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Copenhagen and Beyond: Reflections on China's Stance and Responses

ZhongXiang Zhang

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ZhongXiang Zhang

ZhongXiang Zhang is a Senior Fellow at the East-West Center. Currently, he is a co-editor of *International Journal of Ecological Economics and Statistics*, and serves on the editorial boards of seven leading international journals and one Chinese journal. Eleven of his publications are cited by *IPCC Climate Change 2001: Mitigation* and *IPCC Climate Change 2007: Mitigation of Climate Change*, making him one of the most cited authors in that two extremely comprehensive and authoritative publications on mitigating climate change and the associated costs.

This paper was an invited luncheon speech at the International Workshop on Climate Change Policies, Presidency of Complutense University, Madrid, Spain, 18-19 February 2010.

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Copenhagen and Beyond: Reflections on China's Stance and Responses[1]

ZhongXiang Zhang,[2] *Ph.D in Economics*
张中祥 美国东西方中心研究部资深研究员、经济学博士
Senior Fellow
Research Program
East-West Center
1601 East-West Road
Honolulu, HI 96848-1601
United States
Tel: +1-808-944 7265; Fax: +1-808-944 7298
Email: ZhangZ@EastWestCenter.org

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[1] Invited luncheon speech at the International Workshop on Climate Change Polices, Presidency of Complutense University, Madrid, Spain, February 18-19, 2010. It appears in Emilio Cerdá and Xavier Labandeira (Editors), *Climate Change Policies: Global Challenges and Future Prospects*, Edward Elgar.

[2] **ZhongXiang Zhang** is Senior Fellow at Honolulu-based East-West Center. He also is an adjunct professor at Chinese Academy of Sciences, Chinese Academy of Social Sciences and Peking University. He is co-editor of *International Journal of Ecological Economics & Statistics*, and is serving on the editorial boards of eight international journals including *Climate Policy*, *Energy Policy*, *Energy and Environment*, *Environmental Science and Policy*, *International Environmental Agreements*, and *Mitigation and Adaptation Strategies for Global Change*. He authors *The Economics of Energy Policy in China* (Edward Elgar, 1997), *International Rules for Greenhouse Gas Emissions Trading* (United Nations, 1999), over 120 scholarly journal articles and book chapters, and over 50 reports and others. He edits 9 books and special issues of international journals *Energy Economics*, *Energy Policy*, *International Economics and Economic Policy*, *International Environmental Agreements*, and *Journal of Policy Modeling*. His papers at the web site of Social Science Research Network have been downloaded over 12,700 times, with their abstracts reviewed over 100,000 times. He is among the most cited authors by the *IPCC Climate Change 2001 and 2007*, and by *Trade and Climate Change: WTO-UNEP Report* (2009). He is among Social Science Research Network Top 200 Economics Authors, and among IDEAS/RePEc list of both the leading energy economists and the leading environmental economists in the world. His professional services include being consulted by Canada's Minister of the Environment for inputs to the 2005 United Nations Climate Change Conference (COP11); joining 23 colleagues from the "Circle of Climate Gurus" to assess the adequacy of the world's efforts on climate change for the World Economic Forum; working with five "world's leading environmental economists" to improve the design of the EU emissions trading scheme; getting involved in a variety of activities with chief climate negotiators from a dozen key countries; serving as an expert/consultant to many national and international organizations; and frequently keynoting major international conferences in Asia, Europe and North America.

Abstract

China had been singled out by Western politicians and media for dragging its feet on international climate negotiations at Copenhagen, the accusations previously always targeted on the U.S. To put such a criticism into perspective, this paper provides some reflections on China's stance and reactions at Copenhagen. While China's reactions are generally well rooted because of realities at home, some reactions could have been handled more effectively for a better image of China. The paper also addresses the reliability of China's statistics on energy and GDP, the issue crucial to the reliability of China's carbon intensity commitments. The paper discusses flaws in current international climate negotiations and close with my suggestion that international climate negotiations need to focus on 2030 as the targeted date.

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JEL classification: Q41; Q43; Q48; Q52; Q54; Q58; O53

Keywords: Copenhagen climate negotiations; Emissions reductions; Carbon intensity target; Binding emissions caps; Statistics on energy and GDP; Coal and energy consumption; China; USA

1. INTRODUCTION

Under the Kyoto Protocol, developed countries had specific obligations to control their greenhouse gas emissions, but developing countries did not. The Copenhagen Accord ends this distinction. For the first time, all the major economies at Copenhagen pledged to take specific individual responsibilities, with Annex I (developed) countries invited to submit their targets for emissions reductions and non-Annex I (developing) countries to submit their intended mitigation actions. By 31 January 2010 all had submitted their pledges to cut or limit their greenhouse gas emissions by 2020 to the United Nations Framework Convention on Climate Change, the deadline set by the Copenhagen Accord. This has never happened before.

No doubt, Copenhagen was disappointing to many, particularly given that U.S. President Obama pledge's "yes, we can" had raised high expectations for this meeting. However, as argued in Zhang (2009a), international climate negotiations for an immediate post-2012 climate regime should not attempt unrealistic goals. With not all of the factors discussed in Zhang (2009a) met for a legally binding global agreement, the Copenhagen Accord is probably the best that could be achieved. The situation could be worse because the negotiations could have completely collapsed. While falling far short of the legally binding global agreement, the Accord reflects a political consensus on the main elements of the future framework among the major emitters and representatives of the main negotiating groups.

Also for the first time, China was blamed for dragging its feet on international climate negotiations, previously the accusations always targeted on U.S. French President Nicolas Sarkozy publicly criticized China, saying that China was impeding progress in climate talks (Watts 2009). British Energy and Climate Change Secretary Ed Miliband (2009) even wrote in *The Guardian* that China led a group of countries that "hijacked" the climate negotiations which had at times presented "a farcical picture to the public". In the run up to and at Copenhagen, China took the initiative to ally with India and other major developing countries, took full advantage of being the world's largest carbon emitter, and attempted to secure a deal to its advantage. It is widely reported that China walked away "happy". But that did not come without a high price tag. Whether to admit

or not, China angered allies, abandoned principles that it stuck during two weeks of talks, and is likely to stoke anti-China sentiment in Western nations. The too early appearance of this sentiment does not do any good to China because it still has to evolve from a large country to a country that is truly strong in e.g., science, technology, innovation, economy, etc. Officially China was backed by allies like India and Brazil, but they admitted in private that this was mainly China's battle (Graham-Harrison 2009).

Against this background, in this paper, I will first share my thoughts on China's stance and reactions at Copenhagen. Some reactions are well rooted because of realities in China. Some reactions could have been handled more effectively for a better image of China, provided that there were good preparations and deliberations. I then address the reliability of China's statistics on energy and GDP, an issue crucial to the reliability of China's carbon intensity commitments. Finally, I discuss flaws in current international climate negotiations and close with my suggestion that international climate negotiations need to focus on 2030 as the targeted date.

2. REFLECTIONS ON CHINA'S STANCE AND RESPONSES

Let me start with the widely reported episode of China rejecting unilateral greenhouse gas emissions cut by industrialized countries. In my view, this is one area that China could have handled more effectively in Copenhagen.

Miliband (2009) wrote in *The Guardian* that "We did not get an agreement on 50 per cent reductions in global emissions by 2050 or on 80 per cent reductions by developed countries. Both were vetoed by China, despite the support of a coalition of developed and the vast majority of developing countries". A furious Angela Merkel, German Chancellor, demanded that "Why can't we even mention our own targets?". Kevin Rudd, Australia's Prime Minister, was annoyed enough to bang his microphone. Brazil's representative also pointed out how illogical China's position was (Lynas 2009). Being asked in the early hours of 19 December 2009 why a pledge that applied only to rich nations and to which all those nations seemed to agree would have vanished from the final document, the point person for the Swedish government that was serving the EU

Presidency at that time gave the flat reply after the seconds of what-can-I-say silence: "China didn't like numbers." (The Economist 2010).

It is not so hard to understand why China rejected the aforementioned two numbers. Needing to cut both global greenhouse gas emissions by 50 percent and that of industrialized countries by 80 percent by 2050 means that emissions in developing countries are only allowed to increase by 15 percent by 2050 relative to their 1990 levels. Given their very low levels in 1990, China considers this unacceptable. There could be a misinterpretation here. Some may interpret that a 15 percent increase by 2050 would mean that the developing country's emissions are allowed to only increase by 15 percent in any specific year from now on to 2050. This is not correct. Emissions in developing countries can be much higher than the level allowed by a 15 percent increase prior to 2050 and then come down to that proposed allowable level by 2050. Indeed, under the 450 parts per million of CO_2 equivalent scenario, CO_2 emissions in China are projected to go from 2.2 $GtCO_2$ in 1990 and 6.1 $GtCO_2$ in 2007 to 8.4 $GtCO_2$ in 2020, while the corresponding figures for India are estimated to go from 0.6 $GtCO_2$ in 1990 and 1.3 $GtCO_2$ in 2007 to 1.9 $GtCO_2$ in 2020 (IEA 2009). Relative to their levels in 1990 and 2007, CO_2 emissions in 2020 increase by 282 percent and 37 percent for China and by 117 percent and 46 percent for India, respectively. More importantly, rejecting a long-standing, widely reported proposal without putting forward alternatives cast China in a very bad light. It led to the impression that rich countries should not even announce their unilateral cut, which was at least reported by the Western media.

As suggested in Zhang (2009c), China should insist on at least 80 percent emissions reduction by the developed countries, and in the meantime demand that per capita greenhouse gas emissions for all major countries by 2050 should be no more than the world's average at that time.

There are reasons that explain why China took a tough position at Copenhagen. First, China's CO_2 emissions have increased beyond expectations. The U.S. Energy Information Administration (EIA 2004) estimated that China's CO_2 emissions were not expected to catch up with the U.S., the world's largest carbon emitter until 2030. However, China's energy use has surged since the turn of this century, almost doubling between 2000 and 2007. Despite similar rates of economic growth, the rate of growth in

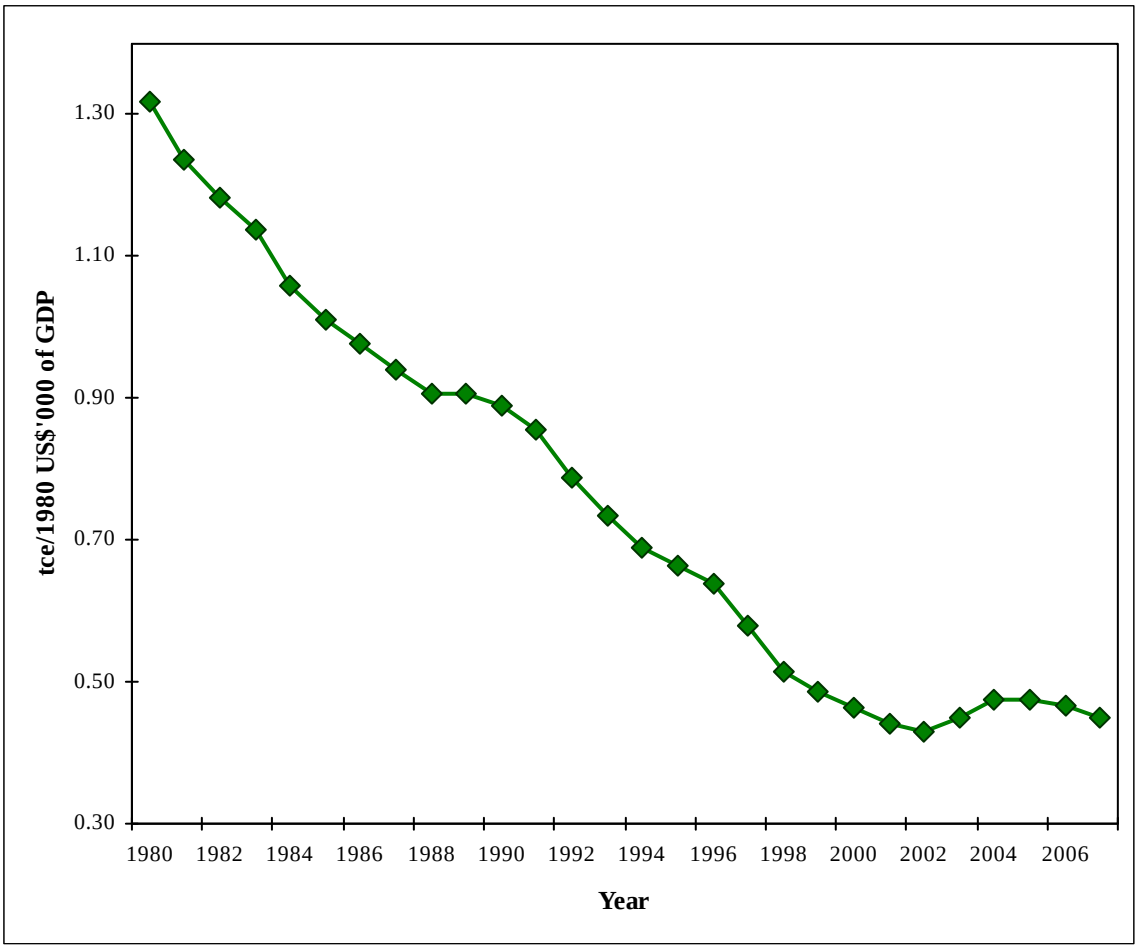
China's energy use during this period (9.74 percent per year) has been more than twice that of the last two decades in the past century (4.25 percent per year) (National Bureau of Statistics of China 2009). As a result, China became already the world's largest carbon emitter in 2007, instead of "until 2030" as estimated as late as 2004. This is partly because China failed to keep the expansion of inefficient and highly polluting industries under control and to implement its own industrial restructuring and sustainable development policies, and but because China is still on a course of rapid industrialization and urbanization. This in turn requires the consumption of energy to produce energy-intensive steels, cement, glasses etc for cars, buildings, houses and public infrastructure because China as a large country can not depend entirely on imports as a small country can do. Moreover, small and medium-sized enterprises (SMEs) are key to employment for each country. This is particularly important for China to address its employment issues and the maintenance of social stability, because of its huge surplus labor force in the world's most populous country and its not well developed social safety net. SMEs in China employ 80 percent of the total working population and produce 60 percent of the economic output. They have served as a driving force for China's economic success over the past three decades. Largely dictated by the current level of development in China, however, these SMEs use much more, sometimes even more than 100 percent energy to produce the same unit of output as their state-owned, large and modern counterparts.

While China should take the main responsibilities for this, the U.S. had also played a role here. At Kyoto, the U.S. had made legally binding greenhouse gas emissions commitments. The Kyoto target was seen as not high enough but yet not unreasonable given that the U.S. economy would not be disrupted unreasonably. This might provide the U.S. some "moral" grounds on which to argue that developing countries should take meaningful mitigation action (Zhang 2000). The U.S. commitments at Kyoto and the diplomatic and public pressure on China put China in a very uncomfortable position. It looked like China would be pressured to take on commitments at much earlier date than what China wished (Zhang 2009a).

This situation changed once the U.S. withdrew from the Kyoto Protocol. The U.S. withdrawal from the Kyoto Protocol in 2001 not only led current U.S. emissions to be well above their 1990 levels but the world also lost eight years of concerted efforts

towards climate change mitigation and adaptation, and it also removed international pressure on China to take climate change mitigation actions at a time when the Chinese economy was growing rapidly. Coincidentally, beginning 2002 that China reversed a declining trend in its energy intensity experienced over the last two decades in the past century, experiencing faster energy consumption growth than economic growth (see Figure 1). It would be inappropriate to blame this on the U.S., but if the U.S. did not withdraw from the Kyoto Protocol, for its own concerns for competiveness the U.S. would have kept pressuring on China as it did immediately after Kyoto and is doing again, China would be constantly alert about its greenhouse gas emissions. As a result, China's actual greenhouse gas emissions would be much lower than their current levels.

Figure 1 Energy use per unit of GDP in China, 1990-2007 (tons of coal equivalent per US$ 1000 in 1980 prices)
Source: Drawn based on *China Statistical Yearbook*, various years.



Adding the rapidly growing CO_2 emissions, China has realized increasing difficulty in controlling its CO_2 emissions. China has incorporated for the first time in its five-year economic plan an input indicator as a constraint – requiring that energy use per unit of GDP cut by 20 percent during the five-year period running from 2006 to 2010 (namely, 4.4 percent cut per year). Clearly, the Chinese government was not aware of how difficult meeting this energy saving target would be at the time the plan was set, because China cut its energy use per unit of GDP by about three quarters between 1980 and 2000 (Zhang, 2003). The Chinese government may have thought that this trend of the 1980s and the 1990s would continue.

However, in 2006, the first year of this energy efficiency drive, while China reversed a rise in its energy intensity in the first half of that year, the energy intensity only declined by 1.79 percent over the entire year. Although this decline is a first since

2003, it was far short of the targeted 4 percent. Among the 31 Chinese provinces or equivalent, only Beijing met that energy-saving goal in 2006, cutting its energy use per unit of GDP by 5.25 percent, followed by Tianjin with the energy intensity reduction of 3.98 percent, Shanghai by 3.71 percent, Zhejiang by 3.52 percent and Jiangsu by 3.50 percent (NBS et al. 2007).[3] In 2007, despite concerted efforts towards energy saving, the country cut its energy intensity by 4.04 percent (NBS et al. 2009). There are still big variations in energy-saving performance among the 31 Chinese provinces or equivalent. Beijing still took the lead, cutting its energy intensity by 6 percent, followed by Tianjin by 4.9 percent and Shanghai by 4.66 percent (NBS et al., 2008). This clearly indicated Beijing's commitments to the 2008 Green Olympic Games. In the meantime, however, there were seven provinces whose energy-saving performances were below the national average. 2008 was the first year in which China exceeded the overall annualized target (4.4 percent) for energy saving, cutting its energy intensity by 4.59 percent (NBS et al. 2009) or 5.2 percent if the upward GDP revision was factored into consideration. This was due partly to the economic crisis that reduced the overall demand, in particular the demand for energy-intensive products. Overall, China's energy intensity was cut by 10.1 percent in the first three years of the plan relative to its 2005 levels. This suggests that the country needs to achieve almost the same overall performance in the remaining two years as it did in the first three years in order to meet that national energy intensity target. It will certainly not be easy to achieve that goal.

These reductions in China's energy intensity have already factored in the revisions of China's official GDP data from the second nationwide economic census, part of the government's continuing efforts to improve the quality of its statistics, whose accuracy has been questioned by both the general public inside of China and many analysts both inside and outside of China. Such revisions show that China's economy grew faster and shifted more towards services than the previously estimated, thus benefiting the energy intensity indicator. Even so, it is still not easy for China to achieve its own set energy-saving goal. If there were no upward revisions of GDP data, it would

[3] Beijing is the first provincial region in China to establish in 2006 the bulletin system to release data on energy use and water use per unit of GDP, quarterly releasing these and other indicators by county. See Zhang (2007b,c) for detailed discussion on why Beijing met but the country missed the energy-saving goals.

be impossible at all to meet that target. I will return to the statistical issues later when taking about verification, the issue that is of greatest concern to the U.S. and other industrialized countries at Copenhagen.

Thirdly, there are profound implications of government decentralization. Over the past three decades, China has decentralized with respect to allocation and responsibility and has shifted control over resources and decision-making to local governments. This devolution of decision-making to local levels has placed environmental stewardship in the hands of local officials who typically are more concerned with economic growth than the environment (Zhang 2007a and 2008). As is often the case, what the center wants is not necessarily what the center gets, as in the old Chinese saying, "The mountains are high, and the emperor is far away".

In addition to the distorted evaluation criterion for officials on which local officials typically have been promoted based on how fast they expand their local economies, objectively speaking, the current fiscal system in China plays a part in driving local governments to seek higher GDP growth at the expense of the environment. This is because that tax-sharing system makes it hard to reconcile the interests of the central and local governments (Zhang 2008 and 2009b). Since the tax-sharing system was adopted in China in 1994, taxes are grouped into taxes collected by the central government, taxes collected by local governments, and taxes shared between the central and local governments. All those taxes that have steady sources and broad bases and are easily collected, such as the consumption tax, tariffs, vehicle purchase tax, are assigned to the central government. VAT and income tax are split between the central and local governments, with 75 percent of VAT and 60 percent of income tax going to the central government. As a result, the central government revenue increased by 200 percent in 1994 relative to its 1993 level. This led the share of the central government in the total government revenue to go up to 55.7 percent in 1994 from 22.0 percent in the previous year (see Table 1). In the meantime, the share of the central government in the total government expenditure just rose by 2 percent. By 2008, local governments only accounted for 46.7 percent of the total government revenue, but their expenditure accounted for 78.7 percent of the total government expenditure in China. To enable to pay their expenditure for culture and education, supporting agricultural production, social

security subsidiary, etc., local governments have little choice but to focus on local development and GDP. That will in turn enable them to enlarge their tax revenue by collecting urban maintenance and development tax, contract tax, arable land occupation tax, urban land use tax, etc.

Table 1 Shares of the central and local governments in the total government revenue and expenditure in China, 1993-2008

	Government revenue		Government expenditure	
	Central Government (%)	Local Governments (%)	Central Government (%)	Local Governments (%)
1993	**22.0**	**78.0**	**28.3**	**71.7**
1994	**55.7**	**44.3**	**30.3**	**69.7**
1995	52.2	47.8	29.2	70.8
1996	49.4	50.6	27.1	72.9
1997	48.9	51.1	27.4	72.6
1998	49.5	50.5	28.9	71.1
1999	51.1	48.9	31.5	68.5
2000	52.2	47.8	34.7	65.3
2001	52.4	47.6	30.5	69.5
2002	55.0	45.0	30.7	69.3
2003	54.6	45.4	30.1	69.9
2004	54.9	45.1	27.7	72.3
2005	52.3	47.7	25.9	74.1
2006	52.8	47.2	24.7	75.3
2007	54.1	45.9	23.0	77.0
2008	53.3	46.7	21.3	78.7

Source: National Bureau of Statistics of China (2009).

The factors described are far from comprehensive, but they are sufficient enough to illustrate great challenges ahead for China and constraints on its development and climate commitments. Of course, the above discussion does not justify no further action by China. Rather, given the fact that China is already the world's largest carbon emitter and its emissions will continue to rise rapidly as it is approaching becoming the world's largest economy, China is seen to have greater capacity, capability and responsibility. The country is facing great pressure both inside and outside international climate negotiations to exhibit greater ambition in limiting its greenhouse gas emissions. Moreover, China will continue to be confronted with the threats of trade measures, as long as it does not signal well ahead the time when it will take on the emissions caps (Zhang 2009c,d).

Indeed, there are many things that China can do to reduce its own carbon footprint. To that end, just prior to the Copenhagen climate summit, China pledged to cut its carbon intensity by 40-45 percent by 2020 relative its 2005 level. A lot of discussion has since focused on whether such a pledge is ambitious or just represents business as usual. China considers it very ambitious, whereas Western scholars view it just business as usual. Objectively speaking, it is somewhere in between. It would not be seen as ambitious as China argues. Zhang (2009c) suggests that China should aim a 45-50 percent cut in its carbon intensity over the period 2006-2020. But it is certainly not just representing business as usual. Based on the National Development and Reform Commission, China's top economic planning agency, China had cut its energy intensity by 14.38 percent in the first four years (2006-2009) of the 11th five-year plan relative to its 2005 levels. As discussed above, it has been challenging for China to have achieved this to date, and China is facing great difficulty meeting its own set 20 percent energy-saving goal by 2010. The new carbon intensity target set for 2020 requires additional 20-25 percent on top of the existing target. It poses an additional challenge for China. But for me, while the level of China's commitments is crucial in affecting the level and ambition of commitments from other countries, most important is whether the claimed carbon emissions reductions are real. This raises reliability issues concerning China's statistics on energy and GDP.

3. MEETING CHINA'S CARBON INTENSITY: THE RELIABILITY ISSUE OF CHINA'S STATISTICS ON ENERGY AND GDP

China is not known for the reliability of its statistics (e.g., Rawski 2001). China's refusal to budge on U.S. and other industrialized country's demands for greater transparency and checks at Copenhagen was cited by negotiator after negotiator as a key block to reaching a deal. As long as China's pledges are in the form of carbon intensity, the reliability of both emissions and GDP data matters.

Assuming the fixed CO_2 emissions coefficients that convert consumption of fossil fuels into CO_2 emissions, the reliability of emissions data depends very much on energy consumption data. Unlike the energy data in the industrial product tables in the *China Statistical Yearbook*, the statistics on the primary energy production and consumption are usually revised in the year after their first appearance. As would be expected, the adjustments made to production statistics are far smaller than those made to consumption statistics, because it is usually easier to collect information on a small number of energy producers than a large number of energy consumers. Table 2 shows the preliminary and final values for total primary energy consumption and coal consumption in China between 1990 and 2008. Until 1996 revisions of total energy use figures were several times smaller than in the late 1990s and early 2000s. The preliminary figures for total energy use in 1999-2001 were revised upwards by 8-10 percent. In all three years, these adjustments were driven by the upward revisions of 8-13 percent made to the coal consumption figures to reflect the unreported coal production mainly from small, inefficient and highly polluting coal mines that were ordered to shut down through a widely-publicized nationwide campaign beginning in 1998 but many of which had reopened because in many cases localities had backtracked to preserve local jobs and generate tax revenues as well as personal payoffs. In recent years, preliminary figures for energy use are almost the same as the final reported ones.

Table 2 Preliminary and final values for total primary *energy consumption and coal consumption in China, 1990-2008*

Year	Total primary energy consumption			Total coal consumption		
	Preliminary value (Mtce)	Final value (Mtce)	Adjustment (%)	Preliminary value (Mtce)	Final value (Mtce)	Adjustment (%)
1990	980.00	987.03	0.7	740.88	752.12	1.5
1991	1023.00	1037.83	1.4	777.48	789.79	1.6
1992	1089.00	1091.70	0.2	815.66	826.42	1.3
1993	1117.68	1159.93	3.8	813.67	866.47	6.5
1994	1227.37	1227.37	0.0	920.53	920.53	0.0
1995	1290.00	1311.76	1.7	967.50	978.57	1.1
1996	1388.11	1389.48	0.1	1041.08	1037.94	-0.3
1997	1420.00	1377.98	-3.0	1043.70	988.01	-5.3
1998	1360.00	1322.14	-2.8	973.76	920.21	-5.5
1999	1220.00	1338.31	9.7	818.62	924.77	13.0
2000	1280.00	1385.53	8.2	857.60	939.39	9.5
2001	1320.00	1431.99	8.5	884.40	955.14	8.0
2002	1480.00	1517.97	2.6	978.28	1006.41	2.9
2003	1678.00	1749.90	4.3	1125.94	1196.93	6.3
2004	1970.00	2032.27	3.2	1333.69	1381.94	3.6
2005	2233.19	2246.82	0.6	1538.67	1552.55	0.9
2006	2462.70	2462.70	0.0	1709.11	1709.11	0.0
2007	2655.83	2655.83	0.0	1845.80	1845.80	0.0
2008	2850.00*			1957.95*		

Notes: Mtce (million tons of coal equivalent).

* Data on energy and coal consumption in 2008 are preliminary value.

Source: Based on *China Statistical Yearbook*, various years.

Similarly, China first releases its preliminary GDP figures and then revises them. These revised GDP figures for the years 2005-2008 are further verified based on the second agricultural census released in February 2008 and the second nationwide economic census released in December 2009. With upward revisions of both GDP and the share of services, there is a wide variation between the preliminary value for China's energy intensity and the final reported one. As shown in Table 3, such revisions lead to a differential between preliminary and final values as large as 45.5 percent for the energy intensity in 2006. With the government's continuing efforts to improve the quality of China's statistics, there is a downward trend of such a differential as a result of the revisions.

Table 3 A reduction in China's energy intensity: preliminary value versus final value[a]

Year	Preliminary value (%)	Revised value (%)	Final value (%)	Differential between preliminary and final values (%)
2006	1.23 (March 2007)	1.33 (12 July 2007)	1.79 (14 July 2008)	**45.5**
2007	3.27 (March 2008)	3.66 (14 July 2008)	4.04 (30 June 2009)	**23.5**
2008	4.59 (June 30, 2009)	5.2[b] (25 December 2009)		**13.3**
2009	3.98[c] (March 2010)			

Notes: [a] The dates when the corresponding data were released are in parentheses.

[b] Based on China's revised 2008 GDP from the second nationwide economic census, which raised the growth rate of GDP to 9.6 percent from the previously reported 9 percent for that year and the share of services in GDP.

[c] Own calculation based on the National Development and Reform Commission's reporting that China's energy intensity was cut by 14.38 percent in the first four years of the 11th five-year plan relative to its 2005 levels.

From the preceding discussion, it thus follows that GDP figures are even more crucial to the impacts on the energy or carbon intensity than energy consumption and emissions data. At Copenhagen, China eventually compromised to agree to open emission data to international consultation and analysis. The EU has identified building a robust and transparent emissions and performance accounting framework as a key element of implementing the Copenhagen Accord (European Commission 2010). How all this will be worked out remains to be seen. China has not agreed on opening its GDP figures to international consultation and analysis. But as long as China's commitments are in the form of carbon intensity, establishing a robust and transparent emissions and performance accounting framework is helpful, but not enough to remove international concern about the reliability of China's commitments. The aforementioned revisions of China's GDP figures reflect part of the government's continuing efforts to improve the accuracy and reliability of China's statistics on economic activity. They have nothing to do with the energy intensity indicator, and are certainly not calculated to make that indicator look good to the government's advantage, although practically they benefit the energy intensity indicator. But such revisions have huge implications for meeting China's existing energy-saving goal in 2010 and its proposed carbon intensity target in 2020.

4. A WAY FORWARD

Now let us see how to go from here. For me, the U.S. Congress passing a climate bill to cap U.S. greenhouse gas emissions has more impact on the future levels of greenhouse gas emissions than China's current stance. As long as commitments from the world's two largest greenhouse gas emitters differ in form, the U.S. Senate seems unlikely to pass a bill to cap its emissions without imposing strict carbon tariffs, and China is constantly confronted with the threats of trade measures whenever the U.S. Senate is shaping its climate bill (Zhang 2009d).

This dilemma is partly attributed to flaws in current international climate negotiations, which have been focused on commitments on the two targeted dates: 2020 and 2050 (Zhang 2009d). However, with the commitment period only up to 2020, there is a very little room left for the U.S. and China, although for reasons very different from each other.

The Intergovernmental Panel on Climate Change (IPCC) calls for cutting global greenhouse gas emissions at least in half by 2050. To achieve that goal, the IPCC fourth assessment report recommends that global greenhouse gas emissions should peak by 2020 at the latest and then turn downward in order to avoid dangerous climate change consequences, calling for developed countries to cut their greenhouse gas emissions by 25-40 percent by 2020 relative to their 1990 levels. This recommendation was incorporated into the Bali Roadmap at the United Nations Climate Summit in 2007. This seems a logical choice. Once the long-term goal (namely target for 2050) is set, one needs a mid-term goal to help facilitate the long-term one. From then, the negotiations on industrialized countries' commitments have been on what emissions reduction targets would be in 2020. However, the problem with this date is that it does not accommodate well the world's two largest greenhouse gas emitters, namely the U.S. and China. Because the U.S. withdrew from the Kyoto Protocol, it has not made any substantial preparations to cut emissions as other Kyoto-constrained industrialized countries have done over the past decade. Whether you like it or not, this is a political reality. It is very hard for a unprepared country like the U.S. to take on a substantial emissions cut in 2020 as developing countries have demanded.

In the meantime, China overtook the U.S. to become the world's largest greenhouse gas emitter in 2007, at least twenty years earlier than what was estimated as late as 2004. IEA (2009) estimates that about half of the growth of global energy-related CO_2 emissions until 2030 will come from China. Combined with huge trade deficit with China, the U.S. has pushed for China to take on emissions caps as early as 2020. Otherwise, the goods from China to U.S. markets will be subject to carbon tariffs. However, as argued in Zhang (2009c,d), the year 2020 is not a realistic date for China to take the absolute emissions cap.

Meanwhile, taking on something for 2050 seems too far away for politicians. In my view, if the commitment period were extended to 2030, it would really open up the possibility for the U.S. and China to make the commitments that each wants from the other in the same form, although the scale of reductions would differ from each other. By 2030, the U.S. will be able to commit to much deeper emission cuts that China and other developing countries have demanded, while, as argued in Zhang (2009c,d), China would have approached the threshold to take on the absolute emission cap that the U.S. and other industrialized countries have long asked for. Being aware of his proposed provisional target in 2020 well below what is internationally expected from the U.S., President Obama announced a provisional target of a 42 percent reduction below 2005 levels in 2030 to demonstrate the U.S. continuing commitments and leadership to find a global solution to the threat of climate change. While the U.S. proposed level of emission reductions for 2030 is still not ambitious enough, President Obama inadvertently points to the right direction of international climate negotiations. They need to look at the targeted date of 2030. If international negotiations could lead to much deeper emission cuts for developed countries as well as the absolute emission caps for major developing countries in 2030, that would significantly reduce the legitimacy of the U.S. proposed carbon tariffs and, if implemented, their prospect for withstanding a challenge before WTO. That will also alleviate concern about when China's greenhouse gas emissions peak and what China is going to do in what format.

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