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Climate as a strategic issue for China: national and international perspectives

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Despite an extremely carbon-intensive growth model (1), over the last few years China appears to be moving towards decarbonization, aimed at benefits for the health of its population, as well as an economic advantage in securing a leading place on emerging green technology markets (2). Moreover, participation in international debates on climate change action, and the possibility of promoting a new model for an ecological society are strategic factors for China as it seeks to establish its global influence (3).

1. A carbon-intense economy: keep emitting to keep growing

An economy highly dependent on carbon-intensive energy

In the 1980s, China embarked on a trend of strong dynamic growth as part of the "open-door" economic policy initiated by Deng Xiaoping in 1978. This growth has almost never stopped since. From 1980 to 2020, China's GDP shot up from 191 to 14,280 billion dollars, a multiplication of 70 in constant dollars [1].

By opening up to foreign investment in special economic areas, China targeted the development of an industry manufacturing basic products, turning it into "the world's factory". This massive expansion of Chinese industry inevitably went hand in hand with a considerable increase in its annual consumption of primary energy, which moved from under 5,000 TWh in 1980 to 12,000 TWh in 2000 and over 40,000 TWh in 2019 (compared to 25,000 TWh for the United States and 18,000 TWh for the European Union) [2]. This high increase almost exclusively concerned fossil fuels. In 2019, coal alone represented 60% of consumption, oil 20%, and gas 8%. The share of fossil fuels in the energy mix therefore exceeded 80%, while "decarbonized" energy (nuclear, hydropower and renewable energy sources) barely made up 15% [3].

Significant emissions, but mostly exported to other countries

The economic and energy choices of China have led to an explosion in greenhouse gas emissions, rising from 790 Mt in 1970 to almost 10 billion tCO2eq in 2019 [4]. Electricity and heat production and industry are respectively responsible for 39% and 33% of these emissions [5]. At the origin of only 6% of global emissions in 1973, today China is now the leading greenhouse gas emitter, responsible for more than one-third of global emissions [6].

The high level of Chinese emissions should nevertheless be viewed in relation to the weight of exports in its economy (20% of its GDP in 2020 according to the WTO). Since 1990, the emissions "produced" on the Chinese territory have always been higher than the emissions "consumed" by the Chinese population (greenhouse gases emitted on the territory plus emissions related to imports minus emissions incorporated in exports) [7]. In contrast, in the same period, emissions consumed by the European Union and North America have been constantly higher than the emissions produced. We can see that China's emissions are those not emitted by Western countries. The latter therefore have a very high level of responsibility in the levels of Chinese emissions.

Economic repositioning and new emissions trajectory?

Since 2010, the Chinese economic model has been undergoing a gradual change: the country has shifted from its status of factory of the world with the aim of becoming an industry with high added value, upgrading part of its working population to occupy skilled jobs. As a result, an educated middle class has emerged in China, aspiring to a Western lifestyle. In 2020, this emerging middle class represented 300 to 400 million Chinese people who consume and travel more and more, thus reaching a level of emissions per capita similar to that of US citizens [8].

The share of industry in the Chinese economy continues to shrink, dropping from 50% to 40% of GDP from 2008 to 2018 [9]. This economic restructuring combined with considerable technological progress has seen the country halve the carbon intensity of its GDP since 2000 [3]. Nevertheless, this progress does not make up for the surplus emissions associated with the continued growth of GDP. From 2000 to 2016, China's share of global emissions therefore grew, rising from 26% to 33% [5].

2. Advantages of decarbonization: reduce carbon intensity to grow better

While the growth of China's emissions is correlated to its own growth, decarbonization would offer numerous advantages for both the Chinese population and its health, and for the country's economic prosperity and international image.

Public health issue: the example of air pollution in China

In the 2000s, the air pollution related to the acceleration of the Chinese economy became tangible. Smog and fine particles caused by exhaust gas, coal combustion, industrial waste and dust emissions began to seriously concern urban populations, who denounced an "airpocalypse". In 2009, 19 of the 36 towns most affected by fine particles in the world were located in China [10]. The health impacts of this pollution are catastrophic: since 2000, over 30 million people are estimated to have died prematurely in China due to bad air quality [11]. Not to mention the economic damage involved, evaluated at over 112 billion dollars in 2012 by the MIT [12].

In 2013, a pollution episode lasting three days in Beijing triggered strong discontent among inhabitants, threatening to undermine the legitimacy of the government [13]. The authorities, obliged to take strong measures, authorized the publication of air quality statistics for Beijing and 74 other cities [10]. The same year, an action plan was launched to control and prevent air pollution.

The measures to reduce polluting emissions taken by the Chinese authorities are therefore above all motivated by health concerns, and protecting the environment and combating climate change were not set out as objectives when these measures were announced.

Energy sovereignty issue

Since 1993, China has had to import oil for the needs of its economy, with increasing dependence on foreign oil, creating a strong sentiment of energy insecurity [8]. Like numerous other countries, China is aware that it will not be able to count indefinitely on fossil fuel imports from producing powers.

The fact is that although China is the leading producer and consumer of coal, amounting to 50% of the global total, its proven reserves only amount to 37 years of production at the 2020 pace. Until 2009, domestic production covered consumption. Since then, the country has had to strongly increase its imports (mostly from Indonesia and Australia) to satisfy constantly growing domestic demand. As to its own oil reserves, which currently cover about one quarter of its consumption, they are due to run out in less than twenty years [4]. For gas, Chinese reserves still offer 43 years of production at an annual extraction pace that represents 60% of the gas consumed by China.

China therefore has no other choice but to direct the evolution of its energy mix towards non-fossil resources like uranium and renewable energies. By proposing low-carbon alternatives and solutions to reduce its energy intensity, the Chinese government could supplant the influence of oil-exporting countries and reduce domestic carbon emissions at the same time.

Economic challenge: to become the green technology leader

The country has understood that it could have a strong economic advantage in investing in low-carbon technologies, which Western powers have not really mastered to date. Thanks to its investments, China currently figures among the five most dynamic countries in terms of low-carbon innovations with high value added [14]. In 2017, China for example represented 6.5% of innovations in solar technologies, 5% in wind technologies, and 3% in carbon capture and storage [14]. Investments are also high in nuclear power, pointing to a potential monopoly in some technologies.

However the impetus of the country's innovation appears to be more the result of a general innovation acceleration than a move to combat climate change. In other words, Chinese innovators appear to be more focused on responding to immediate economic needs than on constructing a low-carbon technological infrastructure as part of a more long-term strategy.

In reality, China has made less progress in low-carbon innovation than it has in the industrialization of existing low-carbon solutions. With good reason, since 4 of the 10 leading wind turbine manufacturers in the world and 6 of the leading solar panel producers are Chinese [14]. The country has clearly opted to "learn by doing" rather than "learn by researching": through mass production, national manufacturers can make huge economies of scale and produce at very low cost. Which is even easier for them due to the benefit of local production of the critical metals required to manufacture low-carbon technologies. In fact, a large share of global reserves of rare earths is located in China, and although the country does not possess large reserves of copper, lithium, nickel and cobalt, it controls the supply chains from Africa and South America,

which means it can import almost all of the raw minerals it needs to process them and sell them on to producers of batteries, electric vehicles, solar panels, etc. all over the world.

3. Position in the international context

Becoming the flag-bearer for emerging countries

At the time of the COP21 negotiations in 2015, China was the biggest global emitter. Its participation in international discussions coupled with strong commitments were therefore vital to ensure the success of the Paris Agreement. Nevertheless, the Chinese government stated that it intended to continue increasing its emissions up to 2030 to maintain its economic growth. Chinese diplomats put forward the argument that the country only represented 14% of cumulated emissions since the start of the industrial era, while Europe and the United States were respectively responsible for 31% and 24% of these emissions [1]. They thus claimed that China and all developing countries had the right to make up the difference with historic emissions by old industrialized countries.

China did however accept to commit to reducing the carbon intensity of its economy, which in any case the country was naturally moving towards thanks to the innovation, technological progress, and tertiarization that have accompanied the country's development [8]. It encouraged African and South American countries to take the same economic development and ecological approach and put forward this vision in its massive Belt and Road Initiative [15].

In late October 2021, in its national contribution presented in preparation for the opening of COP26, China reaffirmed its conception of a fair sharing of international efforts with a reminder that developed countries should "shoulder the responsibility for their huge amounts of aggregate emissions and historical environmental debts by taking the lead in fulfilling their obligations for drastic emission reduction".

Affirming its major power status

Since COP15 in Copenhagen, China has played a key role in climate negotiations and illustrated its ambition to be an influential actor in discussions. During Donald Trump's presidential mandate, at international climate negotiations China was keen to – at least partially – fill the leading power role left vacant by the United States.

The decisions and political symbols given out by China before and during COPs are certainly commented around the globe, illustrating the international interest in Chinese reactions to climate policy issues. When the Chinese president, Xi Jinping, did not attend COP26 in Glasgow, the United states firmly accused him of "turning his back" on climate change problems [16]. Xi Jinping nevertheless made a speech remotely, during which he insisted on the following points: the importance of multilateralism in negotiations, the need to take strong action, and his conviction that a green transition is possible. He concluded his speech with the following words, inviting his homologues to act: "I hope all parties will take stronger actions to jointly tackle the climate challenge and protect the planet, the shared home for us all" [17]. Xi Jinping therefore plays the role of climate governance as imagined by the UN, respecting multilateralism and positioning himself as a leader encouraging the other member countries.

Given the fear of strong geopolitical and economic tensions between the United States and China that might hold climate issue exchanges hostage, their common declaration was received very positively by the international community: it proved that the United States and China could communicate and work together on climate issues despite their numerous differences. The agreement was hailed as an "important step in the right direction" by UN Secretary General Antonio Guterres [18].

The efforts made by China during COPs, established in its successive nationally determined contributions (NDCs), confirm these expressions of goodwill on the international scene, in particular illustrating the fact that public health, economic, and political issues are a concern for the country. In its latest NDC, presented in the run-up to COP26, China therefore committed to reaching carbon neutrality before 2060. To achieve this goal, it will have to reach its emissions peak before 2030 (unlike "around 2030" in its NDC-1), by reducing its carbon intensity by 65% (compared to 60% to 65% in its NDC-1), partly thanks to decreasing the share of non-fossil fuels in its energy mix by 25% (against 20% in its NDC-1) [19, 20].

Numerous reactions followed this new NDC, with some observers hoping that it would give renewed impetus to the COP26 and pointing out greater efforts compared to China's previous NDC [21], and others expressing doubts about the means implemented to concretely reach these objectives, pointing to their minimal impact compared to China's responsibility on greenhouse gas emissions [21].

Employing green soft power to control its population and assert its influence on other countries

The Chinese authorities have always been reticent to refer to "sustainable development", preferring to promote a "low-carbon society" and "green growth", with a focus on the importance of technological innovations [8]. In this area, geo-engineering (intervention on the climate to modify rainfall, brighten clouds, etc.) is put forward as a promising research avenue that will play a key role in combatting climate change impacts.

In the same spirit, in 2012, the Chinese Communist Party (CCP) wrote "ecological civilization" into its constitution. This vague concept aims to encourage cooperation on climate change action and accelerate the ecological transition [22]. In October 2017, at the 19th CCP Congress, Xi Jinping explained

that he wanted to “We must firmly anchor the idea of socialist ecological civilization, create a new situation of modernization marked by the harmonious development of man and nature, and make our generation's contributions to the protection of the ecosystem». This notion, figure of a global government strategy, is an innovation of Chinese Marxism that defines a new stage in the Marxist development cycle, half-way between the stages of socialism and communism. The concept of “ecological civilization” would thus become a central aspect of the way that the Chinese state is conceived [15]. Some researchers fear that the aim is to establish a form of “ecological totalitarianism” that would justify more control of the private lives of Chinese inhabitants in the name of action to combat climate change.

Ultimately, the Chinese authorities want to promote this new civilization in an era of stronger influence. Since the United States withdrew from the agreement, China even hopes to establish its position on the international scene as an environmental champion, thus forcing Western countries to choose between the respect for human rights and a reduction of Chinese GHG emissions [23]. The Belt and Road Initiative will act to substantiate this “environmental influence”.

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China’s involvement in global action against climate change is crucial. Unfortunately, Chinese policy in this area is strongly subject to significant growth imperatives and driven by a discourse of “shared, but differentiated responsibility”. While the central government has confirmed the ambition to reach carbon neutrality by 2060, its intention is to do so by implementing low-level green measures that promote growth. However, it is interesting to note that, despite the low level of constraints, the environmental policies announced by the

authorities do not satisfy the most fervent defenders of growth, such as former minister of finance, Lou Jiwei, who has publicly expressed concern regarding their consequences for growth [24].

The Chinese regime does however possess an important key for successfully applying environmental measures: the authority of the CCP, which is involved at all levels of governance and business. It is therefore much harder for Europe and the United States to criticize the authoritarianism of the Chinese government when it applies to the environment. The risk is that action to combat climate change and protect biodiversity could become a pretext for intensifying authoritarian control in China.

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