

Is China Subordinating Health and Environmental Concerns to Economic Growth?

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The popular press frequently portrays China in a negative light when it reports on environmental and health issues: widespread air and water pollution, mine accidents, and contaminated imports such as food and toys. The image is hardly positive. How much of this accurately reflects reality, and how much reflects a tendency of the popular press to accentuate the negative? Is the image the same in professional journals and technical reports?

The main problem appears to be that well intentioned public health and environmental policies have not yet been realistically integrated into overall policies which emphatically promote economic growth. It also appears that recent positive changes in policy may be too new to have considerable impact in the short term. In October 2005, the Communist Party of China approved its 11th Five-Year Plan for National Economy and Social Development. After China decided to launch economic reforms in 1978, Deng Xiaoping proposed the principle of allowing some of the regions and some of the people to get rich first to achieve a final "common prosperity". The current plan has now been modified to stress "common prosperity" in a bid to bridge the growing gap between the rich and the poor, and to avoid polarization of the society.¹ The Chinese government has also adopted a "green strategy." "Environmental protection is changing from the down-stream, after-the-event management of the past to today's whole-process supervision and control."² Nonetheless, "since the beginning of reforms, the most commonly measured forms of environmental pollution - particulate matter concentrations, sulfur dioxide levels, greenhouse gas emissions - have all increased literally to life-threatening levels."³ Whether the situation gets worse before it gets better remains to be seen, largely because of the continued emphasis on growth and, in particular, because of the demands for energy, based primarily on coal, where mining remains one of the most polluting and most hazardous occupations in the world.

According to the World Bank, China has had a growth rate of nearly 10 percent since the late 1970s (9.7 percent). This is roughly two to three times the global average, which was about 4.1 percent for low- and middle-income countries, and 3.2 percent for high-income countries.⁴ China alone accounted for over 75 percent of poverty reduction in the developing world over the

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¹ "New Five-Year Plan to see revolutionary changes," People's Daily Online, 22, October 12, 2005;

http://english.peopledaily.com.cn/200510/12/eng20051012_213909.html

² "Green Strategy," Chinese Government's Official Web Portal, 2006, http://english.gov.cn/2006-02/08/content_182528.htm

³ "The Downside of Growth: Law, Policy and China's Environmental Crisis," Alex Wang, *Perspectives*, Vol. 2, No. 2, Oct. 31, 2000; www.oycf.org/Perspectives/8_103100/downside_of_growth.htm

⁴ Figs. are for 1965-1999; "Economic Growth Rates," Development Education Program, World Bank; <http://web.worldbank.org/WBSITE/EXTERNAL/WBI/EXTDEVEDUPROGRAM/0,,menuPK:537418~pagePK:64194804~piPK:64195356~theSitePK:537330,00.html>

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last 20 years. Nonetheless, “substantial challenges remain.” More than 128 million Chinese, in the western and interior regions, still live on less than a dollar per day, often without access to clean water, arable land, or adequate health and education services. The rate of poverty reduction has fallen since the mid-1990s. Undoubtedly, China faces challenges related to its continued rapid growth, most notably income inequality, economically lagging western and northeast regions, and unsustainable resource exploitation.⁵

In essence, on its path to growth, China has not incorporated into policy the distinctions made in the industrialized countries since the 1970s. In those countries, there was a gradual transformation in the 1970s and 1980s recognizing the difference between *economic growth* and *economic development*, followed in the 1980s and 1990s by the notion of *sustainable development*. China is starting to change in the right direction, but it may take considerable time for new policies to have an effect. The situation is not unlike trying to steer a supertanker compared with a motor boat --- it takes time to react. China *is* making progress --- most notably through environmental and public health groups who have adopted stances not threatening to central authority that allows them to pursue an overdue agenda. To get a better idea of the scope of progress, this article looks at public, occupational and environmental health in the context of continued growth and the demands of energy.

In a small measure, some of China’s lag is due to the interpretation of statistics and the notion of “drop-dead epidemiology.” When people drop dead from a health problem, it is immediately noticed and dealt with. However, when the health effects are minor, cumulative, or have a delayed reaction, as is the case with some cancers that may take 20 years to develop, people often tend to take it less seriously and procrastinate. In general, environmental health problems, except for extreme weather events, tend not to be drop-dead types. China does not stand alone in its neglect of environmental health.

Public Health: The Overall Perspective

Overall, China has done well compared with other countries at the same stage of economic development. People are living longer and healthier lives now than fifty years ago. The average life expectancy has reached 71 years and, from 1970 to 2000, the infant mortality rate was virtually halved, falling from 61/1,000 to 33. These national averages, however, mask considerable regional and economic disparities. For example, in 2002, under-5 mortality rates for urban areas was 14.6/1,000 compared with 39 in rural areas, and the urban neo-natal mortality rate was 9.7/1,000, compared with 23.2 for rural. Thus, life in rural areas appears much worse than urban areas. China’s overall disease profile largely resembles that of a country in epidemiological and demographic transitions with over 90 percent of deaths due to non-communicable diseases and injuries.⁶ While non-communicable diseases have become the

⁵ World Bank Country Brief,

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,menuPK:318960~pagePK:141132~piPK:141107~theSitePK:318950,00.html>

⁶ “A Critical Review of Public Health in China;” Mariam Claeson, Hong Wang, Shanlian Hu.; World Bank, 2004, p. 1,2;

major disease burden, infectious diseases such as tuberculosis, hepatitis, and schistosomiasis are still the major health problems in poor rural areas.⁷ In addition, increased income has also produced the highest tobacco consumption in the world, unhealthy diet and lifestyle changes, plus an explosion in urban housing and vehicle density. Thus, increased income has also increased household and other environmental pollution and traffic related injuries. These major risk factors are basically unregulated and unchecked to date.⁸ A look at occupational and environmental health factors reveals a similar composition of contrasts.

Occupational Health: a look at the General Picture and Mining

In general, occupational health has often been neglected in developing countries. Scholars have been raising concerns about the lack of attention to occupational health in developing countries for some time.⁹ China is no different --- but the consequences are severe given its current economic ranking. China produces 70 percent of the world's toys, 70 percent of photocopiers, 40 percent of microwave ovens and sports shoes, plus large amounts of the world's video equipment, cell phones, electric lighting, and computers.¹⁰ For multinationals, the most important attraction has been low wages (estimated at around 80 cents an hour in light manufacturing), driven by the transformation of China's huge agricultural workforce of 700 million into wage laborers.¹¹ In 2006, the Congressional Research Service declared China the world's third-largest trading economy after the United States and Germany.¹² But, in keeping with its contrasts, China's per capita GDP ranks 128th.¹³

Moreover, China's economic growth over the past 20 years is unprecedented. "No country has ever industrialized as fast as China. No country has ever faced as many new types of industries and hazards in such a short time. No country has ever experienced such a rapid transition from rural agricultural to urban industrial living. This industrialization is thus just now beginning to receive rigorous and sustained examination in terms of its impact on environmental and occupational health."¹⁴ The International Labor Organization estimates that annual deaths

http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/EXTEAPREGTOPHEANUT/0,,contentMDK:20717431~pagePK:34004173~piPK:34003707~theSitePK:503048,00.html#Critical_Reviews, then click # 5.

⁷ *Health Policy and Systems Research In China*; Q. Meng , *et. al.* ; World Health Organization, China TDR/GEN/SEB/04.1; p. vi; http://www.who.int/tdr/cd_publications/pdf/health_research_china.pdf

⁸ "A Critical Review...," *op. cit.*, p. 3.

⁹ "Non-Decision Making in Occupational Health Policies in Developing Countries;" P. Kamuzora; *Int J Occup Environ Health* 2006;12, p. 65-71; http://www.iioeh.com/pfds/IJOEH_1201_Kamuzora.pdf; Phoon W., Occupational health in developing countries: a simple case of neglect," *World Health Forum*; 983;4:340-3.

¹⁰ "The Race to China and Implications for Global Labor Standards," Garrett D. Brown, Dara O'Rourke, *Int J Occup Environ Health*; Vol. 9/No. 4, Oct./Dec. 2003, p. 299; http://mhssn.igc.org/IJOEH_BrownIntro.pdf

¹¹ "Why China Matters in Global Electronics," Boy Luthje, *Int. J. Occup. Environ. Health*, Vol. 9/No. 4, Oct./Dec., 2003 http://mhssn.igc.org/IJOEH_LuthjeSidebar.pdf

¹² "China's Economic Conditions," Updated January 12, 2006, W. Morrison , CRS Issue Brief for Congress Congressional Research Service The Library of Congress, received through the CRS Web; www.fas.org/sfp/crs/row/IB98014.pdf

¹³ "China's GDP is fourth in the world, GDP per capita ranks only 128th in the world," People's Daily Online, http://english.peopledaily.com.cn/200607/07/eng20060707_280900.html

¹⁴ "The Race...," *op. cit.* p. 299.

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from workplace accidents are 11.1 per 100,000 Chinese workers. That is roughly equivalent to five times the US on-the-job fatality rate (2.19 per 100,000).¹⁵ Chinese authorities and employers may argue that a low level of occupational safety and health is inevitable, because China is still in the primary stage of capital accumulation,¹⁶ that it is an inevitable consequence of industrialization which has happened in many other countries.

There have been important and positive policy changes concerning environment and economic growth, but it is not sure that occupational health has followed suit. For example, “the 11th Five-Year Plan will address the main shortcomings through the policy of five balances: between rural and urban areas, between regions, between economic and social sectors, between economic development and the natural environment, and between the domestic and international markets.”¹⁷ In spite of its phenomenal growth in industrial production, occupational health is not explicitly mentioned. “The tough world market competition requires Chinese producers to keep their costs as low as possible, which, in turn can lead to the compromising of environmental and occupational safety and health standards. ...With an almost inexhaustible supply in China of cheap labour, and with outdated labour and registration laws, globalization has also meant an influx of labourers from rural to urban areas. These labourers accept very low wages and no or limited job security and health care coverage. ... Regulation in public health programmes, including in food safety, pollution control, infectious diseases control, and maternal and child health, is progressing. However, the overall effectiveness of these regulations is not satisfactory.”¹⁸ For example, in a period of declared reform, industrial accidents rose by 27 percent between 2000 and 2001, while occupational diseases increased by 13 percent in the same period, according to government statistics. The government workplace health and safety agency reported that 140,000 workers died on the job in 2002, a rate of 380 deaths a day.¹⁹ “Due to incompleteness of the reports [of the Ministry of Health], this is only the tip of a huge iceberg of health hazards in the workplaces in China.”²⁰

In essence, or perhaps, at best, occupational health is recognized as a *research need*. “Development of the socioeconomic environment, including the health sector, which by all measures has been extremely rapid, will continue for a long time, probably for more than one generation. ... The re-orientation and development of the public health system in the next 10-20 years based on situation analyses and projections of future health problems.”²¹ The situation is particularly bleak for mining, because of the continued pressure on growth and increasing demand for electricity, fueled primarily by coal. Four industries will account for 87 percent of future coal use: electricity, construction materials, steel and chemical --- of these, electricity accounts for just over half (53 percent). The total coal usage will reach 2.164 billion tons

¹⁵ “Occupational Safety and Health in China,” Tony Fung Kam Lam, Asian Labour Update, November 2000; ALU Issue No. 39, April - June 2001; <http://Www.Amrc.Org.Hk/Alu/Alu39/013906.Html>

¹⁶ *Ibid.*

¹⁷ *Health Policy...*; *op. cit.*, p. vi.

¹⁸ *Ibid.*, p. 5-6, 10.

¹⁹ “The Race...” *op. cit.*, p. 300.

²⁰ “Occupational Health and Safety Legislation and Implementation in China,” Zhi Su, *Int J Occup Environ Health* 2003; 9:302-308, p. 302; http://www.ijoh.com/pfds/0904_Su.pdf

²¹ *Health Policy...*; *op. cit.*, p. 16.

(including 80 million tons for export), which represents a general growth rate of 12 percent over than 2004 and 17.6 percent electricity consumption.²²

According to the US Congressional-Executive Committee on China, the “burgeoning rate of fatalities appears to be the result of heavy demand for energy in China and the growing desperation of farmers driven by poverty to seek jobs underground in small, dangerous mines.” 6,000 miners died in 2003, reflecting an estimate of 12 fatalities per million tons of coal. “The Chinese government has some control over safety standards in large state-owned coal mines, but virtually no control over small private mines, where most fatal accidents occur. The Chinese people are increasingly aware of the appalling death and injury toll, but one Chinese expert expressed the view that it would take decades before China reaches the safety levels of the developed world.”²³

China produced 35 percent of the world's coal in 2003, but reported 80 percent of the total deaths in coal mine accidents, according to statistics with the State Administration of Work Safety (SAWS). In 2004, by October, there were 188 accidents with death toll of more than 10, about one death every 7.4 days, making coal mining the most deadly job in China. In 2003, the average coal miner in China produced 321 tons/year; which represents 2.2 percent of production in the United States and 8.1 percent of that of South Africa. The death rate per 100 tons, however, is 100 times that of the US and 30 times of the South Africa. In addition about 600,000 miners to date suffer from pneumoconiosis, a disease of the lungs caused by long-continued inhalation of dust, with the figure increasing by 70,000 miners every year. Despite these grim statistics, the government says it has taken measures to improve mine safety. Compared with the past, China's coal mine safety has improved. For example, in 2004, the death toll dropped 13.2 percent and was expected to drop 22 percent over 2003's rate. It was predicted that the death rate per 100 tons would be less than 3, roughly half of the rate of 5.77 in 2000.²⁴ The main causes of coal mine accidents are gas leaks, roof cave-ins, fires, transportation mishaps, blasts, and floods/water bursting. In 2006, roof cave-in accidents accounted for the largest portion (42.3 percent) of the total coal mine deaths.²⁵

According to a study by the Organization for Economic Cooperation and Development (OECD), Chinese coal industry's rate of around 6,000 fatalities per year (one third due to severe accidents) represented a fatality rate 10 times higher than other non-OECD countries but 40 times higher than the OECD countries. By comparison, the US, the world's second largest coal producer, shows an average number of 27 fatalities per billion tons over the past four years, compared with China's 3,000 fatalities. The Australian and New Zealand coal mining industries have accident rates per million hours worked which are around half of the US rate.²⁶ These grim statistics nonetheless need to be taken into context and perceived as a stepping stone for

²² “The Demand of 4 Main Industries in 2005,” China Coal and Mining Expo 2007, China's 12th International Technology Exchange & Equipment Exhibition on Coal & Mining;

http://www.chinaminingcoal.com/2007/static.php?page=mkt_4_main_industries.php

²³ “Coal Mine Safety in China: Can the Accident Rate be Reduced?” Roundtable, 10 Dec., 2004,

<http://www.cecc.gov/pages/roundtables/121004/index.php>

²⁴ “Coal mining: Most deadly job in China,” *China Daily*; 2004-11-13,

http://www.chinadaily.com.cn/english/doc/2004-11/13/content_391242.htm

²⁵ “Why China Matters in Global Electronics,” *op. cit.*

²⁶ “Worker Protection and Economic and Social Sustainability in Coal Mining,” ALU Issue No. 61-62, October 2006- March 2007; <http://www.amrc.org.hk/6106.htm>

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Chinese improvement, which, of course, will require monitoring. For example, over 100,000 miners were killed in the UK since records were first kept in 1850. During the second part of the 20th century, the UK had one of the lowest accident rates in the world, but this took more than a century to achieve. In the peak production year of 1913 (287 million tons) 1,785 workers were killed, with a fatality rate (6.2/million tons) slightly higher than the current Chinese rate (5/million tons).²⁷

Environmental Health: a glance at Air and Water Pollution and Schistosomiasis

The situation concerning environmental health is similar to that of occupational health, again because of the pressure for economic growth and the increasing demand for energy. The main environmental health problems are associated with air and water pollution, climate change, and schistosomiasis, a disease spread by snails. Although China's environmental program has had successes in reducing industrial air and water pollution, two decades of phenomenal growth have taken a serious toll on the rural natural resource base and the urban environment.²⁸ As observed by the US Congressional Research Service (January 2006): "The Chinese government often disregards its own environmental laws in order to promote rapid economic growth."²⁹

China's economy has a high energy intensity. The country uses 20 to 100 percent more energy than OECD countries for many industrial processes. Automobile standards lag behind European standards by ten years. And China has 20 of the world's 30 most polluted cities, largely due to high coal use and motorization.³⁰ On the positive side, China will likely achieve its target to obtain 15 percent of its energy from renewables by 2020. Renewable energy could provide over 30 percent of its energy by 2050. China has become a global leader in renewable energy and is expected to invest more than \$10 billion in new capacity in 2007, second only to Germany. Nonetheless, investment in large hydropower continues at \$6-10 billion annually.³¹ China is building a new 1,000-megawatt coal-fired power plant every week, consumes half the world's cement, a quarter of all steel, and two-fifths of all copper.³²

China is facing a myriad of water crises, including chronic shortages in the north, severe pollution in all major rivers, red tides along the coast, and flooding on major rivers due to

²⁷ *Ibid.*

²⁸ World Bank Country Brief,

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,menuPK:318960~pagePK:141132~piPK:141107~theSitePK:318950,00.html>

²⁹ "China's Economic Conditions," Wayne M. Morrison, Congressional Research Service, January 12, 2006, p 11; www.fas.org/sgp/crs/row/IB98014.pdf

³⁰ World Bank, China Quick Facts;

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,contentMDK:20680895~menuPK:318976~pagePK:141137~piPK:141127~theSitePK:318950,00.html>

³¹ *Powering China's Development: The Role of Renewable Energy*, Eric Martinot and Li Junfeng, Worldwatch Institute, 2007; <http://www.worldwatch.org/node/5491>

³² "Energy in China Fact Sheet," China Environment Forum, Woodrow Wilson International Center for Scholars, 2005, http://www.wilsoncenter.org/topics/docs/energy_factsheet.pdf

destruction of wetlands and lakes. Only six of the twenty-seven largest cities supply drinking water that meets government standards.³³

“While China's air pollution is serious, perhaps the greater environmental health threat is from water degradation. Severe pollution from industrial emissions, untreated municipal waste, and agricultural runoff is affecting all major rivers in China, threatening human health and disrupting industrial production, as well as destroying river ecosystems.” Nearly 700 million Chinese lack access to safe water, contaminated with animal and human fecal waste. More than 75 percent of the rivers flowing through its cities are unsuitable for drinking or fishing because a third of industrial and two-thirds of household wastewater are untreated. Along China's major rivers, especially the Huai, Hai, and Yellow, higher than normal rates of cancer, tumors, spontaneous abortions, and diminished IQs are reported.³⁴

It has been estimated that about 80 percent of the Chinese households use solid/biomass fuels for cooking or heating. Monitoring data from 388 cities shows that only 31 percent met Chinese standards for air quality. In general, about 74 percent of the population lives in areas where the air quality does not meet the standard.³⁵ While most of the attention is placed on ambient air pollution because of power plants and vehicles, indoor air pollution is a far greater health problem globally. Respiratory infections are the second cause of death in low-income countries.³⁶ The main source is biomass fuel, i.e., wood and charcoal, twigs, straw, and dung, depending on the area, used primarily are for heating and lighting, due to the absence of household energy. (About half the world's population still cooks with biomass fuels.) Because of the quantities of coal burned in China, lung cancer is also a serious problem as well as respiratory infections.

Coal-burning releases large amounts of PAHs (polycyclic aromatic hydrocarbons), particulate matter, sulfur dioxide, and mercury. The effects are considerable for infants and children: newborns with high levels of prenatal exposure to air pollution from coal burning have smaller head circumference at birth and lower growth rate in childhood. Such early exposures can set the stage for increased cancer risk, asthma, and cognitive delay over a lifetime. Air pollution from coal burning in China adversely affects the health of people worldwide. The USEPA recently estimated that 40 percent of mercury in the US comes from power plant emissions overseas, especially China.³⁷

About 75 percent of China's energy demand is met by coal. No other major world economy is so dependent on coal; the world average is only 27 percent. Chinese coal, generally

³³ “Topic: Water,” China Environment Forum, Woodrow Wilson International Center for Scholars, 2007, http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.categoryview&categoryid=EF5B2D71-423B-763D-DB0B54DDAE395532

³⁴ “Toxic Rivers and Thirsty Cities,” Environmental Health and Water Degradation in China, Woodrow Wilson International Center for Scholars, 2007, http://www.wilsoncenter.org/index.cfm?topic_id=1421&fuseaction=topics.item&news_id=224022

³⁵ Environmental Health Country Profile – China; World Health Organization As of 9 June 2005; p.5 http://www.wpro.who.int/NR/rdonlyres/1BAA5515-9571-4383-BA1D-169BDD4A8C38/0/China_EHCP_EHDS_9jun05.pdf

³⁶ WHO, Fact Sheet, Top Ten Causes of Death, <http://www.who.int/mediacentre/factsheets/fs310.pdf>

³⁷ Columbia Center for Children's Environmental Health (CCCEH) Research: Chongqing, China; <http://www.mailman.hs.columbia.edu/ccceh/research-chongqing.html>

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low quality, is responsible for 70 percent particulate and 90 percent of sulfur dioxide emissions.³⁸ China consumes more energy and emits more greenhouse gases than any country except the US, and is expected to surpass the US in these emissions by 2009. China expects to construct 562 new coal-fired power plants by 2012, which could nullify the cuts required under the Kyoto Protocol from industrialized countries. Information on Chinese emissions is sketchy since the government has not publicly disclosed CO₂ or mercury emissions data since 2001. The most commonly cited numbers attribute 25-40 percent of global mercury emissions (from coal burning) to China. Within China's borders, air pollution from coal, cars, and dust storms is responsible for 3-400,000 premature deaths and 75 million asthma attacks annually.³⁹

With attention so frequently focused on air and water pollution, another environmental health problem is often neglected in the literature, that of schistosomiasis. The bulk of exposure is occupational, where people work in slow moving water and river banks, where the snails reside. In China, schistosomiasis has existed for centuries until systematic control programs began in the 1950s. Schistosomiasis is mainly distributed along the Yangtze River and down to the south including 404 counties/cities in 12 provinces. About 100 million people are at risk. In 2003, the vice-premier Yi Wu ranked schistosomiasis next to SARS and AIDS as one of China's main public health challenges. Again, the question arises whether health was taken into consideration in policy decisions, whether correct policies were adopted, but neglected? In particular, relocation policies, *viz.*, the adopted policy on anti-flooding 'returning cultured land to the lake and relocation of farmers to newly established towns', may lead to an increase in snail habitats on a large scale and in the number of people living in close contact with infested water. The construction of the giant Three Gorges Dam across the Yangtze River is expected to have a major impact. Expected to be filled by 2009, the dam and its 600 km. long reservoir will have a serious impact on the transmission and distribution of schistosomiasis both above and below the dam. In addition a major irrigation program to divert water from the Yangtze River in the south to very dry parts of northern China (mainly to the basins of the Yellow, Huaihe and Haihe rivers) has also begun and raises concerns about spreading schistosomiasis.⁴⁰ However, about 74 percent of towns and districts having schistosomiasis reached the standards for interdiction and control of the spread of the disease.⁴¹

Summary

It is quite obvious that China's policies are changing for the better. "The recognition that economic growth is not equal to economic development and that growth is not the final goal of development," was included in the 11th Five-Year Plan for the first time.⁴² In 1998, China's

³⁸ "The Downside of Growth, *op.cit.*, p. 1.

³⁹ "China's Filthiest Export," Jennifer L. Turner and Juli S. Kim, Foreign Policy in Focus, Feb. 7, 2007; <http://www.fpiif.org/fpiftxt/3978>

⁴⁰ "A Critical Review...", p. 5.

⁴¹ "Environmental Health Country Profile – China; World Health Organization as of 9 June 2005"; p. 7; http://www.wpro.who.int/NR/rdonlyres/1BAA5515-9571-4383-BA1D-169BDD4A8C38/0/China_EHCP_EHDS_9jun05.pdf

⁴² "New Five-Year Plan to see revolutionary changes," People's Daily Online, Oct. 12, 2005; http://english.peopledaily.com.cn/200510/12/eng20051012_213909.html

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National Environmental Protection Agency was promoted to the ministerial level, creating the State Environmental Protection Administration (SEPA), elevating the environmental concerns in domestic and international governmental policy making. SEPA's director has said that the impact of China's environmental issues on its national security, economy, and foreign trade have made "environmental diplomacy" an increasingly vital aspect of the country's foreign relations.⁴³ In addition, China has implemented the GreenWatch program⁴⁴, promoting sustainable development through public disclosure of environmental information, in 22 municipalities, and plans to extend it to every city in the country by 2010.⁴⁵

The government is clearly taking positive steps. According to China Daily, from January 2005 to June 2006, the Chinese central government fined or closed about 70,000 illegal mines. To improve industry safety, the government planned to close about 5,000 unsafe small coal mines by the end of 2007. While the general safety situation improved in 2006, the number of fatal accidents (3-9 deaths per accident) increased by 3.9 percent. Currently, mining areas are often exploited by several companies, leading to overexploitation and frequent accidents, as well as excessive pollution. By the end of 2008, the government is requiring that one mine can only be exploited by one company in order to reduce the accident rate and control pollution.⁴⁶ In November 2007, China launched its first national environmental health action plan to enable research in the environment and health sectors to be combined more effectively. It aims to form a legal, executive and technical framework for environmental health by 2015.⁴⁷

However, it is less obvious that these changes are sufficient. In particular it is hard to estimate the hidden forces behind the dual pushes for economic growth and environmental responsibility, most notably those emanating from the private sector. About 70 percent of China's GDP is now derived from the private sector.⁴⁸ And recall that the government has little control over small private mines, where most fatal accidents occur. Moreover, according to the Japan Times, the "vice minister of the State Environmental Protection Administration stated (Dec. 2005) that pollution levels in China could increase more than four times within 15 years if the country does not control its voracious growth in energy consumption and in the number of vehicles on its roads."⁴⁹

⁴³ "China: the next environmental super power? - Spheres of Influence," Rebecca Clay, *Environmental Health Perspectives*, Sept, 2002; http://findarticles.com/p/articles/mi_m0CYP/is_9_110/ai_94261088

⁴⁴ program sponsored by the Professional Association for China's Environment (PACE) promoting public access to environmental information in china and providing incentives for environmental performance improvement among Chinese government agencies and business entities

⁴⁵ "Polluters in China Face Public Scrutiny," *China, Feature Stories*, 17 May 2006, World Bank, <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/CHINAEXTN/0,,contentMDK:20913964~menuPK:318972~pagePK:141137~piPK:141127~theSitePK:318950,00.html>

⁴⁶ "A China Environmental Health Project Research Brief, Coal Mining and Environmental Health in China," Woodrow Wilson International Center for Scholars, April 02, 2007, http://www.wilsoncenter.org/topics/docs/coalmining_april2.pdf

⁴⁷ "China moves to tackle pollution effects on health," *Environmental News Network*, December 1, 2007; <http://www.enn.com/pollution/article/26294>

⁴⁸ "China Is a Private-Sector Economy," *Business Week*, Aug. 22, 2005, http://www.businessweek.com/magazine/content/05_34/b3948478.htm

⁴⁹ "China's environmental health challenges," The Japan Times, Dec. 5, 2005, <http://search.japantimes.co.jp/cgi-bin/eo20051205a2.html>

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There are other circumstances that are difficult to control, for example, the global appetite for cheap Chinese goods. For example, 7 percent of China's CO₂ emissions are estimated to result from the production of U.S. imports.⁵⁰ In addition, it is hard to control the demands for a modern lifestyle of a burgeoning middle and upper class that is relatively new. According to the latest Merrill Lynch Cap Gemini survey, China had 320,000 millionaires (those with \$1 million in investible assets) in 2005, up 6.8 percent from 2004.⁵¹ Nonetheless, according to the People's Daily Online, the latest report on China's development in 2007 indicates the number of poor is 20 million. The poverty rate decreased from 31 percent to 2.5 percent.⁵² And the World Bank points out that more than 128 million Chinese, in the western and interior regions, still live on less than a dollar per day. This contrast points to one area that was poorly treated in the popular press or professional literature: incentives for private sector and general public, though Chinese consumption patterns in general are hardly wasteful compared with the West. In a country where 80 percent of the population still heat and light their homes with biomass fuels, it is hard to suggest that China curtail its energy production, especially when compared to wasteful consumption in the US and other industrialized countries. There is a clear difference between the demands of economic and industrial growth as opposed to meeting basic household needs, a difference that needs clear attention in the academic, government, business and industrial communities. The challenge lies in selecting the right issues to debate and the right priorities to fund.

⁵⁰ "China's Filthiest Export, *op. cit.*

⁵¹ "China's New Rich," The Wall St. Journal online, May 30, 2007; <http://blogs.wsj.com/wealth/2007/05/30/chinas-new-billionaires/>

⁵² "Number of poor Chinese people reduced to 20 million," People's Daily Online, September 28, 2007; <http://english.peopledaily.com.cn/90001/90776/90882/6273763.html>