
6 A view from China

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The Paris climate conference is approaching. The concept of Intended Nationally Determined Contributions (INDCs) not only shifts the Paris agreement to a bottom-up approach built on national pledges, but also links international climate pledges with the domestic interests of Parties. Seeing a country's INDC submission as being rooted in its domestic interests provides the means for understanding ways in which it can be enhanced in the future. In this chapter, we provide a view from China on the factors that shape its climate pledges and policies. The three major pillars of China's climate policy are economic development, air quality, and energy security. Mitigation actions were traditionally framed as necessitating a sacrifice in China's economic development. The changing narrative is more positive, focusing on the benefit that China obtains from its own climate actions. China is not only adjusting its pledges but also its policies and measures in response to its changing economic and political circumstances. In particular, market-based policies will replace command and control regulation.

1 Introduction

China was the first emerging economy to submit its Intended Nationally Determined Contribution (INDC) – it did so on the last day of June 2015 (Government of China 2015). China's submission includes four key points: first, China's emissions level is to peak by around 2030, which is consistent with the joint announcement China made with the US in November 2014 (White House 2014); second, China's carbon intensity (emissions per unit of GDP) is to fall by 60-65% from the 2005 level by 2030; third, China's share of non-fossil fuel primary energy (including nuclear, renewables and hydro) is to rise to around 20% by 2030; and, finally, China's stock of forests is to increase by around 4.5 billion cubic metres by 2030.

China's position in the climate negotiations is unique. It is the biggest emitter, accounting for 26% of world emissions in 2014. However, China's per capita emissions and per capita cumulative emissions are still lower than the OECD average. China's income per capita has increased in recent decades, but even in eastern China, where the level of development is much higher than the national average, income per capita is still well below that of developed countries. According to most indicators, China remains a developing country, but because of its scale, China's emissions exceed those of every *developed* country. The world will not be able to limit climate change without China's active engagement, so it is important for other countries to understand the context in which China is developing its own climate policies.

2 Key policy context to understand China's climate policy

2.1 Growing China's economy is still at the top of political agenda

The government of China continues to maintain a growth-first economic model. This is due to several pragmatic reasons. First, China still needs rapid growth to alleviate poverty, despite three decades of miraculous development. As of 2011, nearly 6.3% of the total population – approximately 85 million people – was still living on less than US\$1.25 (2005 PPP) a day, i.e. below the poverty line drawn by the World Bank (World Bank 2015). Second, local governments in China, especially in the western provinces, need to maintain high growth in order to generate sufficient revenue to cover the costs of various responsibilities required by upper level governments. These responsibilities include, but are not limited to, social security, education, medical care, public security, environmental protection, and rural and urban infrastructure. The current taxation system is very effective at concentrating the majority of tax revenue in the budgets of the central government, but the existing system of transfer payments is not particularly effective or efficient at distributing financial resources to where they are needed. It has been an open secret that local governments have to generate their own revenue by encouraging business growth and investment as well as infrastructure development. Finally, local government officials are highly motivated to expand the economy rapidly because their promotions are closely linked to the growth rate. However, there is increasing recognition that the goal of economic growth may conflict with that

of environment protection, including climate mitigation, suggesting that the current economic model must somehow be changed.

2.2 Ongoing urbanisation and industrialisation processes will have long-term implications for China's emissions trajectory and energy consumption

Industrial production coupled with economic growth has boosted China's massive urbanisation to a rate and scale unprecedented in the world. Each year, millions of rural workers move into cities, motivated by the prospects of higher wages. In 2011, China's urban population exceeded its rural population for the first time; by 2030, close to another 330 million people are expected to move into cities. These new urban residents will increase the demand for infrastructure, building materials and consumer goods. Consequently, more energy will be consumed and more carbon will be emitted. On average, an urban resident consumes more than three times the energy of a rural resident in China (see the chapter by Bigio in this book). There are long-term implications for climate policy from these trends in urbanisation. The investments in capacity necessitated by rising urban demand may lock in energy-intensive infrastructure and industrial arrangements that will be difficult to alter in the near future. In parts of western and central China, where the growth has been particularly strong in recent years, this ossification of energy and emissions standards is already taking place.

2.3 How to balance energy security and environmental protection is a significant challenge for China's energy system

China's energy system faces many problems, among which three are particularly prominent: (1) difficulties in the adjustment of the energy structure; (2) the dilemma of fossil energy's growth; and (3) increasing dependence on foreign energy.

China's total energy demand continues to grow. Although investment in renewable energy and energy conservation has developed rapidly in recent years, overall energy demand has increased even faster, leading to increases in the consumption of coal, oil and other fossil fuels. Growth in fossil energy has caused serious problems for the environment, which has attracted more and more attention. The thick fog and haze that fills the air of Beijing, Tianjin and Hebei Province contains dangerous levels of

particulate matter (PM_{2.5}) and is caused by both coal combustion and vehicle exhaust emissions. China's growing energy demand has also caused the country to rely more and more on foreign sources of energy. By 2020, the share of imported oil is expected to reach 70% and the share of imported natural gas 50%, creating problems for China's energy security (New Climate Economy 2014). Conflicts and geopolitical tensions in energy-supplying countries could cause a temporary shortage in supply and price rises, thus posing a risk to the stability of China's economy. China could reduce its dependence on foreign energy by producing more coal domestically, but this would be detrimental to health and to the environment.

2.4 Air quality has become the number one cause of social instability in China, and the way in which China controls its air pollution will have significant impacts on efforts to address global climate change

China's poor air quality has become the number one cause of social unrest and a threat to political stability. It is also causing millions of premature deaths every year and billions of dollars in environmental damages. Fine particles — including soot, organics and sulphates — have a severe effect on human health and are implicated in climate change. They are emitted by combustion and industrial processes, and formed from the reactions of gaseous pollutants. If China's proposed air quality standard were achieved everywhere in the country, there would be far-reaching benefits: in addition to protecting human health, air and mercury pollution in the Northern Hemisphere would fall and global warming would slow.

To improve air quality, coal consumption must fall. Coal currently accounts for about 60-70% of PM_{2.5} (primary and secondary particular matters) emissions in China, leading to 700,000 premature deaths every year (Teng et al. 2015). Coal also accounts for 83% of China's carbon emissions due to the combustion of fossil fuels. Efforts to improve air quality by reducing coal consumption will therefore also deliver significant climate benefits. For China's emissions to peak by around 2030, coal consumption will need to be stabilised before 2020 and then to decline after 2020 (He 2014). The external environmental cost of coal consumption is about \$40/tonne, but only a small share of this external cost is reflected in current prices (Teng et al. 2015). To reduce air pollution in China, the external environment cost of coal must be internalised further.

Many local governments in coal-rich provinces view coal-to-gas technology as an option for reducing air pollution, but the heavy water demands of this technology make the central government cautious. Although only few coal gasification plants currently operate in China, around 50 projects are being planned and some of these are under construction. If all of the planned coal gasification plants are built and in operation, they will emit another 1 billion tonnes of CO₂ every year. Thus, the way in which air quality is controlled in China will affect global climate change, but in complicated ways. On the one hand, reducing soot emissions by cutting coal use or using cleaner stoves will lessen radiative forcing and thus limit warming, benefiting both the climate and public health. Stricter emissions standards for diesel vehicles, which emit soot, is another win-win solution. On the other hand, reductions in SO₂ emissions from power plants would reduce atmospheric sulphate concentrations, thereby increasing radiative forcing, which has a short-term detrimental effect on the climate. Consideration is therefore needed of how the various pollutants and their sources should be best controlled. Clearly, a multi-pollutant abatement strategy must be developed (IPCC 2014).

2.5 International and domestic drivers for further action

Emissions of atmospheric pollutants pose a serious challenge to China's economic and social sustainable development. Besides the domestic drivers, international drivers are also impacting China's climate change policies. The relationship with the US is the most important bilateral relationship for China. The BASIC (Brazil, South Africa, India and China) ministerial meeting and the Like-Minded Developing Countries (LMDC) are the two most important plurilateral processes influencing the country's position in the climate negotiations. China faces two sources of pressure: on the one hand its volume of emissions requires it to take more ambitious action to shoulder its responsibility; on the other hand, China also has to stand with its developing country friends to safeguard their common interests (such as common but differentiated responsibilities, or CBDRs). The IPCC and UNFCCC are the two multilateral processes that have a notable scientific and political influence on China's decision-making process. But compared with other goals, climate change is not a high priority for Chinese political leaders. China's mitigation actions are largely driven by domestic drivers, not international pressures. Thus the best

way to strengthen China's mitigation ambition is to align this goal with China's top domestic priorities, that is, growth, energy security, and environment quality.

3 The way forward

3.1 Change of narratives: Not only cost, but also benefit

Traditionally, the climate issue has been closely linked with development in China. The 'carbon space' has been interpreted as a development space, which may limit the development of China's economy. The costs associated with carbon emissions reductions have gained more attention from both researchers and decision makers. However such old thinking is now changing in China due to combined pressure from a slowing down of economic development, more serious energy security concerns, and the challenge of improving air quality (Li 2015). The slowing down of growth makes China interested in new driving forces for its economy. The new energy industry and low-carbon infrastructure has been considered an emerging industry that can drive future growth. Reflecting these new priorities, China has become the world's top investor in wind turbines, solar PV, nuclear energy and high-speed rail systems. Those technologies are all linked with a low-carbon transition that may bring more business opportunities for Chinese enterprises. The promotion of a low-carbon transition is no longer regarded as a costly effort, driven mainly by international pressure. Instead, it is considered as an opportunity – a means for propelling China's growth and for avoiding the middle-income trap. The increasing preoccupations with air quality and energy security are also causing decision makers to hedge those risks by improving energy efficiency and reducing dependence on fossil fuel.

3.2 Responding to changing policy circumstances

The thinking about climate action has changed in China. Addressing climate change is no longer seen as a threat to development, but rather as an opportunity for better growth. However, it is unclear how China can achieve the required transition towards a low-carbon growth. China has been transitioning to a market economy, but still has many regulations. The challenge faced by the Chinese government in the future will be how

to make the market play a constructive role in bringing about a low-carbon transition, reducing the need for command and control regulation.

With a powerful central government, the Chinese government favours the command and control regulation and allocates different targets to local government, then to companies and enterprises. Such policies and measures perform well because the government controls project approval and state-owned companies dominate the energy-intensive industries. But in recent years, the government has started to streamline administration and to delegate power to lower administrative levels. At the same time, the liberalisation of the energy market is attracting more private companies into energy-intensive industries. Those private companies are driven more by economic than political considerations. The effectiveness of command and control policies in China is decreasing, but the economic and political costs of such measures are significant. To respond to China's new circumstances, market-based policies (taxation and cap and trade) and measures should replace the traditional command and control regulation.

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