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# **WHAT ROLE FOR CHINA IN THE INTERNATIONAL CLIMATE REGIME?**

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What role can and will China play in the “new” international climate regime, the regime that emerged after the adoption of the Paris Agreement in December 2015? It is impossible to address this question without going back to the “building blocks” of the regime that emerged at the beginning of the 90s. This paper thus discusses the evolution from the “old” climate regime – composed of two treaties: The United Nations Framework Convention on Climate Change (UNFCC - 1992) and the Kyoto Protocol (1997) – to the “new” one, where these two texts are complemented by the Paris Agreement (2015). It then seeks to analyse the radical change in the Chinese strategy concerning the fight against climate change observed between 1990 – year of the first IPCC report (Intergovernmental Panel on Climate Change) – and 2015. In this second part, we also address the question of China’s role going forward after Washington’s withdrawal from the Paris Agreement.

## **HOW THE “OLD” CLIMATE REGIME MORPHED INTO A “NEW” ONE?**

### ***The United Nations Framework Convention on Climate Change***

The “old” climate regime was built on two texts: the UNFCC and the Kyoto Protocol.

The UNFCC was adopted in 1992 during the Rio Earth Summit and entered into force in March 1994. Its Article 2 states that the “ultimate objective” of the Convention is the “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”.

To achieve this non-binding objective of stabilization (and not of reduction), all the Parties must – according to Article 3 – take actions “on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof”. This principle of “common but differentiated responsibilities” (also present in Article 4) is the main ethical and

political pillar of the Convention and, consequently, the “philosophical” foundation of the international climate regime in the different configurations it has taken since 1992. These four words have of course given rise to various interpretations, and the way they could or should be translated in political decisions to many controversies.

The main consequence of the adoption of this “principle” is the division of countries (the so-called “Parties”) in two (in fact three) main groups to which are associated different types of commitments: a country can be an “Annex I Party” or an “Non-Annex I Party”.

Annex I includes the industrialized countries members of the OECD (Organisation for Economic Co-operation and Development) since 1992 plus countries undergoing the process of transition to a market economy. These “EIT Parties” (for Economies in Transition”) are for instance Bulgaria, Estonia, the Russian Federation... Inside Annex I there is an Annex II (!) that consists in the OECD members of Annex I but not the EIT Parties. If all the parties included in Annex I commit themselves (among other things) to limit their greenhouse gas emissions (Art. 4, paragraph 2), the Annex II Parties are required (Art. 4, paragraph 3) to provide financial resources to enable developing countries to undertake emissions reduction activities, help them adapt to adverse effects of climate change, transfer environment friendly technologies, and so forth. The Non-Annex I Parties are mostly developing countries.

In 1992 there were 37 Annex I Parties (36 countries plus the European Union) and among them 25 Annex II Parties. Now, we have 43 Annex I Parties and 25 Annex II Parties. To this day 197 countries have ratified the UNFCCC. From this point of view, it can be considered a universal agreement.

### ***The Kyoto Protocol***

The Kyoto Protocol was elaborated to continue and amplify the movement initiated by the UNFCCC. Adopted in 1997, entered in force in February 2005 after the Russian ratification, its goals are far more ambitious.

If the Kyoto Protocol, like the UNFCCC, divides countries in two groups (Annex B and Non-Annex B) with different kinds of commitments, these two texts differ on the fact

that the main goal of the Kyoto Protocol is to *reduce* the greenhouse gas emissions (the list of the 6 GHG is provided in the Annexe A of the Protocol<sup>1</sup>), not only to stabilize them as it was the case in the UNFCC. In accordance with that objective, Article 3 of the Protocol states that the Parties included in Annex I shall reduce “individually or jointly” their GHG emissions by at least 5% below their 1990 levels for 2012, which is the last year of the commitment period.

Annexe B of the Kyoto Protocol gives the list of the countries of Annexe I with their respective emission targets (Table 1). These targets differ (often slightly) from one country to another. For example, France must reduce its GHG emissions by 8%, Poland by 6%, the United States by 7%, the Russian Federation by 0%. Three countries can increase their emissions: Australia (+ 8%), Iceland (+ 10%) and Norway (+ 1%).

**Table 1. Annexe B of the Kyoto Protocol**

Party	Quantified emission limitation of reduction commitment (percentage of base year period, 1990)	Party	Quantified emission limitation of reduction commitment (percentage of base year period, 1990)
Australia	108	Liechtenstein	92
Austria	92	Lithuania	92
Belgium	92	Luxembourg	92
Bulgaria	92	Monaco	92
Canada	94	Netherlands	92
Croatia	95	New Zealand	100
Czech Republic	92	Norway	101
Denmark	92	Poland	94
Estonia	92	Portugal	92
European Community	92	Romania	92
Finland	92	Russian Federation	100

<sup>1</sup> Carbon dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulphur hexafluoride (SF<sub>6</sub>). In the UNFCC the GHG were defined as « those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation ».

France	92	Slovakia	92
Germany	92	Slovenia	92
Greece	92	Spain	92
Hungary	94	Sweden	92
Iceland	110	Switzerland	92
Ireland	92	Ukraine	100
Italy	92	United Kingdom	92
Japan	94	United States	93
Latvia	92		

Under the Kyoto Protocol, the United States is an Annex B country and China a Non-Annexe B country. Had it ratified the Protocol, the United States would have been committed to reduce its GHG emissions by 7%. On the contrary, under the Protocol, China is committed to nothing. Furthermore, it can benefit from the Clean Development Mechanism (CDM).

The CDM is a “flexibility mechanism” defined in Article 12 of the Protocol. It allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries. Such projects can earn saleable certified emission reduction (CER) credits that can be counted towards meeting Kyoto targets.<sup>2</sup> The mechanism was created to stimulate technology transfers, to incentivize investments where the marginal cost of GHG emissions reduction was low (for instance where the local technologies were obsolete). Twenty years later, it appears that China has been the main beneficiary of the CDM: more than a half of the world total in 2008<sup>3</sup>.

The negotiations concerning the Kyoto Protocol led to many debates and controversies, especially in and with the United States. In 1997 – four years before the American

<sup>2</sup> [http://unfccc.int/kyoto\\_protocol/mechanisms/clean\\_development\\_mechanism/items/2718.php](http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php)

<sup>3</sup> Stephan C. Aykut, Amy Dahan, *Gouverner le climat ? 20 ans de négociations internationales*, Paris, Presses de Sciences Po, 2014, p. 287.

withdrawal – a Senate resolution sponsored by Senator Robert Byrd (Democrat) and Senator Chuck Hagel (Republican) passed unanimously, which reads:

*“The United States should not be a signatory to any protocol to, or other agreement regarding, the United Nations Framework Convention on Climate Change of 1992, at negotiations in Kyoto in December 1997, or thereafter, which would: (A) mandate new commitments to limit or reduce greenhouse gas emissions for the Annex I Parties, unless the protocol or other agreement also mandates new specific scheduled commitments to limit or reduce greenhouse gas emissions for Developing Country Parties within the same compliance period, or (B) would result in serious harm to the economy of the United States”.*

As everyone can readily understand, the real meaning, or at least the main meaning, of “Developing Country Parties” was the People’s Republic of China. Simply put, the US senators were opposed to the fact that the United States should be tied by binding commitments while China was free to increase its emissions (and the size of its economy).

In support of this position, it must be recalled that, even at the time, the Chinese contribution to global warming was alarming. As we see in Table 2, between 1990 and 1995 China had increased its volume of emissions by 38%.

<b>Table 2. Chinese and US CO<sub>2</sub> emissions from fuel combustion (global* and per capita**)</b>						
		1971	1990	1995	2000	2015
China (incl. Hong Kong)	Global CO <sub>2</sub> emissions	789.4 (5.6%***)	2 109.2 (10.2%)	2 923.6 (13.6%)	3 127.1 (13.5%)	9 084.6 (28.1%)
	CO <sub>2</sub> emissions per capita	0.93	1.85	2.41	5.76	6.59
United States	Global CO <sub>2</sub> emissions	4 288.1 (30.7%)	4 802.5 (23.4%)	5 073.2 (23.7%)	5 642.6 (24.3)	4 997.5 (15.4%)
	CO <sub>2</sub> emissions per capita	20.65	19.20	19.03	19.98	15.53
US CO <sub>2</sub> emissions per capita / Chinese CO <sub>2</sub> emissions per capita		22.2	10.3	7.8	3.4	2.3
World CO <sub>2</sub> emissions		13 942.2	20 509.0	21 365.0	23 144.3	32 294.2
World CO <sub>2</sub> emissions per capita		3.71	3.88	3.75	3.79	4.40

\* million tons of CO<sub>2</sub>.

\*\* tonnes CO<sub>2</sub> / capita

\*\*\* Share of the world total

Source: IEA, *CO<sub>2</sub> Emissions From Fuel Combustion. 2017*, International Energy Agency, Paris, 2017.

On 29 March 2001, President George W. Bush decided to withdraw from the Kyoto Protocol, arguing that his country could not accept a treaty that was binding for the United States and not for China. For its part, Peking ratified the Protocol on 30 August 2002.

The climate regime was then trapped in a prisoner's dilemma.<sup>4</sup> Washington refused any binding commitment because China was not an Annexe I /Annexe B country. And Peking refused any binding commitment because the United States – an Annexe I/B country – refused to ratify the Protocol. In other words, the two main CO<sub>2</sub> emitters (33.6% of the world total in 1990, almost 44% now) refused to reduce their emissions levels. The

<sup>4</sup> Philip Golub, Jean-Paul Maréchal, « Overcoming the planetary prisoners' dilemma: cosmopolitan ethos and pluralist cooperation », in Paul G. Harris (Ed.), *Ethics and Global Environmental Policy. Cosmopolitan Conceptions of Climate Change*, Cheltenham (UK), Northampton (USA), Edwar Elgar, 2011, p. 150-174.

perniciousness of this situation was aggravated by the fact that the US and China were (and still are) at different stages of their development processes. A situation of this kind – notably one putting such big and different economies in interaction – creates a payoff matrix where each country finds good reasons to justify its inaction. The more important the wealth gap between two nations, the more difficult it is to find an agreement on a burden sharing mechanism, especially if the country with the higher emissions per capita refuses any serious commitment.

This situation lasted until 2014. In the meantime, China became (2007) the world's first emitter of CO<sub>2</sub> and in 2010 the second largest economy. But the commitment period of the Kyoto Protocol was due to end in 2012. That is why the Parties decided to try to shape an agreement supposed to be implemented after 2012. The process was launched in December 2007 during the COP13 in Bali and was supposed to end two years later during the COP15 in Copenhagen. The “Bali Road Map”, as it is called, included the “Bali Action Plan” which charted the course for a new negotiating process. But the COP15 was, if not a total failure, at least a very deep disappointment for all the people involved in the fight against global warming.

Many observers expected the adoption of a sort of worldwide Kyoto Protocol with binding commitments for every country. This hope rested on the idealistic assumption of a generalization of the European Union experience. In the early 90s Europe was no longer under the Soviet threat and European leaders thought that taking the lead in the fight against global warming was – or could be – a decisive contribution to what was then called (by George H. W. Bush) the “new world order”.

More generally, after 2007, the main challenge was to convince emerging countries to take a part of the burden of the fight against climate change (mitigation of GHG emissions and adaptation to the new climatic conditions). Chris Patten summed up the challenge of the years to come when he wrote in *What Next? Surviving the Twenty-first Century*: “The [Kyoto] Protocol distinguishes between developed countries, which have largely created today's problems, and developing countries, which need assistance to avoid creating tomorrow's.” A few pages later he underlines: “China will not move



without America, and America will not move without China. They are locked together. An agreement between them is vital to saving the century”.<sup>5</sup>

Some figures in Table 3 give a very precise idea of the magnitude of the problem. In 1970, total greenhouse gas emissions were 23.9 GtCO<sub>2</sub>eq. The share of the “BRIC countries” (Brazil, Russia, India, China) was 5.9 (i.e. 24.7%) and the share of the OECD countries was 13.7 (i.e. 57.3%). In 2005, total greenhouse gas emissions were 46.9 GtCO<sub>2</sub>eq. The share of the BRIC countries was 16.1Gt (i.e. 34.3%) and the share of the OECD countries was 18.7Gt (i.e. 39.9%). If no new policy actions were taken, in other words if it were decided to follow a business as usual scenario, global greenhouse gas emissions were projected to reach 71.4 Gt in 2050. The share of the BRIC countries would reach 26.2Gt (i.e. 36.6%) and the share of the OECD countries “only” 23.5Gt (i.e. 32.9%).

<b>Table 3. Emissions of all anthropogenic gases. Baseline (figures in GtCO<sub>2</sub>eq)</b>			
<b>Group</b>	<b>1970</b>	<b>2005</b>	<b>2050</b>
OECD	13.7 (57.3%)	18.7 (39.9%)	23.5 (32.9%)
BRIC	5.9 (24.7%)	16.1 (34.3%)	26.2 (36.7%)
ROW	4.3 (18.0%)	12.1 (25.8%)	21.7 (30.4%)
Total baseline	23.9	46.9	71.4

Source : OECD, *OECD Environmental Outlook to 2030*, Paris, OECD, 2008, p. 25.

More recent OECD projections (published in 2012) are even more sobering. In 2050, world GHG emissions could reach 80.8 GtCO<sub>2</sub>eq. The study divides the countries in four groups: - the OECD countries part of Annex I; the Russian Federation and the rest of Annex I; Brazil, India, Indonesia, China and south Africa; and the rest of the world. The shares of these four group are projected to be 23%, 7%, 44% and 26%<sup>6</sup>. Another study, published in 2013 in the academic journal *Climatic Change*, evidenced that the share of

<sup>5</sup> Chris Patten, *What Next? Surviving the Twenty-first Century*, London, Penguin Books, 2009, p. 369 and 379.

<sup>6</sup> OECD, *OECD Environmental Outlook to 2050. The consequences of inaction*, Paris, OECD, 2012, p. 72.

developing countries in the aggregate GHG emissions since 1850 should reach 51% in 2020<sup>7</sup>.

The same trends can be observed as far as US and Chinese emissions trends are concerned (Table 2 above).

### ***The Paris Agreement***

After the COP15 of December 2009, it had become obvious that the only possible solution to reach a global agreement was a radical change in the negotiation method. It was then clear that past attempts to shape a new (post-Kyoto) climate deal had failed because they were held with the belief that it was possible to impose mitigation targets on reluctant countries or at least to convince reluctant countries to accept mitigation targets they in fact did not want to adopt. It was thus decided to give up the top down method and to adopt a bottom up approach that will allow each country to decide what is achievable. This new negotiation method was one of the main reasons of the COP21 success.

In this new context, the attitude adopted by Washington and Peking was also decisive. In November 2014, during the Asia-Pacific Economic Cooperation summit that was held in Peking, Presidents Xi and Obama announced that their two nations would work to reduce GHG emissions. The United States committed itself to cut its 2005 carbon emissions by 26% to 28% by 2025, while China promised to peak its carbon emissions by 2030 and to try to produce 20% of its energy from non-emitting carbon technologies. It is noteworthy that this was the first time China agreed to peak its carbon emissions.

One year later, the 12<sup>th</sup> of December 2015, the Paris Agreement was adopted. Two features of this agreement must be underlined.

First, unlike the UNFCCC and the Kyoto Protocol, the Paris Agreement set a quantified temperature target. The article 2 reads that one of the main target of the agreement is to

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<sup>7</sup> Michel G. J. Den Elzen, Jos G. J. Olivier, Niklas Höhne, Greet Janssens-Maenhout, "Countries' contribution to climate change: effect of accounting for all greenhouse gases, recent trends, basic needs and technological progress", *Climatic Change*, 121 (2), November 2013, p. 397-412.

hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and to pursue “efforts to limit the temperature increase to 1.5°C above pre-industrial levels”.

Second, the measures adopted by the Parties are not only modest but also self-proposed (and of course accepted except in the United States after Donald Trump’s election). As the article 4 states: “Each Party shall prepare, communicate and maintain successive *nationally determined contributions* that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.” The Intended Nationally Determined Contributions (or INDCs are they are called) are in fact the philosophical and political foundations of the Paris Agreement. The current INDC can be sorted out in three main categories.

The INDC of the first category contain binding commitments based on quantitative indicators (for some examples, see Table 4). It must be noted that the base years, the deadlines and the GHG considered are different from one country to another.

Country	Abatement rate	Base year	Deadline	GHG in the NDC	CO <sub>2</sub> emissions (2012)	
					Global*	Per capita**
Australia	26 à 28%	2005	2030	CH <sub>4</sub> , CO <sub>2</sub> , HFCS, N <sub>2</sub> O, NF <sub>3</sub> , PFCS, SF <sub>6</sub>	386	16,7
Canada	30%	2005	2030	<i>Idem</i>	533	15,3
United States	26 to 28%	2005	2025	<i>Idem</i>	5 074	16,1
Japan	26%	2013	2030	<i>Idem</i>	1 223	9,6
Russia	25 to 30%	1990	2030	<i>Idem</i>	1 659	11,5
European Union	40%	1990	2030	<i>Idem</i>	3 504	6,9
Brazil	37%	2005	2025	CH <sub>4</sub> , CO <sub>2</sub> , HFCS, N <sub>2</sub> O, PFCS, SF <sub>6</sub>	440	2,2

\* million tons of CO<sub>2</sub>. \*\* tons of CO<sub>2</sub>.

Source: <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>

The second category is composed of countries that have accepted commitments based on intensity indicators. This is the case of China and India (see Table 5).

Country	Abatement	CO <sub>2</sub> emissions from fuel combustion (2015)	
		Global*	Per capita**
China	China has committed itself: - To achieve the peaking of carbon dioxide emissions around 2030 and making best efforts to peak early; - To lower by 2030 carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level.	9 084	6,59
India	India declared a voluntary goal of reducing the emissions intensity of its GDP by 20–25, over 2005 levels, by 2020. (Before the Paris Convention, Indian commitment was 33 to 35% by 2030 from the 2002 level)	2 066	1,58

\* million tons of CO<sub>2</sub>. \*\* tons of CO<sub>2</sub>.

Source : <http://www4.unfccc.int/submissions/indc/Submission%20Pages/submissions.aspx>

The main third category of INDC is composed of countries that do not take real commitments or that promise to think about the usefulness to fight against global warming! This is for example the case of Saudi Arabia or of Qatar.

The Paris Agreement entered in force on 4 November 2016, just before the opening of the COP22 in Marrakech (7-18 November 2016). To this day 171 Parties out of the 197 of the CCNUCC have ratified it. China did so on 3 September 2016.

### **CHINA: THE FUTURE LEADER OF THE “NEW” CLIMATE REGIME?**

In this “new” climate regime, and especially after Washington withdrawal, will Peking become the leader of the international coalition against climate change?

In so far as China is increasingly shaping, for the better or the worse, the Twenty-First Century, the question is far from being theoretical. The radical change of Peking’s attitude in climate negotiations can be explained by three interlinked and partially self-reinforcing causes: the necessity to stop the “airpocalypse” that affects so many Chinese citizens, the will to conquer new foreign markets shares in the field of green

technologies and, not least, the desire to improve the country's image on the international stage.

### ***Airpocalypse***

“Airpocalypse”: this neologism associating “air” and “apocalypse” was coined a few years ago to name the threatening levels of air pollution observed in many parts of Chinese territory. In 2009, among the 26 cities with the poorest air quality in the world, 15 were in China<sup>8</sup>. In terms of average particulate matter concentration in urban areas, in 2010 China was the twentieth most affected country in the world<sup>9</sup>.

Many recent studies show that the situation has not improved. A few years ago, it was admitted that air pollution caused in China around 650,000 deaths annually. In the meantime, China has made available hourly air pollution data from over 1,500 sites. Based on these measures, a study published in 2015 by Robert A. Rohde and Richard A. Muller of Berkeley University evidences that air pollution by PM2.5 (particulate matters less than 2.5 microns in diameter) contributes to 1.6 million deaths per year, roughly 17% of all deaths in China.<sup>10</sup> 83% of Chinese are exposed to air that, in the US, would be considered by the Environmental Protection Agency to be unhealthy or unhealthy for sensitive groups<sup>11</sup>.

The poor level of air quality jeopardizes the legitimacy of the Communist Party which, at least since Deng Xiaoping's South China tour in 1992, has traded off the absence of democratic reforms against the pledge to increase the welfare of the population and the size of the middle class (the aim being the creation of a “harmonious society” as stated in 2007 just before the 17<sup>th</sup> congress of the Communist Party. Today the notion has morphed into the idea of “scientific development”.)

<sup>8</sup> The Economist, *Pocket world in figures. 2014 Edition*, London, Profile Books, 2013, p. 104. The air quality is measured by the weight of particulate matter PM10 (less than 10 microns in diameter) per cubic meter.

<sup>9</sup> The Economist, *Pocket world in figures. 2015 Edition*, London, Profile Books, 2014, p. 104.

<sup>10</sup> Robert A. Rohde, Richard A. Muller, “Air Pollution in China: Mapping of Concentrations and Sources”. URL: <https://doi.org/10.1371/journal.pone.0135749>

<sup>11</sup> « Mapping the invisible scourge », *The Economist*, August 15<sup>th</sup> 2015, p. 52.

But the denial of political rights<sup>12</sup> will likely not be accepted in the long run if the population's quality of life does not improve, or worse, if it decreases. In this context, pollution has become a political problem because the deterioration of the natural environment worsens the social and wealth inequalities that are already among the largest in the world, generating social unrest. The number of "mass incidents" identified by researchers has risen from 9,000 in 1993 to 180,000 in 2010. Roughly half of these incidents are caused by environmental or public health problems.<sup>13</sup>

The worsening of air pollution in China is a major explanatory reason of Peking's new attitude toward the international fight against climate change. Of course, air pollution that creates health problems (PM emissions) and GHG emissions do not completely overlap (for instance black carbon is not CO<sub>2</sub><sup>14</sup>). But if Peking decides to reduce PM emissions by diminishing the share of coal in the energy mix of the country (around 66%) this will lead to the reduction of CO<sub>2</sub> emissions and, thus, contribute to the fight against global warming.

Chinese leaders also have good reasons to be worried by global warming as such. Many studies show how vulnerable the country is to damages caused by climate change. For instance, in 2015, the government's chief meteorologist warned of "serious threats" to China's rivers, food supply and infrastructures due to global warming. Global warming is more and more seen as a real threat for coastal cities (Shanghai, Hong Kong...). It is understood to be responsible for aggravating droughts in the north of the country, and floods in the south.<sup>15</sup>

### ***Green technologies***

The second reason for Peking's new attitude lies in the economic opportunities linked to the so-called "green technologies". In short, China aims to prevail in the fast-growing and lucrative "clean products" markets.

<sup>12</sup> According to the "democracy index", China is among the less democratic countries in the world (between Ivory Coast and Bahrein). The Economist, *Pocket World in Figures. 2018 Edition*, London, Profile Books, 2017, p. 67.

<sup>13</sup> Jean-Paul Maréchal, "Chapitre 15. La Chine et la question climatique", in Jean-Paul Maréchal (ed), *La Chine face au mur de l'environnement ?*, Paris, CNRS Editions, 2017, p. 315.

<sup>14</sup> Jessica Seddon Wallack, Veerabhadran Ramanathan, "The Other Climate Changers. Why Black Carbon and Ozone Also Matter", *Foreign Affairs*, vol. 88, n°5, September-October 2009, p. 105-113.

<sup>15</sup> "No cooling", *The Economist*, April 22<sup>nd</sup> 2017, p. 50

President Obama showed awareness of this, seen in the US as a risk. On 24 February 2009, his State of the Union address to Congress set the tone: “We know the country that harnesses the power of clean, renewable energy will lead the 21st century. And yet, it is China that has launched the largest effort in history to make their economy energy efficient. [...] But to truly transform our economy, protect our security, and save our planet from the ravages of climate change, we need to ultimately make clean, renewable energy the profitable kind of energy”.

A priori, the United States is well placed to face this challenge. In terms of research and development spending, it is well ahead of China by indicators such as total expenditure or percentage of GDP. (Table 6)

% of GDP					\$bn				
Rank		Country	%		Rank		Country		
2006	2015		2006	2015	2006	2014		2006	2015
7	11	United States	2.61	2.80	1	1	United States	343,7	502.9
23	18	China	1.36	2.09	6	2	China	37,7	227.6

Source: The Economist, *Pocket World in Figures. 2010 Edition*, London, Profile Books, 2009, p. 63 and The Economist, *Pocket World in Figures. 2018 Edition*, London, Profile Books, 2017, p. 61.

But China’s position has improved steadily, not only in global economic terms but also as far as “green technologies” are concerned. In less than two decades China has become one of the world’s top producers of low energy light bulbs, wind turbines, solar panels, solar water heaters, and batteries for electric cars.

A report published in 2017 by the Institute for Energy Economics and Financial Analysis underlines (warns?) that “the extent of China’s domestic investment in renewables has surpassed all expectations”.<sup>16</sup> In 2015 Chinese companies invested 103 million dollars in renewable energy (excluding large hydro) while their American counterparts invested

<sup>16</sup> Tim Buckley, « China’s global renewable energy expansion », Institute for Energy Economics and Financial Analysis”, January 2017, p. 1. URL: [http://ieefa.org/wp-content/uploads/2017/01/Chinas-Global-Renewable-Energy-Expansion\\_January-2017.pdf](http://ieefa.org/wp-content/uploads/2017/01/Chinas-Global-Renewable-Energy-Expansion_January-2017.pdf)

only 44 million.<sup>17</sup> The Chinese share is one third of the global investment in this sector. (Table 7)

	Amount (billion of dollars)	Growth/2014
China	102.9	17%
United States	44.1	19%
Japan	36.2	0.1%
United Kingdom	22.2	25%
India	10.2	22%
Germany	8.5	- 46%

Source: Tim Buckley, « China's global renewable energy expansion », Institute for Energy Economics and Financial Analysis", January 2017, p. 1

Many of the major players in these markets are now Chinese companies. They benefit from the size of the domestic market that allows huge economies of scale and, therefore, low production costs. Goldwind, United Power, Envision, Ming Yang are among the main wind turbine manufacturers in the world. The leaders in solar module production are Jinko Solar, Trina Solar, JA Solar, Suntech Power, and Yingli Solar. The same can be said in the fields of lithium ion batteries for cars or hydro-electric generation. These companies and many others – backed by the state when they are not (partially) state owned – pursue a global strategy by investing in foreign countries, especially since the 2008 crisis.<sup>18</sup> Among the developed countries, the main destinations are (as far as a reliable information is available) the United States, Germany and Italy (Table 8).

<sup>17</sup> Simon Roger, « Trump brouille les négociations climatiques », *Le Monde*, 10 mai 2017, p. 15.

<sup>18</sup> Xiaomei Tan, Yingzhen Zhao, Clifford Polycarp, Jianwen Bai, "China's overseas investments in the wind and solar industries: trends and drivers", World Resources Institute, Working Paper, April 2013. URL: [http://pdf.wri.org/chinas\\_overseas\\_investments\\_in\\_wind\\_and\\_solar\\_trends\\_and\\_drivers.pdf](http://pdf.wri.org/chinas_overseas_investments_in_wind_and_solar_trends_and_drivers.pdf)



**Table 8. Number of China's overseas investments in solar and wind industries in four developed countries between 2002 and 2012**

	Wind	Solar
United States	8	24
Germany	3	15
Italy	0	11
Australia	5	1

Source: Xiaomei Tan, Yingzhen Zhao, Clifford Polycarp, Jianwen Bai, "China's overseas investments in the wind and solar industries: trends and drivers", World Resources Institute, Working Paper, April 2013

In January 2017, China's National Energy Administration announced plans to spend 360 billion dollars by 2020<sup>19</sup> on new generating capacity using renewable or low-carbon sources: solar (144 billions), wind (100 billion), hydroelectric (70 billion). These investments are supposed to create 13 million jobs. It also means that half of the new capacity built between 2016 and 2020 will be renewable or nuclear<sup>20</sup>.

It is to say the least surprising to see Donald Trump dedicating so much energy to promoting coal mining when China is progressively taking the lead in the field of future technologies and could be able shortly to define and impose norms for environmental products.

### ***Diplomatic influence***

The domestic and economic reasons discussed above are complemented by the fact that participating actively in the conception and implementation of the Paris Agreement was, and still is, a fantastic opportunity for Peking to increase its diplomatic influence and, more broadly, the image of the country in the rest of the world (especially in Western countries). China can play a major and increasing role in the present climate regime for, at least, two main reasons: the nature of its commitment in the Paris agreement and the withdrawal of the United States.

<sup>19</sup> IRENA (International Renewable Energy Agency), *Renewable Energy and Jobs – Annual Review 2017*, p. 13. (see IRENA website)

<sup>20</sup> « No cooling », *The Economist*, April 22<sup>nd</sup> 2017, p. 51.

*The nature of Chinese commitments*

As noted above, China has accepted commitments in the Paris Agreement (Table 5). Beyond the fact that Peking has political and economic interests to improve the country's environmental situation, these commitments will most probably be met for structural and conjunctural reasons.

The first commitment in the Chinese INDC is to peak CO<sub>2</sub> emissions “around” 2030. Two comments can be made. First, such a distant deadline leaves enough time to China to become the world's leading economy. The national growth rate has decelerated over the last ten years (14.2% in 2007, 10.6% in 2010 and 6.7% in 2016. The latter rate (between 6 and 7%) is now called in China “new normal”.<sup>21</sup> But even if growth is below the rates we were used to in the past, it must be recalled that if the annual growth of a country is 5%, its GDP doubles in 15 years. This means that Chinese economy will be, or will be about to be the leading economy in 2030. In short, Peking refuses any binding commitments in terms of CO<sub>2</sub> reduction before the moment when it hopes to have achieved that status. Also, the Chinese INDC gives no information on what the level of emissions will be in 2030 and what will occur thereafter.

The second commitment China accepted is “to lower by 2030 carbon dioxide emissions per unit of GDP by 60% to 65% from the 2005 level.” This commitment is based on an intensity target. It will be met because the diminution of energy intensity – and thus of CO<sub>2</sub> intensity – is an observable trend in many economies even when there are no environmental targets on the political agenda. (Table 9)

As the 2017 IEA report on energy intensity underlines: “Globally, energy consumption and economic development have been decoupling, with gross domestic product (GDP) increasing by more than 95% between 1990 and 2015, whereas total primary energy supply (TPES) grew by 56%. (...) The amount of energy used to generate a unit of GDP, also called energy intensity of the economy (TPES/GDP), decreased globally by 32%

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<sup>21</sup> Hu Angang, « Embracing China's “New Normal” », *Foreign Affairs*, 2015, vol. 94, n° 3, p. 8-12.

between 1990 and 2015, with large regional variations (...). For example, in China, intensity more than halved (-66%) over the same period".<sup>22</sup>

<b>Table 9. CO<sub>2</sub> emissions/GDP using exchange rates (kg CO<sub>2</sub>/dollars US using 2010 prices)</b>				
	1971	1990	2015	% change 1990 et 2015
World	0.69	0.54	0.43	-20.3 %
United States	0.87	0.53	0.30	-43.4 %
China	3.51	2.26	0.99	-56.2 %
China/United States	4.0	4.2	3.3	

Source: International Energy Agency, *CO<sub>2</sub> Emissions From Fuel Combustion, 2017 Edition*, p. ii.49-II.51

The Chinese energy sector improves year after year. For example, CO<sub>2</sub> emissions per kWh from electric generation were 909 grams in 1990, only 657 in 2015.<sup>23</sup>

All the facts listed above have a name: the modernization of Chinese economy. Indeed, the sectoral shares of Chinese GDP are changing because the country is becoming more and more a service economy (Table 10). This means that there are (and will be) more and more economic activities that emit less CO<sub>2</sub>.

<b>Table 10. Origins of Chinese GDP (% of total)</b>		
	2007	2014
Agriculture	11,1	9
Industrie	48,5	41
Service	40,4	50

Source: The Economist, *Pocket World in Figures. 2010 Edition*, London, Profile Books, 2009 et *Pocket World in Figures. 2018 Edition*, London, Profile Books, 2017.

Besides this structural explanation, there are also conjunctural factors that lead to believe that the targets listed in the Chinese INDC could be reached perhaps long before 2030.

<sup>22</sup> IEA, *Energy efficiency indicators. Highlights, 2017*, p. 5-6. URL: file:///D:/User/Documents/HK2017/EnergyEfficiencyHighlights\_2017.PDF

<sup>23</sup> International Energy Agency, *CO<sub>2</sub> Emissions From Fuel Combustion, 2017 Edition*, p. II.63.

Among them, there is the deep correction in housing and property construction that occurred in 2014. As the economist Rosealea Yao<sup>24</sup> puts it, the construction sector drives demand for the industrial sectors that use the most energy: metals, other construction materials, oil, mining, and so forth. These sectors suffered from a serious growth slowdown in 2014 as construction fell sharply. Some experts estimate that the fall in the sales volume was around 3%. This produced a modest effect on the GDP growth but a bigger effect on GHG emissions. Between 2004 and 2012, these sectors contributed to 58% of the growth in energy use but only 22% in GDP growth.

As *The Economist* noted during the COP22: “Slowing economic growth and falling demand for coal in China mean that it may already have passed the high point of emissions, about 15 years ahead of the date it promised under the Paris deal”<sup>25</sup>.

### *The United States' withdrawal*

Times have changed. 2009 and the COP15 have become another world. Fifteen years ago, China thought – or pretended to think – that the issue of climate change was a weapon western countries wanted to use against its economic and political rise. Now, China sees diplomatic benefits in hanging tough on climate change, on being in favour of the Paris Agreement. It was already true three years ago but is even more true today, after Donald Trump's election.

The agreement appears to have a sufficiently flexible structure and modest enough aims to withstand US withdrawal. Some experts feared that President Trump's decision would jeopardize the future of the Paris Agreement. Of course, this decision will have a financial impact on at least two institutions: the UNFCCC and the Green Climate Fund. The United States used to give 115 million dollars annually to the first (25% of the budget) and had promised to give 3 billion dollars to the second (to this day only 1 billion was given under President Obama). Washington's decision can be also a bad example for some countries that are not absolutely convinced of the necessity to participate to the Agreement, but which did not want to be publicly opposed to it.

<sup>24</sup> Yao Rosealea, « Peak Coal Is Nigh », GavekalDragonomics, 4<sup>th</sup> February 2015, 4 p. ([www.gavekal.com](http://www.gavekal.com)).

<sup>25</sup> “Up in smoke?”, *The Economist*, November 26<sup>th</sup> 2016, p. 53.

Peking appears to want to take advantage of this situation and might well succeed. In January 2017, just after Donald Trump's victory, Xi Jinping insisted during the World Economic Forum in Davos on the fact that all signatories should stick to the Paris Agreement "instead of walking away from it". The same month, Xie Zhenhua, China's climate envoy, said that his country was "capable of taking a leadership role in combating global climate change".<sup>26</sup>

All these statements must be connected to the so-called "China solution". This expression was publicly used for the first time in July 2017 on the 95<sup>th</sup> anniversary of the foundation of the Chinese Communist Party. During the speech he gave for that occasion, Xi Jinping asserted that the Chinese people were "fully confident that they can provide a China solution to humanity's search for better social institutions".<sup>27</sup> Unlike the "China model", or the "Peking Consensus" (designed to counterbalance the defunct Washington consensus), the "China solution" seems to be – or at least has been conceived to be – applicable everywhere, including in Western countries.

China is more self-confident than ever. It is not a "revisionist power" seeking to overthrow the world order, which it cannot do, or put into question global interdependence which it has greatly profited from, but is clearly eager to expand its influence within the order. In October 2017, during the 19<sup>th</sup> Party congress, Xi Jinping pledged to lead the world's second largest economy into a "new era" of international power and influence. It seems clear that a China solution to climate change will be one of the first practical applications of the China solution even if no one can give a precise definition of what that solution is. Xie Zhenhua said that concerning climate change, the next step is to offer China's own solution, at world level.<sup>28</sup>

Undoubtedly, in years to come, China will be a driving force in the fight against climate change. But, can it become the *leader* of that fight, as it is now often said? It is of course difficult, if not impossible, to answer a hypothetical question of this kind, given historical contingency.

<sup>26</sup> « No cooling », *The Economist*, April 22<sup>nd</sup> 2017, p. 50.

<sup>27</sup> « Tortoise v hare », *The Economist*, April 1<sup>st</sup> 2017, p. 46.

<sup>28</sup> *Idem*

Nevertheless, some remarks are in order. In international relations theory, leadership is linked to hegemony. As the Italian philosopher Antonio Gramsci first noted, the concept of hegemony expresses an historical situation in which there is unity between objective economic and material forces or conditions, and a set of dominant philosophic-political ideas. Transposed in the field of international relations, hegemony can be defined as a world level configuration in which a dominant state leads other states and societies, based on consented rather than compelled hierarchy. As Philip Golub puts it “world hegemony implies a hierarchical interstate system based on a large measure of consent, subordinate states deferring to and consenting to what they consider to be a legitimate authority that provides international public goods”.<sup>29</sup>

China is still far from fulfilling these conditions. The country suffers notably from a lack of ideological hegemony, or “soft power”. The term was coined by Joseph Nye at the end of the 1980s to express “the ability of a country to persuade others to do what it wants without force or coercion”. Obviously, China’s involvement in the Paris agreement contribute to improve the country’s image and, perhaps, to expand its diplomatic influence in “soft power” issues.

But a great number of other decisions and initiatives damage China’s image abroad. The project of the so-called “social-credit-system” that will permit the Party to monitor and control all the citizens is one of them.<sup>30</sup> Peking’s attitude during Nobel peace laureate Liu Xiaobo’s agony in July 2017 gives a good idea of the nature of the regime. The shrinking of academic freedom in Hongkong despite the Basic Law and the 50-year treaty between Britain and China on the city’s status is an alarming signal. And the inscription of Xi’s “Thought on Socialism with Chinese Characteristics for a New Era” in the Party charter at the end of the 19<sup>th</sup> Congress in October 2017 does not seem to indicate an evolution towards more political freedom... As Chris Patten put it “The trouble these days (...) (with President Xi Jinping and his Politburo) is (...) that they know little about Marx but a lot about Lenin”.<sup>31</sup>

<sup>29</sup> Philip Golub, *Power, Profit and Prestige: a History of American Imperial Expansion*, Pluto Press, London, 2010, p. 62.

<sup>30</sup> « Creating a digital totalitarian state », *The Economist*, December 17<sup>th</sup> 2016, p. 20-22.

<sup>31</sup> Chris Patten, “The Closing of the Academic Mind”, *Project Syndicate*, February 22<sup>nd</sup> 2016. URL: <https://www.project-syndicate.org/commentary/academic-freedom-under-threat-by-chris-patten-2016-02>

A quarter of century after the adoption of the UNFCCC it appears that international climate change policy poses serious cooperation challenges. According to Robert Keohane: “Whether a hegemon exist or not, international regimes depend on the existence of pattern of common or complementary interests that are perceived or capable of being perceived by political actors.”<sup>32</sup> If this analysis is right, China can play an important role in the years to come, alongside Europe. It is also noteworthy that, at least on the climate issue, George W. Bush and Donald Trump will have respectively helped Peking to refuse any binding commitment (from 2001 to 2014) and since June 2016 to appear as a leading force in the preservation of climate stability. ■

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<sup>32</sup> Robert Keohane, *After Hegemony*, Princeton, Princeton University Press, 2005, p. 78.

ASIA FOCUS #59

## WHAT ROLE FOR CHINA IN THE INTERNATIONAL CLIMATE REGIME?

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