

# CLIMATE POLICIES AFTER COPENHAGEN

## CONTENT

Strategic culture, power balances and the analysis of geopolitical shifts are a long-standing Chinese obsession. Academic institutions, think-tanks, journals and web-based debate are growing in number and quality. They work to give China's foreign policies breadth and depth.

China Analysis introduces European audiences to the debates inside China's expert and think-tank world, and helps the European policy community understand how China's leadership thinks about domestic and foreign policy issues. While freedom of expression and information remain restricted in China's media, these published sources and debates are the only available access we have to understand emerging trends within China.

China Analysis mainly draws on Chinese mainland sources, but also monitors content in Chinese-language publications from Hong Kong and Taiwan. Reports from Hong Kong and Taiwan reflect the diversity of Chinese thinking, with occasional news and analysis unpublished in the mainland.

Each issue of China Analysis in English is focused on a specific theme, and presents policy debates which are relevant to Europeans. It is available at [www.ecfr.eu](http://www.ecfr.eu). A French version of China Analysis exists since 2005 and can be accessed at [www.centreasia.org](http://www.centreasia.org).

### Introduction by Francois Godement

#### *Does China have a real climate change policy?*

The outcome of the Copenhagen Climate Conference sent shock waves around the world. China seemed to be responsible for the failure to agree legally binding and genuine caps on emission levels. But the exceptional disarray in which the conference fell, including unprepared group meetings among heads of governments, was both a bane as well as a gift for China's representatives. After all, if there is one thing that is certain about China's leadership style, it is that informality and improvisation are not well received and are not likely to provoke new decisions. At one point, Wen Jiabao was represented by a rather rigid vice-minister. But this may have been as much the result of some embarrassment as a decision to snub world leaders.

China had demonstrated supreme skill in the lead-up to the conference. It teamed up with India to resist pressure from the old industrialized countries and then announced its own plan to reduce, or rather slow the rise of, carbon emissions. If there was any doubt that China can say no, Copenhagen removed it. But then China lost the public diplomacy battle – at least in the short term. It failed to bring island and maritime states with low shore lines with it and thus, perhaps inevitably, created division among developing countries. But by opposing any binding commitment by the industrialised countries

themselves, it also contradicted its own previously stated demand that developed countries take decisive action first.

Yet China was far from alone in this stand. In fact, the BRIC countries formed a real coalition and, encouraged by the complete lack of common action by the industrialised countries before the conference, were also joined by many other countries. Japan made a credible commitment, and Europe a not-so-credible commitment, to stringent new limits on emissions. But whether because of its traditional reluctance to sign internationally binding legal arguments, or because of a fear of opposition to those standards in Congress, the United States was on a different wavelength. China showed in Copenhagen that it was the biggest mover on climate change – except, of course, that it did not want to move. Since then, the momentum behind action on climate change has dissipated.

However, this is not the end of the story. China has caught on to the economic opportunities of reducing emissions and is also alert to the possibility of a negative impact on its foreign trade of measures taken elsewhere. This issue of China Analysis illustrates how industrial and social thinking is taking place in China alongside the worst environmental situation one can imagine. It also shows a China that is miles ahead of Europeans in its thinking about a carbon tax. Whereas the EU has not come up with a proposal for a carbon tax that is commensurate with the size of its unified market and consistent with WTO rules, China is ready to roll out its own carbon tax in order to keep the revenues resulting from such a tax to itself. It would of course be good if China did impose such a tax, which would create an incentive for Chinese companies to reduce their emissions.

To Europeans, the message should be clear. Although the top down approach – in other words, regulating and legislating – is suited to setting a framework for reducing emissions within Europe, it will not work beyond Europe's borders. The UN system is too weak to create effective international energy and emission control policies. China is not so different from the US, which simultaneously produces advanced alternative technologies and the insane oil consumption policies that have led to the oil spill in the Gulf of Mexico. Europeans should continue their fight for better international standards. But they should also pay much more attention to the implications of the emerging new Chinese environmental technology sector for Europe's trade relationship with China. Otherwise, from wind to hydro and solar energy to batteries, the future could belong to China as it already does for mobile phones.

## 1. Lessons for China from the Copenhagen Summit

by Anne Rulliat

Sources:

Xin Benjian, "The test of strength of international policy behind the Copenhagen Agreement", *Hongqi wengao*, 9 February 2010.

He Jingjun, "Lessons from the Copenhagen summit for the world and for China", *Lianzheng liaowang*, 13 January 2010.

Two months after the disappointing conclusion of the Copenhagen summit, Chinese columnists continue to focus on questions of climate change. The two articles explored in this commentary by He Jingjun<sup>1</sup> and Xin Benjian<sup>2</sup> are representative of the general tone of the Chinese press. They both relegate the substantive issues in the climate change debate to the background. They are more concerned with analysing the reasons for the summit's failure and interpreting this failure in terms of the issues at stake in international relations, and elaborate on the implications for Chinese domestic policy. They draw lessons from the summit's outcomes and at the same time attempt to justify the Chinese position.

From a Chinese point of view, the climate change negotiations failed because of the actions and attitudes of the West. While both writers think China could have improved its media strategy, neither questions the basic Chinese position at the summit. They criticise the industrialised countries and in particular the European Union for politicising the climate change negotiations and thus dooming them to failure. They say that, while the EU initially played a pivotal role in setting targets for reducing greenhouse gas emissions, it is now less willing to show leadership in the climate change debate because of its fear of competition from emerging countries and the pressure of conservative policies within the EU.

Both writers believe the summit failed because of the divisions that appeared during the negotiations. Xin Benjian particularly regrets the split among the developing countries: he argues that the developed countries manipulated (操纵, *caozong*) developing countries during the negotiations, for instance by mobilising island nations threatened by the rise in sea level in order to promote the target of limiting temperature rises to 1.5°C rather than 2°C. Furthermore, according to the Chinese view, the way Western countries proposed to distribute funding between

small island nations, poor countries, emerging countries and less developed countries created rivalries between countries in various stages of development and thus divided them.

The writers see the West as irresponsible and condescending towards the developing world. Thus in Xin Benjian's view, the discussions on technology transfers to the developing countries remained too vague. The developed countries "kept harping on about the same thing" (老调重弹, *laodiao chongtan*), for example, protection of intellectual property rights, which was used as an argument for refusing to provide their technologies to the developing countries. Both authors believe that Western countries see assistance to developing countries not as a duty (义务, *yiwu*) but as a favour (恩赐, *enci*).

Both writers see an unacceptable discrepancy between the targets imposed on the different parties to the negotiations: the developed countries required the developing countries to commit to limiting their greenhouse gas emissions but refused to be bound by targets themselves. They say that

China needs to improve its negotiation technique (谈判技巧, *tanpan jiqiao*) and the way it puts forward its positions.

while the United States will not sign up to binding targets, it wants to make financial aid to developing countries conditional on

verifiable success in meeting emissions reduction targets – a double standard that seems irrational to them. Xin Benjian also comments that the proposal by the developed countries to reduce global emissions by 50% by 2050 is tantamount to bringing the constraints on developing countries into line with those of the developed countries. However, in accusing the developed countries of double standards on binding targets, Xin Benjian forgets that, during the final negotiation, China opposed the proposal that Annex 1 countries like the US and the EU countries commit to their own long-term targets in the agreement.

The writers argue that a final cause of the summit's failure was the refusal by the developed countries to discuss medium-term emissions reduction targets. Xin Benjian says he is astonished that developed countries are seeking to establish targets for 2050. In fact, he says, they would be better advised to meet their commitments under the Kyoto Protocol for 2008-2013 or to discuss the period beyond 2013. This perceived lack of logic leads Xin Benjian to question the honesty of the developed countries.

Without disputing China's basic position at the summit, both authors suggest that some lessons can be drawn from the way in which the negotiations proceeded. Firstly, they say China needs to improve its negotiation technique (谈判技巧, *tanpan jiqiao*) and the way it puts forward its positions.

1 A prolific columnist, He Jingjun (和静钧) publishes articles on international relations in many journals. He does not have a university position but holds office in local political bodies (Chongqing). He maintains a blog at <http://blog.sina.com.cn/hejingjunshiyu>.

2 A columnist from the *People's Daily* agency, Xin Benjian (辛本健) writes on international relations. He blogged on the Copenhagen summit at <http://xbjcop15.blog.163.com>.

This is a point that had already been made by other Chinese commentators in the months leading up to the summit. In particular, Chinese researchers encouraged their government to make proposals of its own on climate change rather than simply reacting to proposals put forward by others<sup>3</sup>.

Secondly, they say China needs to improve its image in the West. In He Jingjun's view, the Western press unjustly neglected China's contribution. An "indifferent agreement" (聊胜于无的协议, *liaosheng yuwu*)<sup>4</sup> was reached at Copenhagen thanks mainly to "the Chinese delegation and the international community". But instead of praising the Chinese, the western media criticised them. British newspapers, for example, claimed that "China Hijacked Copenhagen Climate Deal"<sup>5</sup>. Some foreign media even accused the Chinese of weakness – the German press, for example, said that China "fell into the trap set by the Western countries". China went to the Copenhagen summit thinking it would play the role of the "good guy" (好人, *haoren*), but as the largest emitter of greenhouse gases and a polluting country, it left Copenhagen looking like a "bad guy" (恶人, *eren*).

He Jingjun argues that the Western media treated India differently even though, like China, it argued against restrictive targets on emissions. In his view, the Indian government successfully aroused the compassion (同情, *tongqing*) of the international community and thus got a better response during the negotiations. He says India was able to play the card of *per capita* emissions quotas (打“人均”牌, *da "renjun" pai*) to challenge its designation as a major emitting country and could also claim a "development entitlement" because one-third of its population is very poor. China could have used similar arguments but did not do so and instead "stumbled" (栽跟头, *zaigentou*) over more technical matters such as measures to monitor commitments and transparency. He also admits, however, that since the Indian system of government is more democratic than the Chinese system, Western observers may be more inclined to be sympathetic to Indian viewpoints.

Xin Benjian says that climate change experts should in future be mobilised to explain the Chinese government's action to foreign governments and the media. In particular, describing China's efforts to reduce greenhouse gas emissions and the sacrifices that these efforts require could help to create a more positive perception of the country. Given that climate change has become a key issue in international relations, the image of China in the international community will depend in large part on its success or failure in generating sympathy for its position.

3 See for example Zhang Haibin's contribution to Yang Jiemian, *Shijie Qihou Waijiao he Zhongguo de Yingdui, Global Climate Change Diplomacy and China's Policy*, (Shishi Chubanshe, Shishi Press, 2009).

4 Literally: "better than nothing".

5 The headline "China Hijacked Copenhagen Climate Deal", which did the rounds of the British press, is in fact a quote from Ed Miliband, UK Minister for Climate Change.

Both commentators believe that China's influence was particularly weakened by the split that occurred within the group of developing countries. Before the beginning of the summit, China tended to regard itself as their spokesperson, or at the least believed it shared the same concerns. Both commentators say Beijing must now reconsider the terms of South-South cooperation in general and its relationship with developing countries in particular.

Xin Benjian notes that China will have to find a means of alleviating (化解, *huajie*) the dual pressure to which it will inevitably be subject following the agreement reached in Copenhagen. China is now "caught between the pincers" of developed and developing countries. On the one hand, the EU and Japan wanted to align their medium-term emissions reduction targets with the commitments made by India and China. The United States is also making its financial assistance and its final targets conditional on the acceptance of international monitoring measures. On the other hand, the developing countries were hoping to obtain significant financial assistance from the developed countries. China is under increasing pressure from both.

Xin says that China's mobilisation of the developing countries ahead of the next round of talks is designed primarily to harmonise the positions held by the BASIC countries<sup>6</sup> (基础四国, *jichu siguo*), the G-77 and the island nations. If it is able to obtain the support and cooperation of all these blocs, it will be possible to put pressure on the developed countries while alleviating the pressure on China. China could then unite the BASIC and G-77 countries around a common position based on voluntary reduction of emissions for the developing countries and rejection of any international monitoring.

Going beyond the international negotiations, the two commentators recognise that climate change is an issue that is critical to China's domestic political situation. In particular, the transition to a low carbon economy will be a difficult test for China. He Jingjun refers to Anthony Giddens, who has recently argued that voluntary action on climate change is more effective than international agreements<sup>7</sup>. Basing his argument on this claim, He Jingjun tries to demonstrate that the Chinese government is already setting its own binding targets on greenhouse gas emissions and is incorporating them into its economic development plans, which call for a 45 per cent reduction in carbon intensity between 2005 and 2020. In He's view, the Chinese government's actions demonstrate that it is as determined as the international community is to address the problem of climate change.

6 BASIC is the acronym for Brazil, South Africa, India, and China. This informal group of countries established itself around China during the Copenhagen summit. The agreement obtained in Copenhagen was finalised during a meeting between the BASIC countries and the United States.

7 Anthony Giddens, *The Politics of Climate Change*, (Polity Press, 2009).

However, He says, the Chinese government must continue to prioritise development, economic growth and social stability. If China's growth were to slow, over-ambitious targets on greenhouse gas emissions could become a burden and even lead to a humanitarian catastrophe (人道主义灾难, *rendaozhuyi zainan*). He therefore proposes a cautious approach on climate change. The sudden closure of coal-fired power stations and other polluting industries such as cement works would cause unemployment and significant financial losses. The challenge for the Chinese government is therefore to gradually restructure the economy by moving the labour force towards low-carbon industries and creating jobs in the clean energy sector. These two commentaries on the Copenhagen summit suggest that China is not about to sacrifice economic development and growth in order to enter into binding international commitments.

## 2. Carbon tax: an appraisal of the debate

by Thomas Vendryes

Sources:

Xiong Jianfeng<sup>8</sup>, "Specialist controversy over the carbon tax: can China bear this burden?" *Diyi caijing ribao – China Business News*, 16 October 2009.

Tan Yao<sup>9</sup>, "What carbon tax system should China implement?" *Zhongguo jingji bao*, 27 October 2009.

Fan Gan<sup>10</sup>, Liu Chunyan<sup>11</sup>, Sun Lijian<sup>12</sup>, "The time has come for China to tax carbon", *Guoji jinrong bao* no. 8, 13 October 2009.

Carbon tax research team of the Research Institute for Fiscal Science, "The possibility of implementing a carbon tax in China", *21 Shiji jingji baodao*, 16 July 2009.

China has been the world's top producer of greenhouse gases since 2007, and state representatives and intellectuals agree that action must be taken to reduce the country's emissions (减排, *jianpai*). In 2009, as China prepared for the UN conference on climate change in Copenhagen, researchers and members of the Ministries of Finance and Environmental Protection began to assess the need, feasibility and potential methods for implementing a carbon tax (碳税, *tanshui*).

The major motivation behind China's determination to reduce emissions is not concern about climate change and the environment but regard for international pressure. Tan Yao believes that for China to be seen as a "responsible member of the international community" (负责的国际社会的成员, *fuze de guoji shehui de chengyuan*), it must share the burden of combating greenhouse gas emissions. Unilateral implementation of a carbon tax would enhance China's status in international negotiations on global warming and strengthen the country's credibility on the world stage.

Xiong Jianfeng, Tan Yao, Fan Gan, and Liu Chunyan imply that China's main incentive to introduce a carbon tax is the threat that the United States and other Western countries will put in place a "border carbon tax" (碳关税, *tan guanshui*). The World Trade Organisation (WTO) has endorsed this policy in principle. However, even if importing countries could introduce heavier customs duties on goods from countries where environmental restrictions are less strict, China has agreements with most Western countries prohibiting double taxation (双重征税, *shuangchong zhengshui*). So, by taxing its own carbon, China hopes to prevent its main trade partners

<sup>8</sup> Xiong Jianfeng is a journalist.

<sup>9</sup> Tan Yao is a member of the working group on global warming and the clean development mechanism, within the Centre for International Relations of the Ministry for Environmental Protection.

<sup>10</sup> Fan Gan is an economist and professor at the Chinese Academy of Social Sciences (CASS).

<sup>11</sup> Liu Chunyan is a professor in the Faculty of Law at Tongji University (Shanghai).

<sup>12</sup> Sun Lijian is Professor of Finance at Fudan University (Shanghai).

from doing it themselves: as Fan Gan says, China must be ready to strike first in order to prevail (先下手为强, *xian xiashou wei qiang*). Environmental diplomacy has thus clearly overtaken environmentalist considerations.

Stakeholders think that a carbon tax should be implemented quickly, with an initially low tax base and rate to be increased over time. The Carbon tax research team at the Research Institute for Fiscal Science stresses the necessity of introducing the carbon tax gradually, so that the economy can adjust without too many jolts. The team recommends setting the tax at 10 yuan per tonne of carbon at first, from as early as 2012-2013, with a view to increasing it progressively after that consistent with the country's level of development. The Institute's final report, as analysed by Xiong Jianfeng, advocates implementing the tax from 2010, at a total rate

Unilateral implementation of a carbon tax would enhance China's status in international negotiations on global warning.

of between 20 and 100 yuan per tonne, with the target of doubling by 2030. By comparison, according to Xiong Jianfeng, the price of a tonne of CO<sub>2</sub> on the Chinese carbon credit market is around US\$6 (40 yuan) within the framework of the Clean Development Mechanism (CDM) of the Kyoto Protocol. One tonne of carbon could be exchanged for about €10 (around 90 yuan) on the EU's pollution rights market at the beginning of 2010. In Sweden, the tax on one tonne of carbon is €27, or around 245 yuan.

Experts are still debating the consequences for the Chinese economy of introducing a carbon tax. Xiong Jianfeng agrees with the optimistic assessment of the Research Institute for Fiscal Science, which thinks that even at the highest rate proposed – 100 yuan per tonne – the cost of the tax should not exceed 0.5% of GDP, and will have significant benefits, like the redirection of investments in the energy sector towards emerging industries. The Institute thinks that the tax should have few negative effects because it is intended, like its equivalents in Europe, to affect pricing structure rather than revenue, increasing the price of carbon without impoverishing economic actors. Commentators are calling for the tax revenue to be redistributed in one form or another – although, as Tan Yao points out, the choice of where to deploy the money will be politically difficult. It could be used directly by the state in the form of public investment, as Xiong Jianfeng observes, or it could be used to alleviate the tax pressures on households and businesses by targeting the most disadvantaged, as Tan Yao and Fan Gang suggest.

Sceptics like Cai Fang and Sun Lijian agree that outside China, the consequences of introducing a carbon tax have ranged from relatively painless to positive, but they think that the situation in China is very different. The People's Republic is still only in the early stages of development, and

its industry and economy remain very dependent on heavy industry and the energy sector. And, with a workforce of 900 million people, employment is a serious concern. As the economist Cai Fang observes, quoted by Xiong Jianfeng, the Chinese economic system, the average level of education, and the state of available technologies are such that it is hard to see how the carbon tax can lead to the creation of a large number of "green jobs". In Cai Fang's assessment, emissions reduction policies have cost 370,000 jobs in 2004-2007 alone.

Finally, the sceptics contend that the problem of redistribution will not be easy to solve. Who should be taxed, and who should benefit from the tax? As Tan Yao says, taxing consumers directly would probably be unpopular, but if the large companies in the energy sector are asked to pay, they will most likely be able to pass the cost on to their clients, whether these are small businesses or individuals. Also, if the implementation of a carbon tax does not go hand in hand with an effective redistribution policy, it might contribute to the imbalance between levels of development in China's regions. At the moment, the most developed regions are best placed to profit from the incentives that such a tax would bring, while the central and western provinces, more dependent on heavy industry and the energy sector, are more likely to find themselves paying a heavy price.

So, driven by the dictates of its trade and commerce, China looks likely to adopt a carbon tax. Its implementation would be progressive, and it would be increased incrementally, probably up until the year 2030. Many aspects still need to be clarified, however, in particular the most critical one: the extent to which national economic players will share the effort to reduce greenhouse gas emissions.

### 3. Towards a low-carbon economy?

by Gaëlle Brillant

Sources:

Sun Bing<sup>13</sup>, “The consequences of the Copenhagen agreements for major industries”, *Zhongguo jingji zhoukan*, 25 January 2010.

“The opportunities for post-Copenhagen investment”, *Shiji zhengquan*, Century Securities analysis report.

Chinese diplomacy was the key to getting participating countries to agree to the principle of “common but differentiated responsibility” at the end of the Copenhagen summit. In the absence of a binding agreement, the group of developing countries, to which China claims to belong, can independently implement their own greenhouse gas emissions reduction policies. According to *Shiji Zhengquan*, Premier Wen Jiabao said at the conclusion of the summit: “The (Chinese) targets have not been subject to any restriction and have not been compared to those of any other country. We will honour our promises through concrete actions. Whatever the outcome of the conference, we fully undertake to achieve or even to exceed these targets.” In other words, despite the summit’s failure, clean technology initiatives in China are on the rise, and the government is adopting incentive policies to facilitate their development.

China took an important legal step forward in providing a framework for sustainable development when it drew up the 2006 Renewable Energy Law. This law was amended on 31 December 2009 and came into force in April 2010. It defines different types of renewable energy, reiterates international planning requirements and establishes a plan of action for increasing the production of renewable energy in China. The 2009 amendment provides for the creation of a special state fund for the development of renewable energy.

Shortly before the Copenhagen summit, Beijing announced unilateral commitments that met with the approval of the Chinese press. It said that it planned to reduce energy consumption per unit of GDP by 40% in comparison with 2006 to 45% by 2020<sup>14</sup>. The use of non-fossil energy is to increase by 15% over the same period. These targets go beyond the road map set out at the Bali climate change conference in 2007. These advances represent a strong sign of political support for Chinese companies and for Chinese research in the field. According to Dr Sun Youhai, a member of the National Consultative Committee for the Environment and Vice-President of the China University of Political Science, China has to make progress in this field if it wants to cement its status as a major power.

However, China needs to be able to measure emissions accurately if it is to be able to reduce them. The establishment of measurement standards for greenhouse gas emissions is a scientific problem in theory, but in fact, defining standards has become a political problem. The government is in the process of developing its own standards, but for now, foreign companies established in China are encouraging Chinese companies to use their standards for measuring carbon dioxide emissions, and according to *Zhongguo jingji zhoukan*, the vast majority of the Clean Development Mechanisms (CDM) in China have been developed by foreign companies. In *Zhongguo jingji zhoukan’s* view, the Copenhagen summit brought about progress towards the adoption of an international measuring standard. The International Organisation for Standardization (ISO) is in the process of drawing up such a standard, although this will only come into force in November 2011, in other words after the date set for the adoption of the Chinese version. The developing countries, however, are concerned that fixed international standards will become an obstacle to trade: several countries have already adopted a carbon tax, and the United States is considering an import tax for goods manufactured using processes involving high levels of carbon emissions.

Chinese commentators believe that countries that are capable of regulating green technologies have the best chance of maintaining international competitiveness in the future. According to Dr Sun Youhai, while the developed countries may be weakened by the international financial crisis, they are already regulating their carbon capture technologies, their carbon storage, and so on. If they can sell these technologies, they will dominate a sector that is growing fast. China must show that it is able to keep pace in the sector.

The potential for economic growth based on sustainable industry varies by sector, and those sectors that receive strong political support will grow rapidly in the short term. Among these, the greatest investment will probably be seen in sectors that already have a technological edge. According to the Century Securities report, the industries most likely to do well in the immediate future are clean vehicles, nuclear power, smart grids, and the new industries of environmental protection and sustainable development.

At the moment, coal dominates the energy sector in China: more than 78% of the country’s electricity comes from thermal power stations, which are mostly coal-fired and far less environmentally friendly than the clean coal thermal power stations in OECD countries. Integrated Gasification Combined Cycle technology (IGCC, or clean coal technology<sup>15</sup>) will become an important growth sector, but at the moment it does not have strong political support, and the technology for its use has to be imported. China is still in the process of developing pilot demonstration projects – these projects are promising long-term investment targets. <sup>15</sup> IGCC is the transformation of coal into synthetic gas while creating electricity.

<sup>13</sup> Sun Bing is a journalist

<sup>14</sup> here is a definitive correlation between the growth of GDP, energy consumption and greenhouse gas emissions.

Conversion Steel Slag (CSS) technology<sup>16</sup> is not profitable in the short term, and cannot be applied on a large scale.

China is rapidly developing various types of clean vehicles, including Blade Electric Vehicles (BEV), hybrid, solar and fuel cell electric vehicles (FCEV), and hydrogen-powered and cars using other types of engines (high performance storage devices, dimethyl ether, etc). It is also developing the industrial chain to support these clean vehicles, including battery management systems, control systems and assembly lines. Government regulations that specify the construction standards and require checks for clean vehicles came into force on 1 July 2009.

The Chinese government is also keen to develop nuclear power, which it sees as a clean energy that can meet country's growing industrial needs. In 2008, nuclear power

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represented only 1.3 per cent of total electricity production in China, compared to the world average of 17 per cent<sup>17</sup>. However, the construction of nuclear power stations is increasing across the country, The Chinese government intends to build a large number of reactors by 2016 and increase operating capacity from 51.63 million kW to 75 million kW by 2020. Experts predict that in ten years China will have the largest number of nuclear power stations in the world.

Charging stations are also likely to take off. Two electricity companies have been in the process of setting up grid projects since 2009: National Grid is now established in Shanghai, Tianjin and Xi'an, while China Southern Power Grid has moved into Shenzhen.

China's Suntech Power is the world's largest producer of photovoltaic cells – although since Suntech's cells are made of polycrystalline silicon rather than monocrystalline silicon<sup>18</sup>, their solar cells are not of the highest quality. The government has ordered 14 million tonnes of photovoltaic cells for national projects, and, according to Century Securities, an investment of more than 150 billion yuan can be expected in the sub-sector in 2010. The efficiency of solar panels set up in China is severely undermined by inadequate pressure at the pilot sites, but the government has given approval for their development thanks to a pricing policy that is in the process of being validated<sup>19</sup>.

16 Capture of CO<sub>2</sub> and its storage in different forms to avoid any discharge into the atmosphere.

17 France is the world's most nuclear-dependent country, obtaining 76.8% of its energy from nuclear power.

18 The monocrystalline cells are taken from a single block of pure silicon, which is very expensive to manufacture. The yield of monocrystalline cells is slightly higher than polycrystalline cells because silicon in block form absorbs light better.

19 An initial document sets the price at 1.1 yuan in the (sunny) west and 1.3 yuan in the east of the country.

The government has also drawn up a pricing policy to encourage the development of wind energy, the use of which has grown in China recent years. However, at the moment, wind energy represents just 0.35% of Chinese energy consumption. While turbine blades are manufactured locally, other components still have to be imported.

The environmental protection and sustainable development industry has experienced significant growth over the past two years, driven by the inclusion in the eleventh Five-Year Plan of a timetable for lowering carbon dioxide and sulphur dioxide emissions. The twelfth Five-Year Plan (2011-2015) will provide for investment of 3.1 billion yuan in the sector double the 1.4 billion yuan allocated in the eleventh Five-Year Plan.

The government has prioritised the prevention of water pollution and set up 785 projects to monitor pollution in several lakes, rivers and basins, for example at the Three Gorges Dam. The processing of waste water is a major objective: the capacity for purification of domestic water in urban areas is expected to exceed 100 million tonnes per day by the end of the eleventh Five Year Plan, and the construction of wastewater processing plants has so far cost more than 400 billion yuan. Treatment of solid waste is likely to grow rapidly as well – the eleventh Five-Year Plan saw 210 billion yuan invested in solid waste treatment. At the moment, China has insufficient infrastructure for treating waste. However, with investment, this problem should be resolved quickly.

The electricity grid is being modernised with the help of smart grids, which will make use of renewable energies and enable consumers to programme and adjust their consumption to suit their needs and their budgets. Europe and North America lead this field in terms of research, closely followed by Japan, Australia and India. At the moment, China lags behind in the sector, but in 2009, the State Grid Corporation announced a plan for altering the electricity grid to include smart grid technology. Planning and pilot projects are taking place in 2009-2010, the electricity grid will be brought up to standard between 2011 and 2015, construction of new smart grids will begin in 2015, and the project should be completed by 2020.

China's energy consumption will exceed that of the United States very soon, and China's industry needs to seize this opportunity for development, research and investment. With investment in sustainable development and renewable energy technologies only just beginning, promoting the use of green energy and fostering sustainable industry is a matter of strategic importance for China – and for the global economy, in which China is set to play an increasingly important role.



#### 4. The Copenhagen summit viewed as a success

by Jean-François Di Meglio

Sources:

Fan Jianhua<sup>20</sup>, “After Copenhagen, the challenge ahead is even more difficult”, *Zhongguo jingji daobao*, 19 December 2009.

Tang Xuepeng<sup>21</sup>, “Copenhagen is not a failure”, *21 Shiji jingji baodao*, 21 December 2009.

The Chinese press has been remarkably quiet about the Copenhagen summit, considering the intensity of the negotiations, the number of world leaders and influential groups involved, and the enormous gap between expectations before the summit and its actual outcomes. At the end of 2009, most Chinese commentators held the two fairly conventional views expressed in the two articles discussed here. Fan Jianhua argues, much like the Chinese leaders at the summit, that China should consider its specific development issues and its national interest in dealing with the global problems brought up at Copenhagen. Tang Xuepeng, on the other hand, sees the conference as a success, while also recognising that discussions failed on some points. Both articles talk more or less explicitly about the issue at the forefront of Chinese minds: the United States’ responsibility for the lack of understanding, if not of meaningful agreement.

Fan Jianhua thinks that the developed countries talked a lot but came under great pressure and in the end had little impact on the summit’s conclusions (高歌而不进, *gaoge er bu jin*). He sees China’s recognition of its responsibility in global warming as a major contribution to the summit. In December 2007 in Bali, a road map was achieved through consensus. This time, however, China made a unilateral commitment to reduce its CO<sub>2</sub> emissions, although the developing countries admit that they are a long way from meeting the goals of Bali.

Some national and international analysts think that China’s commitments are not particularly ambitious and will meet them quite easily. For example, China’s CO<sub>2</sub> emissions on the basis of GNP have dropped by 49.2% since 1990, so it could be argued that (though whether this reflected China’s real increase in China has become energy efficiency is another question). The eleventh Five-Year Plan aims to reduce emissions by 20 per cent, and the twelfth and thirteenth Five Year Plans are expected to reduce emissions by 40- 45 per cent through the replacement of carbon-based energy. This seems like a large reduction compared to the energy efficiency improvements of other

countries over similar timeframes. For example, Korea’s energy efficiency decreased by 2.5%, between 1971 and 1990 but increased by 14.3% between 1990 and 2007. Japan’s energy efficiency rose 35% between 1971 and 1990 but only 8% between 1990 and 2007. The US’s efficiency grew by 38% between 1971 and 1990 and by 27% in 1990-2007. Latin America’s stayed at 0% between 1971 and 1990 and by 4.8% between 1990 and 2007. And yet China has set itself a target of improving its energy efficiency by 45% within 15 years.

According to Fan Jianhua, China’s targets need to be assessed in the context of its own development, and in particular, of the country’s rate of urbanisation. This rate is currently 45% and is increasing annually by 1 per cent, which means that in 30 years there will be 450 million more people living in China’s cities than at present. This figure represents one and a half times the population of the US, and the equivalent of the total population of the 27 countries of Europe. More than 1.4 billion square metres will be needed to provide residential, hospital and school infrastructure for this population. China will not be able to import many of the items needed to meet its subsistence requirements. And since China’s energy production depends primarily on coal, it is not clear that a standard derived from the experience of developed countries can be applied to the improvement of China’s energy efficiency. The developed countries have abundant technological and financial resources. Australia, for example, possesses extensive resources in raw materials, and if it were to build new types of power stations, it could reduce its emissions considerably, but it has no plans to do so. Even in the United States or Europe, it is difficult to find plans concerning electricity generation that are as ambitious as those being considered by China, Tang Xuepeng argues. The eleventh Five-Year Plan aims to shut down the smaller facilities producing electricity, steel and cement, which should make it possible to achieve the target of a 20 per cent improvement in energy efficiency. However, it will not be possible to sustain this level of improvement in the twelfth and thirteenth plans.

Copenhagen will soon be in the past, and the impasse towards which the world is heading will soon become apparent. Fan Jianhua says that it is important to re-examine the past and future role of China in global warming. During the past 40 years, China’s impact on climate change has been one-sixth that of the United States. Over the past 20 years, it has been less than half that of the United States and the same as that of the European Union. Today, China has overtaken the United States and produces double the emissions of the European Union. Fan Jianhua concludes that this simply shows that, because China is a developing country, it cannot yet be held to the same standards as the developed countries. He adds, though, that the problems raised by Copenhagen are “clearly on our doorstep” (已经迫在眉睫, *yijing bo zai meijing*).

<sup>20</sup> Fan Jianhua heads the Department of Development and Urban Environment at the Chinese Academy of Social Sciences. He is also a member of the national committee of experts on climate change (国家气候变化专家委员会委员, *Guojia qihou bianhua zhuanjia weiyuan weiyuanhui*).

<sup>21</sup> Tang Xuepeng is a regular columnist for *21 Shiji Jingji Baodao*.

Tang Xuepeng disagrees with the view of the Western press that Copenhagen was a failure. The developed countries were disappointed because there was no agreement on precise targets and fundamental international principles, apart from an undertaking from developed and developing countries to reduce global warming by 2°C. However, Tang argues that Copenhagen was a success because it cemented the idea of shared responsibility between developed and developing countries and made commitments on providing financial assistance to developing countries. For example, developed countries agreed to spend US\$30 billion between 2010 and 2012 to combat desertification, the submersion of threatened archipelagic nations, and the disappearance of marine resources, particularly in Africa. By 2020, the developed countries could be spending a total of US\$100 bn on this kind of assistance.

According to Tang Xuepeng, it could be said that, in the scope and depth of the discussions, the Copenhagen summit was an improvement on the Kyoto Protocol. The developed countries and especially the United States accepted

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that emissions at the end of 2009 exceeded 1990 levels by 25%, which was equivalent to saying that the Kyoto target was missed by 5.2%. Last November, in the immediate lead-up to

Copenhagen, China and the United States established the principle of cooperation in the energy field. The United States recognised the role of emissions in global warming and called for a reduction of 17% by 2020 compared to 2005. After that, the United States and India drew up agreements on climate security and, on 26 November, China announced its target of a 40-45 per cent reduction in emissions. In other words, Copenhagen gave substance to the first global effort to achieve cooperation on climate change.

Furthermore, the EU has for the first time agreed to grant aid to developing countries to address climate change. On 10 December, the US Energy Secretary, Steven Chu, presented a ten-point plan on aid for preventing climate change, and the United States has established a budget of US\$100 billion for climate change aid. And, as Premier Wen Jiabao says, China is making a unilateral commitment. However, Tang Xuepeng says, China cannot keep being conservative in its approach to dealing with the problem. In order to limit warming to 2°C by 2100, investment of around US\$40,000 bn will be needed, while the various plans agreed on provide a maximum of just US\$1,000 bn.

If the objective of Copenhagen was to make climate change a global concern and to make it possible for the world to win the fight against global warming, then Copenhagen achieved its objective. Chinese commentators argue that in assessing China's contribution to the summit, it is important to remember the United States' central role in any possible set of solutions, and to avoid completely shifting responsibility from one set of players to another.

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