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China's Environmental Challenge

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

I. The Nature of the Challenge

The rise of China as an economic power is one of the great stories of the latter half of the 20th century. Twenty-five years of reform have produced staggering results: hundreds of millions of Chinese have been lifted out of poverty, China's economy continues to grow at a rate of 8-12% annually, and by the end of 2005, China became the fourth largest economy and third largest exporting nation in the world, after the United States and Germany.

At the same time, this growth has occurred without much consideration for the country's environment. Building upon centuries of environmental degradation and pollution, the very rapid industrialization of the last quarter century has contributed to some of the highest rates of air and water pollution in the world, severe land degradation, and a range of emerging resource challenges.

The most visible of China's environmental challenges is air pollution. Almost 2/3 of China's cities fail to meet the country's air quality standards. According to a Vice Minister of China's State Environmental Protection Administration (SEPA) Pan Yue, five of the world's ten most polluted cities are in China.[1] Acid rain affects one-quarter of China's land and one-third of its agricultural land, diminishing agricultural output, eroding buildings and contributing to respiratory problems. Regional haze results in 70% of crops yielding at least 5-30% less than their potential.[2] According to one report, 75% of the people in China's 340 monitored cities breathe unclean air.[3]

The sources of China's air quality challenge are multifold: its overwhelming reliance on coal for its energy needs, its poor energy efficiency and conservation practices, and the rapidly increasing role of automobiles in its transportation sector. Even the extraordinary level of construction in developing China's cities and the country's infrastructure has become an important contributor to local air pollution. Moreover, China's drive to urbanize 300 million people by 2020 will likely result in a significant increase in air pollution: per capita energy consumption for urban residents is 250% more than that of their rural counterparts.[4]

China relies on coal for approximately 70% of its energy needs, consuming some 1.96 billion tons in 2004, according to the China Coal Industry Association.[5] China is the

largest consumer of coal in the world and the largest emitter of sulfur dioxide (SO2). Coal consumption is expected to double during 2000-2020.

Low utilization of energy efficiency technologies in China's buildings and industries also add to China's coal use and therefore its pollution. Buildings consume 2-3 times the energy that of developed countries in comparable climates,[6] and depending on the industry, Chinese factories are 3-10 times less efficient than their Indian, U.S. and Japanese counterparts.

Although some individual municipalities in China have achieved striking success in their efforts to improve local air quality, the country overall has made little progress in the face of its extraordinary growth. As the economy moved into high gear in 2003-2004, coal consumption increased, and acid rain and SO2 emissions jumped to their highest levels ever. Moreover, government pollution treatment projects have fallen significantly behind schedule. During 2001-2005, 279 SO2 control projects were slated for construction; by 2003, however, only 61 had been completed and 72 were under construction. In 2005, the Chinese government reported that government spending on environmental protection would fall 30% short of the US$85billion originally set out in the Tenth Five-Year Plan.[7] To date, only an estimated 5% of China's coal fired power plants have adequate desulfurization facilities. As Wang Jirong, Vice-Minister of SEPA stated, "they would rather be fined than buy such expensive facilities."[8]

The future does not look promising. In spring 2004, SEPA announced that it fully expected the damage to the environment and human health from acid rain and SO2 pollution to increase for the foreseeable future. Coal consumption was forecast in late 2005 to exceed 2 billion tons for the first time by the end of the year, with SO2 to jump an estimated 6 million tons.[9] In Guangzhou, SO2 emissions in the first quarter of 2005 increased by 49% over that of the previous year.[10]

The transportation sector poses perhaps the greatest challenge for the coming decades. While China currently boasts only 23 million private cars,[11] by 2020, transportation experts anticipate China will have at least 110-160 million cars on its roads. Li Xinghua, deputy director of the Communication Ministry's Comprehensive Planning Department estimates that China will eventually have 250 million cars, more than on U.S. roads today.[12] Pollution from the growing number of cars is already affecting the air quality in the country's most heavily trafficked cities. In Beijing in 2004, vehicles accounted for 8.5% of particulate matter.[13] Indeed, despite its best efforts to move polluting industries well outside city limits and use natural gas for district heating rather than coal, Beijing was unable to meet its air quality targets for 2004, suffering significant embarrassment when it was forced to cancel the two-day French air show in early October. In Shanghai, an environmental protection official has said that 70% of the city's 1 million cars do not meet Europe's oldest emission standards.[14] China also has 50% of the world's motorcycles, a third of those being highly polluting oil-burning two-stroke engines.[15] Even as China moves to adopt tougher Euro 4 emission standards, auto manufacturers have complained that the sulfur level in the fuel is too high for the most aggressive emissions control catalyst technology.[16] And as China attempts to push forward with

alternative fuels, such as compressed natural gas, environmentalists complain that Chinese companies are producing retrofit kits that are dual use and don't deliver much benefit in terms of air quality.[17]

China's land resources are also under threat. China has taken dramatic measures over the past decade to afforest land as well as to prevent further forests from being indiscriminately logged. As a result, its forest coverage has reportedly increased from 16.6% in 1998 to 18.21% today.[18] Nonetheless, Lei Jiafu, vice-director of the State Forestry Administration has stated that China's total forest cover is only around 61% of the world average and 130th in the world. In addition, the quality of forest is not high, species mix needs to be more diverse, and the management quality is low. [19] Loss of forest land remains a problem: 10.107 million hectares of forest land was converted to non-forest use during 1998-2003.[20]

Deforestation, along with the overgrazing of grasslands and over-cultivation of cropland has dramatically changed the landscape of the country. Deforestation contributes to biodiversity loss, soil erosion, and local climate change. Overall, approximately 40% of China's land is affected by soil erosion.[21] The world's highest water erosion rates occur in China in the Loess Plateau, where 1.6 billion tons of topsoil is washed into the Yellow River on an annual basis.[22]

In addition, China, which is roughly the same size as the United States, is now more than one-quarter desert, and desertification is advancing at a rate of roughly 1300 sq.miles annually. According to the State Forestry Administration, desertification affects 400 million people.[23] One study by western and Chinese experts predicts that desertification will cause thirty to forty million Chinese farmers to migrate as a result of lack of access to arable land and water in the coming decades.[24]

The most serious environmental challenge China confronts, however, is ensuring access to clean water. While China's freshwater resources—2800 billion m3—rank fourth in the world after Brazil, Russia and Canada, skyrocketing demand, population pressures, inefficiencies, overuse, and unequal distribution all combine to produce a situation in which two-thirds of China's 600 cities do not have enough water for their needs, and of these 110 severely lack water.[25] Today, 60 million people have difficulty getting access to enough water for their daily needs. The country's annual per capita water supply is 25% of the global average, and by 2030, per capita water supply is expected to fall from 2200 m3 to below 1700m3. While agriculture demands 69% of China's total water resources consumed, household and urban consumption are growing rapidly. Over the past fifty years, industrial and domestic users raised their shares from 2% to 21% and 1% to 10% respectively.[26] Urban dwellers increased their per capita daily household water consumption about 150% during 1980-2000 from less than 100 liters in 1980 to 244 liters in 2000.[27] Demand for water is expected to triple from 120 -400 billion tons during 1995-2030.

As urbanization has occurred and Chinese incomes have grown, Chinese, like their counterparts in Europe and the United States, have become water-intensive consumers,

watering their lawns, taking showers, use washing machines and dishwashers, playing golf and purchasing second homes. China also wastes more water than their developed neighbors: the country loses as much as 25% of the water transmitted through pipes due to leaks;[28] in contrast Japan loses only 8-9%.

Water pollution is also a significant problem. In a survey of 44 Chinese cities, officials discovered that groundwater pollution was a serious problem in 42 of them.[29] More than three-quarters of the water flowing through China's urban areas is considered unsuitable for drinking or fishing, and thirty percent of river water monitored by the Chinese government is worse than grade 5 (not suitable for agriculture or industry). Agricultural runoff and untreated wastewater from rural industries have caused serious degradation in several of China's largest and most famous lakes, such as the Tai and Dianchi. The Chinese government publicizes that 300 million people drink contaminated water, 190 million of whom are drinking water that is contaminated enough to make them sick.[30] In addition, according to one Chinese government report, unlike developed countries, China does not revise its standards annually; since 1985, China has failed to update its standards, leaving nitrites, bromates and flagellates[31]—all of which can cause serious health problems—outside the realm of environmental governance. Even as the Chinese government has made a significant push to improve the rates of industrial and municipal wastewater treatment, in 2004, SEPA inspected the sewage treatment plants that had been built during the tenth five year plan and found that only half of them were actually working: the other half were closed down because local authorities considered them too expensive to operate.[32]

II. Regional and Global Implications

China's environmental practices have important regional and global implications. The international environmental NGO WWF reports that the Yangtze delta has become "the biggest cause of marine pollution in the Pacific."[33] Coastline inspections by the SEPA and the State Oceanic Administration found that in "nearly half of the 20 coastal cities inspected, more than 50% of the sewage is discharged into the sea untreated."[34]

The acid rain that plagues so much of China also affects Japan and Korea: Japan has blamed China for half of its acid rain problem,[35] and Korea attributes 40% of its sulfur dioxide problem to China.[36] In addition, Japan, Korea, and Russia all have experienced severe dust storms emanating from Northern China (in particular Inner Mongolia); particularly unsettling is the fact that these dust storms also pick up pollutants such as lead, magnesium, and dioxin from China's east coast, and deposit them elsewhere abroad (including at times in the United States).[37]

Globally, China has become an increasingly important source of the world's most vexing environmental challenges. One of the areas of greatest concern is China's growing contribution to global climate change. China is the second largest contributor to climate change in the world, and the Chinese Academy of Social Sciences expects that China will surpass the United States as the largest contributor by 2025.[38] China has signed on to the Kyoto Protocol to the Framework Convention on Climate Change, and has initiated some

projects with members of the EU under the Protocol to begin to address the challenge of climate change. Nonetheless, these remain on a relatively small scale and are unlikely to change the trajectory of China's greenhouse gas emissions unless dramatically increased. Even China's efforts to generate 10% of the country's power from renewable sources by 2010 are unlikely to have a significant impact on its climate change contribution.

A second issue of concern is China's growing impact on the global trade in illegal timber. China's booming economy and its efforts to protect its own forests, for example, have made China the second largest importer of wood products in the world. Forty percent of its timber and 20% of its pulp and paper imports are estimated to be illegal.[39] About one third of China's illegal timber imports are subsequently processed and exported, primarily to G8 countries.[40] Chinese logging companies, now present throughout Southeast Asia and the Amazon, have also been cited and fined for their poor logging practices. Most recently, international environmental organizations have been criticizing Chinese companies for plundering the timber as well as jade, gold, and mineral reserves of the Kachin state in Myanmar.[41] In 2004, about 95% of Myanmar's total timber exports to China were illegally exported. Greenpeace has also accused China of illegally exploiting ancient hardwood forests in Papua, New Guinea to feed the PRC's plywood industry.[42]

An emerging concern for countries in Latin American and Africa are the safety, health and environmental issues presented by the growing role of Chinese mining industries in their countries. Over fifty percent of China's foreign direct investment is in extractive industries, and China's mining companies have some of the worst labor practices in the world. There have been demonstrations against a Shougang group-owned mine in Peru, where water is now available for only four hours per day, and environmental and safety records, as well as workers' incomes have declined precipitously since Shougang assumed control a decade ago, even as profits for the mine have soared.

III. Beyond the Environment: The Economy, Public Health and Social Unrest

As the Chinese leadership witnesses the degradation and pollution of its natural resources, it has also become acutely aware of the secondary impacts that these environmental challenges are exerting on the current and future well-being of the Chinese people. These additional challenges bring a new urgency to the Chinese government's thinking about how to respond to the country's environmental problems.

First, and perhaps most critically, the environment is beginning to bite back into the economy. Costs are wide-ranging, from embarrassment (as when Beijing cancelled the French air show in October 2004) to far more dangerous (as when smog in the Pearl River Delta contributed to the collision of eight boats during summer 2004).[43]

Of greatest significance to the Chinese government, however, is likely how environmental degradation and pollution may contribute to impinge on future economic growth, an issue with which Chinese economists have been grappling in some form or another since the early 1980s.[44] In 1997, the World Bank published its report, *Clear Skies*

Blue Water that suggested that the cost of environmental pollution and degradation in China was equivalent to 8-12% of GDP annually. This estimate included the costs associated with lost days of work from pollution-related illnesses, contaminated crops and fisheries, and industry closures due to lack of water, among other factors. Today, the Chinese media are replete with such statistics, reporting, for example that in 2003, floods and droughts led to economic losses totaling 200 billion yuan (US$24 billion);[45] desertification resulted in direct economic losses of 54 billion yuan or $6 billion;[46] acid rain cost China $13 billion; and water scarcity cost China $28 billion in lost industrial output. China's fisheries lost US$130 million in 2004 due to water pollution; this represented an increase of over $40 million from the previous year.[47] In terms of biodiversity, China's opening up to the international community brought with it the introduction of more than 250 alien species that caused environmental damage with a price tag of US$14.44 billion in 2000.[48]

Regional economies are also shifting in response to environmental degradation and pollution. Statistics from the Ministry of Agriculture demonstrate that in the Bohai Sea, the output of prawns has declined by 90% over the past two decades. Pollution has transformed the Bohai, once referred to as the "storehouse of fish," into the "main pollutant absorber" in Northern China. Almost three billion tons of wastewater flows into the Bohai annually, which accounts for about 32% of the country's total amount of waste water discharged into the seas.[49] In an area near Shenzhen, the local monkey population is being slowly starved as the local banana trees that have traditionally supplied them have been "robbed of sunshine, water, and even air," by an alien plant species, the South American Climber.[50] A Hong Kong multinational has noted that because of water scarcity, a spinning mill constructed in 1996 in Turpan, Xinjiang is no longer as economically viable as previously because the cotton must be imported from further and further away. In Shenzhen, too, during December 2004, some factories reported that they could not fill their Christmas orders because they did not have enough water to operate. Along the Yellow River, rising water prices and the poor quality of the water now cost companies in the Yellow River basin about US$300-400 million annually. In addition, declining water quality and availability has left farmers suffering an annual loss of US$400 million in crops. Moreover, a Chinese report suggested a link between the high cost of medical treatment along the Yellow river—$250-350 million—with the water quality.[51] Finally, in Qinghai, the Chinese government reported that by 2001, 2000 lakes and rivers had dried up with severe consequences for local industry, hydropower, and the volume of water in the Yellow River.[52]

Environment-related public health problems are yet another challenge China's leaders must address. According to one report, 75% of the chronic diseases in China are linked to pollution resulting from industry and personal activity.[53] The World Bank has stated that annually 300,000 Chinese die prematurely from respiratory disease related to air pollution. In the district of Beijing in which Capital Iron and steel is based, the death rate from lung cancer is on average 30% higher than in other parts of the capital.[54] The impact of water pollution on public health is an even greater concern. Experts from China's Ministry of Water have stated that there are more than 50 diseases in China resulting from unclean drinking water. While 300 million people in rural China don't have access

to clean water, China was able to introduce clean drinking water to only 14 million rural families during the past five years.[55] In addition to the impact of China's poor air quality on public health, The Minister of Water Resources Wang Shucheng stated at a symposium on sustainable water management that "hundreds of thousands of Chinese are afflicted with various diseases from drinking water that contains too much fluorine, arsenic, sodium sulfate or biter salt."[56] Entire communities along China's major river systems report higher than normal rates of cancer, tumors, stunted growth, spontaneous abortion and diminished IQs due to the high level of contaminants in the soil and water. Wang Bin, director of the Ministry of Public Health's Women's Health Division, has also linked environmental pollution with the 25% increase in birth defects China experienced during 2001-2003.[57]The relationship between environmental pollution and public health was brought into sharp relief by a World Bank report that indicated that SARS was most potent in areas where the levels of air pollution were the highest. According to one report, experts believe that the cost of environment-related public health problems is in the billions of dollars.[58]

Finally, as China's economy has developed in many regions without respect to the environmental and public health concerns raised, the Chinese leadership has had to contend with significant social unrest. In the mid-1990s, the Central Committee of the Chinese Communist Party published a report acknowledging that environmental degradation and pollution was one of the four leading causes of social unrest in the country.

Throughout 2005, there have been several environment-related protests, many of which have spiraled out of control and resulted in beatings, deaths, and large numbers of arrests. An ongoing dispute in central China over mines that have poisoned the water and land of a wide swath of villages has resulted in several violent protests over the course of the past year.

Zhejiang Province has also been the site of many such environmental protests. In April, 2005, for example, 60,000 people in the village of Huaxi, Zhejiang, reportedly protested against the 13 chemical plants that polluted the water and soil around the village. According to one report, two people died in the clashes between demonstrators and police.[59] In August, villagers again threatened protests because local officials had failed to fulfill promises to redress the situation. In July, 2005, in Zhejiang province, more than 10,000 people protested a pharmaceutical plant that was similarly poisoning the land and water and harming public health. And in August, in Meishan, Zhejiang, villagers blocked the operation of a battery company they believed was poisoning their children, hundreds of whom reported higher than normal concentration of lead in their blood.

IV. What is the Chinese Government Doing?

China's leaders have a four –pronged strategy for addressing their environmental challenges that in many respects is modeled on the country's economic reform strategy: maintain a limited central government; devolve authority to local officials; rely on private

initiative, in this case nongovernmental organizations; and engage the international community.

China's capacity to address environmental challenges from the central government remains limited. The State Environmental Protection Administration (SEPA) has only 300 full time professional staff in Beijing, and China devotes only 1.3% of its GDP to environmental protection, well below the 2.2% that Chinese scientists have argued is necessary merely to keep the situation from deteriorating further. Overall, China's central government is reportedly responsible for just over 10% of the overall environmental protection budget of the country, relying on local authorities and the international community to fund the vast majority of China's environmental protection needs. Xie Zhenhua, the former head of SEPA, was removed from his position in the wake of the Harbin chemical disaster in December 2005. While it is too early to know the policy outlook of his successor Zhou Shengxian, he does not bring strong environmental credentials to the table.

The greatest authority for environmental protection rests at the local level. This Devolution of authority has encountered both success and failure in encouraging environmental protection. Local environmental protection bureaus throughout the country are typically ill-equipped to manage the task at hand. In addition, more powerful bureaucratic entities and local officials often attempt to influence environmental officials to ignore laws and regulations out of concern for social stability or because these officials have personal or financial ties with local polluting enterprises. Without a strong central enforcement capability, theses local environmental protection bureaus have little political weight in the system.

Nonetheless, some cities, with proactive leaders, relatively high per capita GDP and strong ties to the international community, have begun to invest greater percentages of their local budgets into environmental protection efforts. Beijing has rewarded such cities with "National Model Environmental City" status, and new experiments, such as the Green GDP, if successful will help reinforce the idea that political benefits will accrue to those local leaders who manage both to grow their economy and protect their environment.

The third prong to China's strategy is encouraging the domestic NGO community and media to serve as both a motivator for environmental protection among the Chinese people and as a watchdog on local government's implementation of central directives. There are more than 2000 environmental NGOs in China, with a wide range of expertise and approaches. While many stress environmental education as their primary goal, increasing numbers have become engaged in lobbying the central government on issues as wide-ranging as promoting recycling or wind power to bringing to a halt large scale dam construction. Legal environmental NGOs have become quite aggressive in pressing lawsuits against companies on behalf of pollution victims, although they face an uphill battle in the still weak court system. The media also work very closely with NGOs to expose corrupt local officials or businesses that are violating environmental protection laws. With support from the State Environmental Protection Administration—with whom

NGOs often work quite closely—the NGO community has pressed for greater transparency in the environmental impact assessment (EIA) process and for open hearings, as the EIA law permits. More broadly, Chinese environmental NGOs are considered to be at the forefront of civil society development in China.
Still, regulations governing NGOs, their activities, their membership, and their ability to expand continue to limit sharply the role that they can play as a real participant in environmental enforcement. Moreover, environmental activists who cross a line politically—becoming engaged in disruptive protests or otherwise "stirring up trouble"—have been put under house arrest or even jailed. During Fall 2005, for example, Green Watch founder Tan Kai was arrested and charged with "Disclosing State Secrets." Tan, a Zhejiang resident, founded Green Watch in the wake of the environmental protests there. Thus far, his request for legal representation from Beijing has reportedly been denied.

Much of what Beijing hopes to accomplish on the environmental front rests on its interaction with the international community. The discussion below outlines some of the major thrusts of this effort.

IV. Working Together to Meet China's Environmental Challenge

Engaging the international community is one of the major tenets of China's environmental policy,[60] and outside assistance has been crucial to the development of China's capacity to meet its environmental challenges to date.

Cooperation between China and the international community takes several forms: policy guidance, technology transfer, and capacity building, and there are many avenues to consider in pursuing such cooperation. Some examples of ongoing cooperation include:

- The United States, the EU, Japan, Australia and other countries are deeply engaged in promoting joint research on alternative energy sources and transfer of clean coal technologies.

- Institutions and countries such as the World Bank, the Asian Development Bank, Japan, and Canada train Chinese officials to tackle environmental challenges more effectively and support a wide range of energy efficiency efforts, wastewater treatment facilities, and alternative energy development.

- USAID supports environmental conservation and biodiversity protection in Tibet: DOE has established several policy dialogues and working groups, and undertaken capacity building efforts to promote clean(er) energy technologies and nuclear safety. DOE is also the lead agency for the Asia Pacific Partnership on Clean Development and Climate as well as an effort to promote a Green Olympic Village for the 2008 Olympics in Beijing. USEPA supported the adoption of U.S. air quality monitoring system in 11 cities; sponsored workshops in Beijing on managing regional air quality; and is working on water safety in Tianjin and the clean-up of contaminated sites.

- The non-governmental community—from the Nature Conservancy to NRDC to Greenpeace—has long considered China an essential part of its overall global strategy, assisting China in managing its environmental challenges and its contribution to global environmental problems. For example, ED works with China on developing and expanding a system of tradable permits for SO2 emissions; NRDC has invested heavily in educating officials and developing regulations for building efficiency codes; the Energy Foundation supports a wide range of activities designed to promote the use of renewable energy and alternative fuels; and Global Greengrants provides support to nascent environmental NGOs in China.

A pressing issue for China's leaders is also how to ensure that the extraordinary level of foreign direct investment can be channeled in environmentally constructive rather than destructive forms. For the most part, domestic Chinese companies have yet to realize the economic benefits of good environmental practices. In a 2004 WWF survey of 182 of China's largest companies, only 18% believed there was a link between good environmental practice and saving money.[61] Chinese officials have therefore called explicitly for multinationals to lead in environmental protection, recognizing the important role they can play in setting an example of best practices for domestic enterprises.

Many multinationals have risen to the challenge, setting high environmental standards, transferring technology, and supporting China's environmental goals more broadly.

- Royal Dutch Shell, for example, dramatically raised the environmental bar by hiring ERM, an environmental consulting firm, to conduct an environmental impact assessment for a joint venture project with Petrochina to bring natural gas from Xinjiang to Shanghai (a joint venture Shell never realized).62 Shell is also engaged in supporting Chinese environmental NGOs and environmental education.

- Companies such as BASF, Intel, and BP Solar are all donating physical and intellectual capital up front to a demonstration project for a sustainable village in Liaoning Province, with the anticipation of reaping benefits 3-5 years down the line. BASF, for example, has developed a highly energy efficient roofing and insulation material that can be used and reused many times. It is participating in the demonstration project with an eye toward helping the Ministry of Construction as it develops its rural construction standards as China's housing market continues the process of its dramatic growth. The Iowa-based company, Vermeer, has a similar incentive in doing a demonstration project for a brick substitute made from compressed earth. BP Solar is donating a 1000w generating system for the village with the understanding that the system will be hooked up into the local power grid and BP Solar can sell back whatever power is not consumed by the village. Intel is spending three years studying life in Huangbaiyu in order to understand in an organic way the role of technology in rural development, asking the questions what do people really need and want? They are

adopting a five to ten year horizon in order to understand for example the most appropriate role of technology in health care or transportation in China's rural sector.

Still, impediments to "doing the right thing" remain. Some firms, such as Britain's Thames Water PLC and France's Veolia Water have invested directly in China's clean-up process, forming joint ventures with municipal waste water treatment facilities. In 2004, however, Thames Water PLC pulled out of one such venture, when the Shanghai government refused to honor its pledge for a guaranteed rate of return on investment.[63] Similarly, as multinationals support Chinese laws or new initiatives, they may find that China's economy does not yet send the appropriate signals to make these new ventures viable. Dow Chemical, for example, is supporting a $750,000 dollar project in cleaner production.[64] Yet, Wang Jirong, a Vice-Minister of SEPA, has stated that despite the existence of a 2003 Law on Cleaner Production, the concept has not taken hold very rapidly because the implementation of cleaner production suffers from lack of funds and technologies, a defective environmental management system, difficulty in getting information, and a lack of market incentives."[65]

Moreover, many multinationals continue to view China as an attractive investment opportunity because of its weak enforcement. The Chinese government has become extremely sensitive about being perceived as the repository for the world's waste or polluting industries.[66] In 2004, Greenpeace Beijing undertook an undercover investigation of Asia Pulp and Paper's (the largest paper manufacturer in Asia outside Japan) practices in Yunnan and accused it of illegal logging, prompting an investigation by the State Forestry Administration[67] that eventually found APP guilty of wrongdoing. More recently, Greenpeace Beijing has highlighted the role of a number of multinational, and in particular Hewlett Packard, for the excessive amounts of toxic chemicals used in its computers, thereby contributing to a dangerous computer waste problem in China.[68]

V. What More Can We Do?

The challenge of environmental protection in China is multifaceted. It involves the capacity of central and local environmental institutions, the evolution of China's economy which both offers new opportunities and inhibits environmental protection, the development of the rule of law, the gradual growth of civil society, access to new policy ideas and technologies, and the extraordinary level of multinational engagement in the country's development. Opportunities for further cooperation between China and international actors are available in each of these arenas.

At the same time, the likelihood of successful cooperation depends significantly upon the ability of local partners or the central government to provide a felicitous institutional infrastructure and policy environment. While China's leaders have supported the development of such an infrastructure rhetorically, there remains a vast divide between their statements of intent and their commitment both in terms of human and financial capital.

To that end, supporting the development of this infrastructure should be a primary goal of U.S. policy. Some opportunities in this regard include the following: is at least as important as focusing on opportunities for technology transfer.

- Lift the ban on USAID involvement in China. Although USAID indirectly funds some programs related to Tibet and the environment, with its broad emphasis on governance, public health, rule of law and poverty alleviation, it could be far more effective in addressing China's most pressing needs and the United States' most direct interests. USAID also has developed a highly effective model for promoting energy efficiency and conservation in India—supporting zero emission automobiles, for example—that could be replicated in China.

- Enhance existing efforts to promote the rule of law and environmental governance. This should be a priority area for the State Department's Democracy, Human Rights and Rule of Law program. Coupled with work by organizations such as the American Bar Association, the Ford Foundation, and the Woodrow Wilson Center, the United States has established an important foothold in this area. Given the long term reform benefits of these nascent efforts, however, significantly greater resources—through training, exchange, and education should be provided to strengthen both the legal and NGO sectors in China. The opportunities for public-private partnership in this area are significant.

- Remove restrictions on the Overseas Private Investment Corporation to provide assistance to U.S. businesses eager to gain a foothold in China's environmental technologies market. This market is currently dominated by Japan and the European Union.

- Encourage U.S.-based multinationals that source from China to place pressure on their suppliers to meet environmental, safety and labor standards or risk losing the multinational's business.

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