scientists during his election campaign. He also promised to restore science to its rightful place in the White House, proposed plans for a green economy, and emphasized the seriousness of the global warming problem, advocating the reduction of greenhouse gases by 80% by 2050 (as compared with the 1990 level). Once elected, he also appointed John Holdren, a prominent scientist and activist on the issue of responding to climate change, as the president's science adviser, strengthened the President's Council of Advisers on Science and Technology, and called attention repeatedly to the importance of science and the environment.

The Coming of the "Obama Era" in American Science, Technology, and Environmental Policy

Reporter: How do you evaluate Obama's energy and environmental policy?

Wang: Up to now, Obama's science, technology, and environmental policy can be said to have combined both idealism and pragmatism. As a key to his administration, he promised to budget \$150 billion in ten years to develop and deploy clean energy technologies. He hoped that such measures would create new job opportunities, stimulate American economic development, reduce reliance on foreign oil, slow down global warming, and lead the world in the new energy economy.

Yet, even as he proposed large-scale development of new energy technologies, Obama did not (could not) abandon completely such existing energy sources as oil, coal, and nuclear energy. He advocated that they be improved. By the same token, he did not adopt such radical measures such as carbon taxes but instead proposed the somewhat more conservative, market-oriented "cap and trade" system to achieve the greenhouse gas reduction goal by 2050. Of course whether his strategy will succeed remains to be seen. But one thing is clear: even though Obama and his secretary of energy Steven Chu both emphasized the importance of science and technology, they are no blind technological enthusiasts. They believed that to respond to global warming, new technologies needed

to be developed, but existing technologies also needed to be improved, especially in the area of energy efficiency.

Reporter: Some say that the Obama administration's emphasis on the problem of global warming is intended to set a trap for China to hinder its development. What's your reaction to this view?

Wang: As China and the US discuss and negotiate over the issue of climate change, they will find that there are both conflicts and shared interests between them. It's not a simple matter of one side setting a trap for the other side.

This matter can also be examined from the following points:

1. Chinese scientists and government had started to investigate seriously the issue of global warming since the 1980s. They could see the severity of the problem from the change in China's natural conditions (especially water resources), and began to take a number of measures as responses.
2. Up to now, the Obama administration has changed the policy of the George W. Bush years and has paid serious attention to the problem of global warming. He appointed Steven Chu as the secretary of energy due in large part to Chu's long-standing international advocacy on the problem of global warming and his actual scientific research in this area. Obama has continued to do so after he came into office.
3. Many scientists realized that even if global warming were not a problem, all the measures designed to counter it are not wasted: clean, alternative energy and improved energy efficiency are indispensable to economic development, given the limit of petroleum resources; reduction in carbon emissions will help clean the air and reduce disease; more forest will be saved which will benefit biodiversity.

As two major emitters, China and the US should take measures to respond to global warming, not so much to gesture to others but out of self interest and the interest of the whole world. In sum, on the issue of how to respond to global warming, the relationship between China and US is one of win-win. Both countries should try to find solutions by expanding scientific and technological collaboration, while at the same time everyone should also keep in mind that technology is not always the magic bullet in solving social and political problems.