

April 8, 2010
Jennifer L. Turner
Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

Since 1999 I have directed the China Environment Forum (CEF) at the Woodrow Wilson Center, where we convene meetings, organize exchanges, and create publications that promote dialogue predominantly among U.S. and Chinese policymaker, business, NGO, and research communities on environmental and energy challenges in China. In our current project “Cooperative Competitors: Building New U.S.-China Energy and Climate Networks” we are tapping into CEF’s extensive network of energy experts to explore practical and mutually beneficial avenues for U.S.-China clean energy cooperation. We are also involved in a three-year USAID-supported project focused on environmental governance in China and another project in which we are convening water experts to examine water pollution challenges in Chinese lakes.

The comments I make today in response to six questions the Commission gave me, represent insights I’ve gained from working with energy and environmental practitioners on these and previous projects during my eleven years with the China Environment Forum. Beyond today’s testimony, I hope I can be a resource for the commission as you continue to examine the significance of energy and environmental trends and challenges in China. My comments are my personal insights and opinions and do not reflect the views of the Woodrow Wilson Center.

In my seven minutes I have four points to make about trends in China’s domestic environmental and energy policies, the last of which highlights some opportunities for mutually beneficial energy and environmental cooperation with the United States. I hope my comments create a foundation for subsequent discussion at this and later panels today.

Summary Points

1. Urbanization and poor environmental governance are China’s major pollution drivers. The unprecedented speed and scale of urbanization in China is one of the key drivers of rapid energy consumption and growing pollution problems. The “building blocks” of cities (cement, steel, heavy metals, and other construction materials) represent some of the most polluting industries in China. China’s coal consumption doubled between 2000 and 2007 and will likely double again by 2015 to support China’s booming economy. The government’s push for high energy intensity industries in the mid-2000s to support urbanization and economic growth reversed significant energy intensity improvements that China had made in the previous decade. Weak environmental governance has long plagued enforcement of pollution control and energy efficiency laws.

2. Over the past five years, China’s central government has undertaken aggressive policies to improve pollution and energy situation. Particularly over the most recent Five-Year Plan period (2005-2010), China’s central government has taken considerable steps towards low-carbon development, such as aggressive policies, targets and investments focused on the renewable and energy efficiency sectors to help supply the country’s huge energy consumption, stem severe air pollution problems, and create jobs. New and revised pollution control laws and open information measures are creating more transparency and pressures for polluting industries. These new laws aim, in part, to circumvent powerful local governments, which have long hindered effective implementation of pollution control and energy savings policies.

3. Bottom-up forces are playing a larger role in influencing positive change in environmental decision-making. In the 1980s and 1990s Chinese officials often touted the “pollute first clean up later” philosophy. Today, however, the growing economic and health costs of pollution and energy shortages combined with growing citizen protests and NGO activism are motivating central and

April 8, 2010
Jennifer L. Turner
Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

some progressive local officials to take more aggressive action on energy conservation and pollution control policies. International (predominantly U.S.) NGOs and foundations have also played a major role in influencing central government policy and supporting/building the capacity of local governments and grassroots green groups.

4. China is both a major polluter and emerging clean tech leader, which opens up new opportunities for U.S. collaboration. Tom Friedman’s Op Eds in late 2009 praising China’s growing green investment as turning the country to a clean tech leader has markedly shifted the discussion about the impact of China’s environmental policies on the United States. Previously, such discussions focused on the ecological threat from China’s transboundary air pollution and growing CO₂ emissions. China’s energy policies and investments are shaping China into a potential leader in green technologies, but it oversimplifies the situation to say China is “winning” and the United States is “losing” the clean tech competition, for the United States has the opportunity today to institute similarly progressive energy policies that could enable it to take advantage of China’s growing clean energy market. It merits mention that China still faces many political, economic, and environmental challenges that could undermine its ability to become a greater innovator in the clean tech sector in the near term. The similar motivations and challenges for both countries to push low carbon development—job creation, economic growth, energy security, climate change, pollution reduction, and healthier citizens—offer an opportunity for renewed U.S.-China energy cooperation. U.S. NGOs, foundations, and business communities have been the leaders in promoting clean energy and environmental cooperation, offering a potential partners and models for the U.S. government as it moves to increase such cooperation particularly in the energy sphere.

Main Text

1. Urbanization and poor environmental governance are China’s major pollution drivers.

With an average GDP rate of 10 percent for the past thirty years, China’s economic boom has brought millions out of poverty and fueled a rate of urbanization that is faster than any country in human history. Between 1980 and 2008, China’s urbanization rate rose from 20 to 44.9 percent and today slightly over 600 million populate Chinese cities. Current central government policy aimed at addressing growing rural poverty is promoting urbanization of nearly 15 million each year for the next twenty years, which means 60 percent of China’s population will be urbanites. Urban citizens notably consume more energy and other products and the “building blocks” of cities (cement, heavy metals, steel, and other construction materials) represent some of the most polluting industries in China.

For example, China’s cement production, which makes up roughly half of total global output, has grown about 10 percent per year over the past two decades, and today is growing even faster to keep up with massive urbanization. China’s cement is produced in highly energy inefficient, highly polluting kilns and uses roughly six percent of the nation’s energy. Cement production is also notably one of the leading sources of particulate pollution in China.

China’s coal consumption doubled between 2000 and 2007 and will likely double again over the next decade (if not sooner) to support China’s booming economy. After economic reforms began in 1980, the Chinese government created policies that led to a 5 percent per year drop in energy intensity from 1980 to 2000. Then policies to accelerate urbanization led local governments to invest in energy

April 8, 2010
Jennifer L. Turner
Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

intensive steel and cement production, causing a 2% increase in energy intensity between 2000 and 2005.

Weak environmental governance has long plagued enforcement of pollution control, natural resource protection, and energy efficiency measures. The main institutional challenge stems from the decision Deng Xiaoping made back in 1980 to decentralize considerable economic authority to local governments to spur economic growth. Chinese local governments have generally opted to protect local industries from central pollution regulations. Moreover, China’s Ministry of Environmental Protection (MEP) remains under staffed and under funded. However, over the past few years as central government concerns over the cost pollution is having on the economy, some environmental laws have been given more teeth—most striking was the fact that MEP was the first ministry to issue specific measures on open information following the State Council’s open government information policy was announced. Moreover, MEP has been forming innovative partnerships with stronger ministries (such as Ministry of Finance for green credit and green banking initiatives), that could help boost its power. Overall, China’s central government’s ability to enforce environmental and other laws has been relatively weak and while there has been some improvement in some air quality indicators, particularly SO₂, broader pollution trends are sobering:

- Air pollution from cars and coal plague all Chinese cities and an estimated 750,000 people die early each year from respiratory illnesses.
- Over 700 million of China’s rural population still has inadequate access to necessary infrastructure for safe water and energy.
- China’s Ministry of Health has stated that 190 million people drink in China water that is making them sick.
- Hazardous wastes are poorly regulated and information on the extent of the problem is unclear.
- Growing water scarcity in north China has forced agriculture to become 40% reliant on groundwater, which threatens China’s goal of food self-sufficiency, for the north produces more than 50% of the nation’s wheat and 33% of its maize.
- 40 percent of China’s waterways are the lowest quality levels of IV to V+ and 60,000, mainly rural children, die from diarrhea associated with dirty water each year.

In February 2010, China’s Ministry of Environmental Protection, the National Bureau of Statistics, and Ministry of Agriculture released China’s first national pollution survey. This publically released information provided an overview of national macro that painted a dismal picture of China’s overall pollution-reduction efforts, particularly water pollution. The new figures indicated that some pollution emissions are much higher than was previously claimed, such as Chemical Oxygen Demand. By including agricultural sources, the total COD was slightly more than double the 2007 estimates (30.2 million tons as opposed to 13.8 million tons). This new information highlights a need for China to greatly increase pollution reduction goals. China’s leading water pollution activist Ma Jun commented that while the trends for water revealed in this survey are particularly bad, he saw the release of this information as a commitment to greater environmental openness. Accurate data is central to empowering citizens and pressuring industries and policymakers to undertake effective solutions.

2. In recent years China’s central government has undertaken aggressive policies to improve pollution and energy situation. Over the most recent Five-Year Plan period (2005-2010), China’s central government has taken considerable steps towards low-carbon development, such as aggressive policies, targets and investments focused on the renewable and energy efficiency sectors to

April 8, 2010

Jennifer L. Turner

Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

help supply the country’s huge energy consumption, stem severe air pollution problems, and create jobs. In terms of recent government investment, HSBC noted that in 2009, China’s roughly \$586 billion stimulus package included approximately \$221 billion in green spending, making it the largest green stimulus package in the world.

Investment and enabling policies have led China to have the most installed renewable electricity capacity of any country in the world. According to the new report by the Center for American Progress *Out of the Running?*, by the end of 2008 even if hydropower is excluded, China’s “76 GW of installed capacity of renewable electricity...was nearly twice the amount installed in the United States.”(p.25). China is the leading supplier of solar PV panels and solar hot water heaters globally, but few solar panels are actually used within China. However, new policies and incentives for installing rooftop solar power could mean more solar PV panels will stay in China (currently China exports 90 percent of PV panels). While wind farms have benefited considerably from favorable policies, at any one time 30 percent of them are not able to access China’s electricity grid. To address this problem, the central government is mandating that grid companies build interconnections for renewable projects and research and planning are underway to adopt smart grid technologies.

Some key enabling policies and actions that are laying the foundation for China to promote a low-carbon economy and clean technologies include:

- Three significant government-funded R&D programs to support development of clean energy, which in 2009 led China to invest twice as much as the United States into clean energy.
- Value-added tax reductions and rebates for wind generators and imported materials used in wind turbine manufacturing.
- 11th FYP target to decrease energy intensity by 20 percent from 2005 to 2010. Target was met in great part through a campaign targeting 1,000 top energy intensive industries.
- Requirement that 15 percent of electricity be generated by renewable sources.
- Campaigns to shut-down and consolidate sub-scale, inefficient capacity in energy-intensive industries
- Implementation of energy efficiency standards for automobiles, buildings, and appliances
- Feed-in tariffs for wind and soon for solar power
- Amended Energy Conservation Law that places greater pressure on local governments to meet national energy intensity reductions.

Reports by Lawrence Berkeley National Laboratory and McKinsey highlight that Chinese energy intensity targets for the 11th Five Year Plan were more or less met and most the 12th FYP will most likely maintain a similar reduction goal. McKinsey’s *China’s Green Revolution* report stated that in implementing all existing “low carbon” policies, China is cutting in half all new CO₂ emissions, but because of the rapid urbanization and industrialization, overall CO₂ emissions are still rising.

Besides the new target to decrease carbon intensity 40 to 45 percent by 2020, the Chinese government is exploring the establishment of a carbon tax and carbon trading pilot projects in certain industries and regions.

New and revised pollution control laws and targets, as well as open information measures are creating more transparency and pressures for polluting industries. These new laws and targets aim, in part, to circumvent powerful local governments, which have long hindered effective implementation of pollution control and energy savings policies. Two years ago saw the important revisions to the

April 8, 2010

Jennifer L. Turner

Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

Water Pollution Control Law and in 2010 an amended Air Pollution Prevention and Control Law should be promulgated. Most likely, the 12th FYP will set stricter air pollution emission limits and expand pollutants regulated to support this revised air pollution law. Other laws and regulations being considered or drafted that hold promise of strengthening environmental governance and enhancing existing environmental laws include:

- Creation of a green credit policy
- Expansion of nascent green banking rules
- Increase and empowerment of new green courts.
- Promotion of environmental pollution liability insurance
- Mandating better municipal waste disposal (reduction and recycling)
- Establishment of a superfund to restore polluted land

The new Open Environmental Information Measures still need subsequent regulations and stronger enforcement and there has not been any movement on revising registration regulations for civil society groups or creating measures to promote tax free donations to NGOs or foundations to support civil society organizations. Another growing challenge is that while these increasingly strict laws are improving enforcement in eastern China, some of the dirtier industries are moving further inland into poorer communities and into regions that are already ecologically fragile. In such areas it is not just a question of willingness to enforce laws, but local governments often lack funds and capacity to enforce.

3. Bottom-up forces are playing a larger role in influencing positive change in environmental decision-making. In the 1980s and 1990s Chinese officials often touted the “pollute first clean up later” philosophy. Today, however, the growing economic and health costs of pollution and energy shortages combined with growing citizen protests and NGO activism are motivating central and some progressive local officials to take more aggressive action on energy conservation and pollution control policies. International (predominantly U.S.) NGOs and foundations have also played a major role in influencing central government energy and environmental policy, as well supporting/building the capacity of local governments and grassroots green groups.

Growing political space for green NGOs and journalists

The Chinese leadership is aware that the government cannot solve the serious environmental problems alone, which explains why beginning in the mid-1980s, international environmental NGOs were welcomed to undertake projects in China. In 1994 after rules for registering domestic NGOs were created the first group to register was the green group Friends of Nature. Growing from a handful in the mid-1990s, registered Chinese NGOs have expanded to nearly 3,500 (there are likely as many unregistered). While many grassroots groups still undertake “safe” environmental activities, there are a growing number that are pushing the envelope. Most striking was the national campaign in 2005 led by green NGOs and journalists to protest planned dams on the Nu River in Yunnan, one of China’s last wild rivers. The campaign led Wen Jiabao to temporarily halt planning pending an EIA. Today, local officials are hesitant to continue damming the main river, but dambuilding has moved forward quietly on tributaries. Some examples of Chinese green NGOs moving into more challenging areas of activism include: (1) creating campaigns or projects that evaluate progress in open information disclosure rules and demand accountability of central and local governments; (2) helping to build China’s environmental bar and assist pollution victims bringing cases to court; (3) working with central officials to improve regulatory enforcement of Chinese businesses investing in extractive industries in Southeast Asia; (4) working with rural communities on a broad range of water pollution control, land protection, and renewable energy projects; and (5) work on greening supply

April 8, 2010

Jennifer L. Turner

Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

chain projects. Unfortunately, the lack of easier registration rules and policies that permit and encourage tax-free donations to civil society groups have not yet moved forward, which has meant many Chinese NGOs must depend on foreign funding or other support for their work.

Open Information and Other Measures to Encourage Public Participation and Public Empowerment

China’s Minister of Environmental Protection has been increasingly opening up environmental policymaking to the public, which clearly can help empower this underfunded ministry in its work. Some examples include regulations that require public environmental impact assessment hearings and growing use of publicly shaming pollution violators on blacklists (which some Chinese NGOs now help disseminate more broadly). The most promising public empowerment step were the Measures on Open Environmental Information that passed in May 2008, which not only require local environmental protection bureaus to share information requested by the public, but also mandate the public disclosure of environmental data by companies. Specifically, the Measures require companies to disclose the requisite information within 30 days of being cited by local environmental bureaus for violating pollution standards. Organizations like the Beijing-based Chinese NGO Institute of Public and Environmental Affairs have been taking advantage of increased public disclosure of pollution monitoring data by posting the information on its online water and air pollution maps, where, according to the Asia Water Project China reports, the Chinese “public can access tens of thousands of environmental quality and infraction records released by various government agencies. The idea is that disclosure aids enforcement.” With this information, the Chinese public can put pressure on companies to address their polluting activities.

The Natural Resource Defense Council lawyer Alex Wang speculated on his NGO’s blog last year that if information about factory emissions of toxic metals had been readily available to citizens in Hunan and Shanxi provinces, perhaps there would not have been more than 1,600 children poisoned by lead or cadmium in 2009. The sickening of so many children led to citizens storming the factories and sparked unrest around other similar plants in China. Another NRDC lawyer Hu Yuanqiong aptly noted on the blog that after these protests it was clear that “the best way to ensure social stability and the sustainability of the economy is to make information open and allow public participation in monitoring emissions and to have a mechanism between the public and the factories to talk things out and resolve disputes.”

After MEP passed Open Environmental Information Measures in May 2008, national and local environmental agencies were bombarded with requests, which many struggled to fulfill. Greenpeace China and the Beijing-based Institute for Public and Environmental Affairs did a survey of how well local environmental protection bureaus were fulfilling their open information requirements. Only a handful of the 100+ bureaus were graded as being satisfactory, but it is remarkable to see Chinese NGOs empowered to undertake and publically disclose the results of such a survey.

4. China is both a major polluter and emerging clean tech leader, which opens up new opportunities for U.S. collaboration. Tom Friedman’s Op Eds in late 2009 praising China’s growing green investment as turning the country to a clean tech leader has markedly shifted the discussion about the impact of China’s environmental policies on the United States. Previously, such discussions focused on the ecological threat from China’s transboundary air pollution and growing CO₂ emissions. China’s energy policies and investments are shaping China into a potential leader in green technologies, but it oversimplifies the situation to say China is “winning” and the United States is “losing” the clean tech competition, for the United States has the opportunity today to institute similarly progressive energy policies that could enable it to take advantage of China’s growing clean

April 8, 2010

Jennifer L. Turner

Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

energy market. It merits mention that China still faces many political, economic, and environmental challenges that could undermine its ability to become a greater innovator in the clean tech sector in

the near term. The similar motivations and challenges for both countries to push low carbon development—job creation, economic growth, energy security, climate change, pollution reduction, and healthier citizens—offer an opportunity for renewed U.S.-China energy cooperation. U.S. NGOs,

foundations, and business communities have been the leaders in promoting clean energy and environmental cooperation, offering a potential partners and models for the U.S. government as it moves to increase such cooperation particularly in the energy sphere.

Dozens of U.S. NGOs and foundations have long been active in working on energy and environmental issues in China, building capacity and trust among various stakeholders in China. The China Environment Forum has long documented this work through meetings, publications, and study tours and a full discussion would go well beyond the time in this hearing. However, I wish to note a few of the NGO and foundation leaders, which offer models and partnership opportunities for the U.S. government as expands its bilateral energy and environmental cooperation with China (particularly the energy activities that were set forward by the Obama-Hu agreements in November 2009).

The Energy Foundation has been supporting research, projects, and energy policy development in China for ten years and has been a major player in supporting not only Chinese entities but also U.S. NGOs such as Natural Resources Defense Council, World Resource Institute, and even Lawrence Berkeley National Laboratory. Other key foundations that have long been supporting environmental and energy work in China include the Blue Moon Fund, Rockefeller Brothers Fund, and Global Greengrants Fund.

NGOs such as NRDC have been expanding their work in China for over 15 years, and its success stems from beginning its work by building partnerships with government, NGO, and research communities in China and bringing them together to help find solutions to improving the country’s energy efficiency performance. From modest beginnings in helping various cities write clean building codes, NRDC has now helped bring California and the province of Jiangsu together to work on promoting demand side management practices. NRDC also is working with Chinese lawyers and government agencies on public participation and transparency issues. I provide this brief overview, for it exemplifies the pattern of all the successful U.S. NGO and foundations working in China, namely that they have shown a commitment to maintain a long-term presence in China, which has built trust and show real results.

As you will hear from other panelists today, there are many U.S. companies that are engaged in clean tech business in China and many see China’s rapid growth in this sector as an opportunity to test new technologies and methods, such as Duke Energy’s work with Chinese counterparts on a huge IGCC project in Tianjin.

The challenge for formal U.S. cooperation with China on energy issues in particular is to also create projects and partnerships that promote dialogues and potentially joint projects that can be maintained over a longer period. Overall, the U.S. has not been seen by Chinese counterparts to be as committed to cooperation in this area. In contrast, the UK and Japan have been very active in bilateral green cooperation with China, with many more staff on the ground to move projects and dialogues forward. There are plenty of opportunities for U.S. government collaboration and the areas

April 8, 2010

Jennifer L. Turner

Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

targeted in the Obama-Hu agreements illustrate some key areas. During the Q and A I look forward to joining my fellow panelists in answering your questions to further explore this issue of furthering cooperation.

Resources

Portions of this testimony document were drawn from China Environment Forum publications and online research briefs and meeting summaries. I list some of my project’s resources and other publications on China’s domestic energy and environmental challenges below.

Asia Water Project. (2010). “Measures on open environmental information.”

<http://www.asiawaterproject.org/for-business/water-disclosure/measures-on-open-environmental-information/>

Bradley, Rob, et. al. (2008). “Leveling the Carbon Playing Field: International Competition and U.S. Climate Policy Design.” Peterson Institute for International Economics. <http://www.wri.org/publication/leveling-the-carbon-playing-field>

Campana, Alan. (2009). “Boomtown Energy Drain: Promoting Energy Efficiency in China’s Buildings.” *China Environmental Health Project Research Brief*.

http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.documents&doc_id=549850&group_id=233293

Cho Jung-Myung & Suzanne Giannini-Spohn. (2007). “Environmental and Health Threats from Cement Production in China.” *China Environmental Health Project Research Brief*.

http://www.wilsoncenter.org/topics/docs/cement_Aug31.pdf

Go, Kimberly, Mayu Suzuki, & Qu Xiaoxia. (2008). “Trial by Fire: A Chinese NGO’s Work on Environmental Health Litigation in China.” A China Environmental Health Research Brief.

http://wilsoncenter.org/topics/docs/clapv_jul08.pdf

Gordon, Kate and Julian Wong. (2009). “Out of the Running? How Germany, Spain, and China Are Seizing the Energy Opportunity and Why the United States Risks Getting Left Behind.” *Center for American Progress Report*. http://www.americanprogress.org/issues/2010/03/out_of_running.html

Kaiser, Tod and Rongkun Liu. (2009). “Taking the Pulse: The One-Year Anniversary of China’s Open Government Information Measures.” *China Environmental Health Project Research Brief*.

http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.documents&doc_id=549155&group_id=233293

Liu, Kexin. (2009). “Wising Up: Smart Grid as New Opening for U.S. China Energy Cooperation.” *China Environmental Health Project Research Brief*.

http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.documents&doc_id=548785&group_id=233293

Ma Jun. (2010, February 25). “Dynamic Data.” *chinadialogue*.

<http://www.chinadialogue.net/article/show/single/en/3508-Dynamic-data>

Marsters, Peter. (2009). “Electric Cars: The Drive for a Sustainable Solution in China.” *China Environmental Health Project Research Brief*.

http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.documents&doc_id=548857&group_id=233293

Meyer, Bill. (2009, August 19) “Lead poisoning of nearly all the children stokes rebellion in Chinese town; smelter shut down.” *Cleveland.com*.

http://www.cleveland.com/world/index.ssf/2009/08/lead_poisoning_of_nearly_all_t.html

April 8, 2010
Jennifer L. Turner
Director, China Environment Forum, Woodrow Wilson Center
Testimony Before the U.S.-China Economic and Security Review Commission
“China’s Green Energy and Environmental Policies

NRDC. (2009). “Strengthening US-China Climate Change and Energy Engagement.” *Natural Resources Defense Council Report*. http://docs.nrdc.org/international/files/int_09021801a.pdf

Pew Center on Global Climate. (2009). “A Roadmap for U.S.-China Cooperation on Energy and Climate Change.” Pew Center on Global Climate. <http://www.pewclimate.org/docUploads/US-China-Roadmap-Feb09.pdf>

The Pew Charitable Trusts. (March 2010). *Who’s Winning the Clean Energy Race? Growth, Competition, and Opportunity in the World’s Largest Economies*.
<http://www.pewglobalwarming.org/cleanenergyeconomy/pdf/PewG-20Report.pdf>

Tan Xiaomei & Zhao Gang. (December, 2009). “An Emerging Revolution: Clean Technology Research, Development and Innovation in China. World Resources Institute Working Paper.

Hu Yongqin & Lu Hongyan. (2009, August 18). “Villagers Break into Lead Factory in NW China.” *China Daily*.
http://www.chinadaily.com.cn/china/2009-08/18/content_8581815.htm