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Before the U.S.-China Economic and Security Review Commission  
*Major Challenges Facing the Chinese Leadership*

Thank you, Chairman Reinsch and Chairman Wortzel for this opportunity to take part in the opening panel of the Commission's public hearing on "Major Challenges Facing the Chinese Leadership." I am pleased to join James Keith, the State Department's Senior Advisor for China, in presenting the Administration's perspective on these challenges.

Two weeks ago, when I was asked to make a presentation before the Commission, I was advised to focus on the key environmental challenges in China, the efforts China's leadership are undertaking to address these challenges, and the steps that the United States Government is taking to assist these efforts. Yesterday, when I received the agenda for today's hearing, I saw that the title for this panel had been changed to read "What keeps Chinese Leaders Awake at Night?" Well that's easy. 1.3 billion people.

China has an enormous environmental footprint on the planet and it is only getting larger as its economy speeds forward, as it is responsible for an ever larger portion of the world's manufacturing, and as the Chinese people begin to enjoy some of the consumer comforts that citizens in the United States have known for decades.

The cumulative impact of 1.3 billion people will grow dramatically as incomes and purchasing power increase. Right now China's per capital annual income is \$1,700 compared to over \$40,000 in the U.S. Continued economic growth and increasing personal income are top priorities for China's leaders. What may be keeping them up at night is how to keep up the pace of economic growth by improving the efficiency of their industrial sector and balancing the high cost of a lot of needed environmental improvements.

It is important to recognize that our understanding of China is limited. Our efforts are hindered by a Chinese government that controls information and access. In many cases, the U.S. must rely upon data that has been provided by the government, some of which is suspect. In other instances we have had to work with no data at all, though we have had some success in collecting new data, especially when cooperating with universities and technical institutes.

From what we have been able to learn about China's new Five-Year Plan, China's leaders intend to address industrial pollution, energy efficiency, as well as some of the environmental infrastructure inequities between the urban and rural populations. The plan also calls for local officials to be evaluated in part on the basis of their environmental performance.

There are only a few numeric targets in the plan including: doubling the per capita gross domestic product (GDP) of 2000 by 2010; reducing energy consumption per unit of GDP by 20% of 2005 levels by 2010; and increasing renewable sources of energy to 5% by 2010. Reaching these targets will mean a lot for China's environmental quality, but it also will mean a lot for the United States and the global environment.

The United States has shown over the past 35 years that significant economic growth is not inconsistent with dramatic reductions in environmental indicators. Since 1970, our GDP has grown by 187%, we are driving our vehicles 171% many more miles every year, energy use is up 47%, and our population has grown by 40% – even as we have reduced the aggregate emissions of the six major air pollutants by over 50%.

It is in our national interest that China decouple its emissions growth from its economic growth. This is true in the broad economic sense that unsustainable growth and hard landings in the Chinese economy now affect global growth and trade. But we are also learning more and more over time about China's global environmental footprint.

More than 90% of China's energy consumption relies on fossil fuels, the combustion of which leads to greenhouse gas emissions and air pollution such as ozone, fine particles, mercury and acid rain. NASA, NOAA and EPA have been collaborating with other researchers in the U.S. and abroad to study the long range transport of aerosols and other air pollutants in the northern hemisphere. We are gaining a better understanding of how pollution moves from continent to continent, and are seeing episodes of pollution in the form of ozone precursors, particulate matter and mercury transported from Asia to North America.

In April 2001 satellites observed a dust cloud originating in the Gobi Desert in Inner Mongolia gathering air pollution as it traveled over China, then over the Pacific Ocean, and ultimately reaching the East Coast of the United States. Other data is demonstrating the impact of emissions released in the United States on foreign receptors. We will continue in the coming years to study this hemispheric transport of air pollutants so that we can better understand the hemispheric-wide impacts of emissions of different pollutants from different regions.

China is expected to overtake the U.S. as the world's largest emitter of greenhouse gases (GHG) in the next 20 to 25 years. In addition to its high level of CO<sub>2</sub> emissions from coal combustion, China also is the world's largest emitter of methane, and the largest emitter of coal mine methane, accounting for 40% of the global total. EPA is helping China to apply methane recovery technologies for coal mines and landfills under the Methane to Markets Partnership, the international initiative that focuses on advancing cost-effective, near-term methane recovery and use as a clean energy source. Assisting China to capture and use its coal mine methane has the added benefit of reducing mining deaths from accidental explosions.

China's current air pollution problems stem, in large measure, from weak pollution controls on its coal-fired power plants. Two-thirds of China's total energy comes from coal. By comparison, coal is responsible for 22% of the energy produced in the U.S.

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The high incidence of premature deaths in China has been linked to ambient and indoor air pollution in China. The WHO estimates that there are as many as 450,000 premature deaths from indoor air pollution alone. China has a high incidence of respiratory disease, with chronic obstructive pulmonary disease being the leading cause of death—a disease burden more than twice the average for developing countries. The State Environmental Protection Administration (SEPA) statistics show that more than two-thirds of China's urban residents live in cities with "poor" air quality. EPA is working with China to apply assessment and modeling tools to better characterize regional air pollution in order to help decision makers develop more effective policies.

Urban ambient concentrations of SO<sub>2</sub> and particulate matter in China are among the highest in the world. While SO<sub>2</sub> concentrations overall are declining in many parts of China as more and more pollution controls for SO<sub>2</sub> are installed at power plants, the problems associated with transport of SO<sub>2</sub>, specifically acid rain and fine particles, are worsening. Approximately one-third of the country now experiences severe acid rain. EPA is working with SEPA to develop an air pollution cap and trade program in the power sector, but many obstacles remain, including lack of effective monitoring, enforcement, and incentives.

Pollution from vehicles is making up an ever-increasing percentage of urban air pollution. The Beijing Environmental Protection Bureau (BEPB) estimates the vehicular share of air pollution to be 79%. EPA is working with SEPA and the BEPB to demonstrate advanced emission control devices on municipal buses, to assist in developing sound low-sulfur transportation fuel policies, and to establish effective compliance and enforcement programs.

Energy efficiency has been national policy in China since 1980, and from 1980 to 2000, China's energy use increased at half the rate of economic growth. However, since the late 1990s, energy demand has been growing at over one and one-half times the rate of economic growth. To generate every U.S. dollar of GDP, China uses three times more energy than the global average. The growth in power consumption has outpaced supply, and during one recent summer peak load season local governments had to ration power in 24 of 32 provinces.

China has been constructing 400 million square meters of building space every year for 15 years. This is the equivalent of building 1,000 Sears Towers each year. China's buildings consume 27.5 percent of the nation's total energy. The increase in energy demand from new air conditioners in China in 2004 alone exceeded the entire generating capacity of the Three Gorges Dam. EPA is working with the China Certification Center for Energy Conservation Products (CECP) to reduce energy use in buildings through market-based voluntary energy-efficiency endorsement labeling.

China has adopted efficiency standards for refrigerators, air-conditioners, clothes washers, and televisions that will avoid 30 million tons of carbon emissions and save electricity equivalent to that generated by 17 1,000 megawatt coal-fired power plants by 2020. EPA also is helping China to strengthen its mandatory minimum energy-efficiency standards program by adding covered products, increasing efficiency levels, improving enforcement, and implementing improvements to a government energy management program.

Wind power is the fastest growing source of renewable energy in China. Renewable energy currently generates less than 5% of China's energy production, up from 3% in 2003, but the government has set a goal of 10% by 2020. China expects to generate 20GW of wind power by 2020. EPA and DOE have assisted China through the Wind Technology Partnership in drafting its national renewable energy law and in developing implementing regulations.

The U.S. and China joined India, Japan, South Korea and Australia in launching a new initiative to reduce air pollution and GHG emissions just last month in Sydney, Australia. These six countries, which account for about half of the world's population, GDP, energy use, and greenhouse gas emissions, formed the Asia-Pacific Partnership on Clean Development and Climate. The partnership will develop, demonstrate and implement cleaner and lower emissions technologies. The partnership expects to marshal considerable financial, human and other resources both from the public and private sectors.

The November 2005 chemical spill in the Songhua River following an explosion at a China National Petroleum Company facility near Harbin provides a valuable lesson about the limits of our knowledge about China.

As you know, the Chinese public was not notified of the spill for more than a week and water intake at treatment plants had to be shut down at cities downstream to prevent nitro-benzene contamination of water supplies and equipment. As soon as the United States learned of the accident, President Bush offered assistance. China declined the U.S. offer to send a team to help China respond to the accident, but both sides exchanged information and the U.S. provided China with examples of how we have managed benzene and nitro-benzene spills in freezing temperatures. As the toxic plume approached Harbin there was a run on bottled water and public confusion about the nature of the contamination as unofficial websites filled the information vacuum with wide ranging reports.

China did invite a team of experts from the United Nations Environment Program, but this international team was not allowed to visit the site of the accident nor were they allowed to take water samples. The data provided by the Chinese authorities led U.S. and UNEP experts to conclude that the situation was steadily improving and that the Chinese response had been appropriate and sufficient. Although the risk remains that nitro-benzene may be re-released during the spring when river ice thaws and there are likely to be areas where the chemical has settled into the sediment, this may be a situation that

does not require any further action although we do not know. Disturbing the sediment in an attempt to remove the nitro-benzene could disturb and release other contaminants in the process.

In December, China announced that it would spend \$3.28 billion over the next five years to improve drinking water quality to communities along the Songhua. When two more chemical spills followed before the end of the year, the Chinese government announced that it would be addressing the threat to surface water from chemical plants in the 11<sup>th</sup> Five-Year Plan. On January 8, China published its first National Emergency Response Plan.

What can we learn from the Songhua spill? That we don't know much about how China manages this kind of emergency and that improvements in our working relationship may provide opportunities for EPA to share its considerable knowledge. To this day, we still do not know how much chemical was released even though the petroleum facility very likely had an inventory and the size of the chemical containers was known. Government estimates of the amount of chemical product ranged from 50 to 100 tons. We do not have an accurate breakdown of the amounts of the various chemicals in the spill. We also do not know how much water from firefighters was mixed with the chemical.

The Songhua spill occurred on the heels of the first meeting of the U.S.-China Joint Committee on Environmental Cooperation while EPA and SEPA experts were in the process of drafting a strategy for joint work on hazardous waste management. As a result, they were able to include cooperation to build China's capacity to respond to chemical emergencies as part of this plan of work.

According to SEPA Vice Minister Pan Yue, water pollution is the most important issue, a "bottleneck constraining economic growth." About two-thirds of China's water use is for irrigation. China is aggressively building wastewater treatment plants and some cities already recycle as much as 20% of wastewater, nevertheless it is estimated that China would have to spend \$50 billion and build 10,000 waste treatment plants in order to reach only a 50% treatment rate. China is making this investment primarily in its medium and large cities.

Falling water tables and receding surface-water supplies are acute in three north-central river basins critical to agricultural production -- those of the Hai, Huai and the heavily silted Huang (Yellow) rivers. Since 1985, the Yellow River has dried up and failed to reach the Yellow Sea for part of almost every year.

Working with China as it faces the challenge of water scarcity may help the U.S. in managing its own shortages. Both China and the U.S. have problematic upstream and downstream relationships due to competition among water users that is at times intractable.

China has expressed a strong interest in adapting some of the water policy tools used in the United States, such as total maximum daily load (TMDL) and economic instruments

that would address these use and discharge equity issues. China's authorities also are looking at ways to use wetlands to augment wastewater treatment and best management practices (BMPs) to reduce agricultural contamination of surface waters, especially from animal waste.

For the past two years, EPA has been working with the Tianjin Environmental Protection Bureau to monitor, assess, and protect its main source of drinking water for 4 million urban residents, the Yuqiao Reservoir. We found that policies were in place to protect the reservoir but were being ignored by local farmers and businesses. Each year tons of animal waste were being spread on fields in the low lying areas and at least once each year water was diverted into the reservoir to store drinking water for Tianjin and to relieve pressure from upstream reservoirs in other provinces during the rainy season. The net effect of the diversion was to flood the reservoir and stir up the nutrients into the water supply. This problem was exacerbated by the discharge of nutrient rich water from fishponds that continue to operate around the reservoir in spite of a decision to close them. In the midst of this critical area where water enters the reservoir, a massive dredging operation is removing mountains of sand from the lake and river bottom for use by the construction industry.

The Yuqiao Reservoir would be an excellent candidate for the use of wetlands to filter the nutrient loads from surface water runoff were it not for the annual diversions that raise water levels by 3-5 meters, enough to destroy any efforts to cultivate grasses. The local residents have been told that the water in the reservoir is off limits as a source of drinking water and irrigation as well as for fishing and recreation. The farmers are prohibited from farming in the flood plain and from allowing their animals to graze there. But the only one of these restrictions that is enforced is the ban on the use of the reservoir for drinking water and irrigation. The unintended consequence of this policy has been to draw down on precious groundwater at alarming rates.

The 11<sup>th</sup> Five-Year Plan recognizes that more has to be done to assist the rural economies. It calls for policies that "extract" less and put more back, such as more investment in rural infrastructure and more protections against the unfair taking of farmers' land for development.

On Sunday, the first day of the Chinese New Year, President Hu Jintao and Premier Wen Jiabao visited poor farmers in the countryside continuing a New Year tradition for China's leaders of doing something to stress the government's priorities for the coming year. 2006 will be the year of the poor rural farmer.

EPA is also working in rural China on priority health concerns. We are working to help villagers in Yunnan and Guizhou provinces to reduce their exposure to harmful smoke and chemicals released from using solid fuels for home heating and cooking. About 80% of Chinese households and nearly all rural homes depend on solid fuels such as coal, wood, and crop residues for cooking and heating. Emissions from these fuels account for a large percentage of the 450,000 premature deaths each year in China from indoor air pollution. The highest rates of lung cancer in the world are found in Yunnan province.

SEPA's leaders have recognized the challenges of inadequate and uneven enforcement and are trying to make improvements through the creation of six regional offices. In December, EPA hosted a study tour for three of the new regional office directors and EPA and SEPA plan to develop a "sister region" relationship between at least three EPA regional offices and their Chinese counterparts. We expect to involve U.S. states' environmental departments in providing advice to China on how to develop better cooperation between national and provincial authorities on issues from monitoring and information management to enforcement and emergency response. While we do not have funding for this effort, we expect to use distance learning and study tours by Chinese officials to develop these regional partnerships.

EPA also is working with China through various networks of enforcers including the International Network for Environmental Compliance and Enforcement (INECE,) INTERPOL, and the Asia Environmental Compliance and Enforcement Network that was formed recently by the U.S.-Asia Environmental Partnership and the Asian Development Bank.

I should not close without mentioning the development pressures in Southwest China and the threats this development poses for one of the most biologically diverse regions in the world. China's leadership is considering the construction of numerous dams to generate electricity, increase water supply, control floods, and facilitate barge traffic along the Mekong River basin. This could affect water flows to Burma, Thailand, Laos, Cambodia and Vietnam and have an impact on agricultural and urban water demands.

One policy tool that may be proving useful is something that the U.S. and China have been working on for several years -- environmental impact assessment (EIA.) China has made progress in the use and integrity of its EIA process, especially from a technical perspective, as marked by last year's temporary suspension of dam projects in the Southwest. However, China still has a long way to go in achieving sufficient public involvement in the process and in allowing and responding to public comments and objections.

EPA expects that its ongoing cooperation on watershed management, regional air quality, reducing port emissions, and reducing mercury in health care products will provide opportunities to demonstrate how the public and other stakeholders can be involved in achieving environmental results and in assisting Chinese leaders to face their daunting environmental challenges. It is in the interest of the United States to help address these problems in China before they become our problems here at home.

In closing let me leave you with one last factoid. In the next five years China will triple its spending on S&T research. China's future leaders are thinking beyond coal and oil to hybrids and hydrogen and nanotech. China's dreamers are not worried about getting a sound night's sleep because they are too busy working to get ahead.

Thank you.

## Appendix

### EPA Cooperation with China

Many of EPA's activities in China are conducted under the framework of a Memorandum of Understanding with China's State Environmental Protection Administration (SEPA) that was signed in December 2003. The MOU and its three annexes on Air Pollution, Water Pollution, and Pollution from POPs and Other Toxic Substances established a mechanism for the U.S. and China to determine strategic environmental objectives and to coordinate environmental activities. The MOU replaced the 1980 Environment Protocol under the U.S.-China Agreement on Cooperation in Science and Technology that was signed in 1979 and extended most recently in 2001.

The MOU also established a Joint Committee on Environmental Cooperation (JCEC) that had its first meeting in November 2005. The objective of the JCEC is to strengthen ongoing collaboration between the EPA and SEPA and to explore new areas for cooperation. The JCEC also aims to facilitate contacts between environmental and scientific groups from the U.S. and China, including other government agencies, research institutions, business and industry, and universities.

EPA also cooperates with the Ministry of Science and Technology (MOST), along with the U.S. Department of Energy, on energy sector projects, with the National Development and Reform Commission on climate change and energy efficiency, and with the Ministry of Agriculture on pesticides. The Ministry of Water Resources has asked EPA to enter into a MOU on water management issues, especially wetlands and water quality. Last summer, EPA and the Asian Development Bank signed a Letter of Intent which both sides expect will enhance our mutual work in China.