EU-China Environmental Cooperation: The Case of Emissions Trading

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Paper for "The EU and Emerging Powers" conference,
Brussels, 28 & 29 April 2013

FIRST DRAFT
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1. Introduction

The European Union's (EU) external governance includes strong support for multilateral solutions but in the wake of slow progress in international climate negotiations, EU policy-makers have increasingly reverted to bilateral or unilateral means. This includes soft diplomacy tools such as cooperation, dialogues and policy promotion (Biedenkopf and Dupont 2013). These bilateral efforts can complement and support the multilateral process and are not understood as a substitute of multilateral negotiations by EU actors. They could however also take the pressure and urgency off the international process. In the case of climate policy, they are rather aimed at accelerating the United National Framework Convention on Climate Change (UNFCCC) process and of building support from the bottom up. The top down process of multilateral negotiations that aim at finding a global agreement on emissions reduction targets to limit global warming to 2°C are progressing at slow pace due to diverging positions as to how and how much different countries should contribute and commit themselves. Working at the bilateral level can be easier given the limited number of negotiation partners. Bilateral cooperation can help approximate countries' position and generate greater understanding of the respectively other side's situation and position. Through cooperation, dialogue and capacity building, soft diplomacy could support the international process. This paper focuses on bilateral EU-China cooperation on greenhouse gas (GHG) emissions trading. It is based on a research project in its early stages.

Processes of external engagement are of great importance in the case of China. By 2011, China was not only the largest emitter in aggregate terms—having overtaken the United States in 2006—but its per capita emissions were already overtaking those of several industrialized countries (Olivier *et al.* 2012). China's primary energy consumption increased by 149% in the ten year period from 2001 to 2011, with coal accounting for 69% of energy consumption in 2011 (BP 2012). Chinese greenhouse gas emissions increased even more rapidly over the same time period, by 166%. Against a backdrop of increasingly unsustainable economic development, China's leaders have looked to develop a range of policies and measures to address these challenges, including by drawing on the experience of other countries and regions. The EU and its Member States are the most prominent actor in engaging with Chinese policy-makers on emmissions trading.

Although originally an American policy innovation of the 1990s to deal with the problem of sulphur dioxide and nitrogen oxide pollution, in the 2000s the EU became the most prominent innovator and promoter of emissions trading to tackle GHGs. Emissions trading involves setting a maximum emissions limit, which corresponds to a set amount of emission allowances. Each emitter must possess allowances that match its actual emissions. Excess allowances can be sold and excess emissions must be covered by purchasing additional allowances. Emissions trading is a market-based policy instrument whose proclaimed advantages are cost-effectiveness, innovation fostering and flexibility in achieving an overall emissions reduction goal (Tietenberg 2006; van Asselt 2010: p 126).

This paper presents initial research on the development of EU-China cooperation to develop emissions trading in China, based primarily on analysis of primary and secondary sources. Building on insights from the external governance and diffusion literature, this paper examines both the factors underpinning the EU's "supply" of policy lessons, and the domestic context which explains China's "demand" for policy solutions. The paper examines the steps that China is taking to develop pilot emissions trading schemes and, building on the earlier discussion of supply and demand factors, maps out the ways in which the EU and China are cooperating in this area. Finally, the paper identifies remaining challenges to the establishment of GHG emissions trading schemes in China.

2. EU Policy Promotion, Capacity Building and Bilateral Cooperation

While the EU gives preference to multilateral solutions and so-called effective multilateralism, it also uses unilateral and bilateral efforts in its foreign policy. In climate policy, the EU has in recent years increasingly reverted to unilateral and bilateral efforts in addition to, not at the expense of, the multilateral UNFCCC process. This can especially be explained by the slow progress of the international negotiations. One recent prominent and controversial example of a unilateral measure is the inclusion of the aviation sector into the EU emissions trading system (ETS). This includes all flights to and from Europe operated by EU and non-EU airline companies into the trading system.

The EU does also engage in bilateral cooperation with non-EU countries in an effort to promote and enable the spread of GHG emissions trading as part of their domestic climate policy. EU policy promotion and capacity building are known from areas such as democracy, human rights or regional integration. Democracy promotion has been part of EU development policy for the past decades. Democracy and human rights clauses are parts of EU agreements with developing countries and capacity building has gained increasing importance. The EU's approach moved from prescriptive to open and constructive dialogues. This cooperative approach could be labelled soft diplomacy and also is increasingly applied in climate policy. The European Commission's 2009 publication on "leading global action to 2020 and beyond" dedicates one section to financial, technical and capacity-building assistance (European Commission 2009: pp. 28-29). The EU engages in financial and technical assistance, political dialogues and capacity building with countries such as China. EU-Chinese cooperation on climate change has intensified in the past years and policy dialogues between experts have increased.

Policy promotion and capacity building can increase awareness and deepen Chinese actors' knowledge of the EU experiences and the respective policy in general. These activities include formal meetings and presentations, informal ad hoc and personal contacts, and the involvement of EU experts in Chinese policy-making in an advisory role. Policy promotion through bilateral cooperation and capacity building can contribute to the proliferation of

climate policies that can lead to the raising of the level and ambition of climate mitigation efforts. EU action alone is not sufficient to mitigate climate change. Encouraging other jurisdictions to adopt stringent climate measures is important to achieve climate change mitigation effects. It can generate bottom-up support for internationally agreed climate measures. It is however questionable whether such bottom-up developments can achieve a sufficient level of climate policy in its ambition and geographical scope to be an alternative to international agreements. The spread of climate policy measures such as GHG emissions trading can more likely be seen as a contributing and facilitating factor of international negotiations. Through the adoption of similar climate policies can approximate jurisdictions' position in negotiations and generate mutual understanding of the respectively other position.

The EU also has an interest in promoting carbon markets around the globe because this increases to potential for linking these markets and therefore making the EU ETS more efficient and reducing potential competitiveness disadvantages of EU industry. Moreover, since the EU has more extensive experience with emissions trading than with other policy measures such as carbon taxes – which do not exist at EU level – it has obviously most expertise in this area that I can share. It could – for obvious reasons – not credibly promote a measure that it has not introduced itself.

Policy promotion, capacity building and bilateral cooperation can be driven by the EU or by extra-EU jurisdictions (Schimmelfennig 2012). EU-driven efforts relate to the EU's active promotion of certain policies while demand-driven effects occur through the activities of extra-EU actors (Börzel and Risse 2012). This paper focuses on processes in which the EU is purposefully involved and engages with China.

For effective policy promotion and capacity building, EU interest in engaging and investing in such measures (supply side) and the receptiveness of extra-EU jurisdiction to lessons from the EU and to building up its capacity in the respective policy area (demand side) are necessary. The commitment and intensity of the EU's engagement in policy promotion and capacity building is thus one part of the process. The way, intensity and skilfulness with which the EU conducts its efforts are however only one part of the equation.

Domestic factors in China provide the second part of the explanations for whether and to what extent China is receptive to the EU's efforts. These factors relate to a) the political commitment and interest to adopt climate policy, b) the institutional framework defining the regulatory options and the need for adjustment of EU policy lessons and templates, and c) the framing of the policy problem. The political commitment and overall political context in a jurisdiction can be more or less receptive to ideas coming from the EU and its ETS. If policy-makers are generally committed to adopting climate policies, a certain degree of policy demand exists, which facilitates and fosters policy promotion and capacity building.

The institutional framework and the framing are important factors for the adjustment of the EU policy to the extra-EU context. Institutions include the ways in which jurisdictions and their policy-making process are organized, existing policy, and broadly-accepted norms (Gurowitz 2006: pp. 310-11). The framework of formal policy-making procedures and informal norms can provide opportunities and constraints for policy-relevant actors to pursue certain policy options (Deutsch 1966: p 147). Path dependencies from existing policies and infrastructures can require the adjustment of policies (Levi 1997: pp. 28-29; Sedelmeier 2006: p 12). The existence and framing of the climate problem can differ (Lavenex and Wichmann 2009: p 98; Princen and Rhinard 2006: p 1121; Tews 2005: pp. 69-70). This can lead to different conclusions as to whether and how climate change should be addressed. The

following section provides the background to the analysis by introducing the EU ETS, Chinese developments and some context.

3. Background: European and Chinese GHG Emissions Trading

The adoption of a GHG ETS in the EU preceded the Chinese efforts by approximately a decade and the EU ETS is the largest, most ambitious emissions trading system so far. Yet, the idea of emissions trading is not a European. The US pioneered in the introduction of emissions trading systems in the 1990s. Through an amendment of the Clean Air Act, a nation-wide sulphur dioxide (SO_2) and a regional[1] nitrogen oxide (NO_x) emissions trading system were introduced (Bluemel 2008: pp. 225-26; Ellerman 2000; Schmalensee *et al.* 1998). President Clinton's administration strongly advocated the inclusion of GHG emissions trading in the 1997 Kyoto Protocol (Depledge 2000: pp. 82-86). Although Clinton signed the Kyoto Protocol in 1998, the US never ratified and rather withdrew from the Kyoto Protocol (Harrison 2007; Steurer 2003; Sussman 2004). In the international negotiations of the Kyoto Protocol, the EU only reluctantly accepted the inclusion of GHG emissions trading (Damro and Luaces Méndez 2003; Harrison 2010: pp. 80-82; van Asselt 2010: pp. 126-27). In its implementation of the Kyoto Protocol, the EU adopted a GHG emissions trading system in the 2000s (Bye and Bruvoll 2008; Child *et al.* 2008), which has become "the core climate change instrument for the EU" (Faure and Peeters 2008: p 4). In the design of the EU ETS, the US experiences played an influential role. US consultants were involved in the process (Skœrseth and Wettestad 2010: pp. 67-68).

The EU Emissions Trading Directive[2] was adopted in 2003 and trading started in January 2005. In 2009, a reformed emissions trading system[3] for the period 2013-2020 was agreed (Oberthür and Pallemaerts 2010: pp. 35-36, 46-52). There has also been a strong external dimension to the ETS, brought about by the decision to link the internal ETS to the other two flexible mechanisms of the Kyoto Protocol, namely the Clean Development Mechanism (CDM) and Joint Implementation (JI). Under these mechanisms, industrialised countries can fund projects in developing countries and offset the resulting emissions reductions generated by CDM and JI projects against their own domestic emission reduction commitments. This was done through the Linking Directive, which thereby generated demand for credits from CDM projects.[4] In the absence of the linking of the CDM and JI with the EU ETS, there would have been vastly lower demand for Certified Emission Reductions, the credits generated by CDM projects.

The EU has been a pioneer in supranational GHG emissions trading (Ellerman and Buchner 2007: pp. 67-69; Skœrseth and Wettestad 2009; Wurzel and Connelly 2011: pp. 7-8). The EU ETS is the largest emissions trading scheme globally. More broadly, the EU ETS, and the promotion of market mechanisms more generally, became an increasingly central aspect of the EU's approach to international cooperation on climate change during the following years. Creating a "global carbon market" formed an important part of the EU strategy for the negotiations on a post-2012 regime (Council of the European Union 2009a, 2009b).

The supply side condition is thus given. The EU has gained much experience with the design and implementation of GHG emissions trading and it has a number of incentives as outline in

[1] It applied to Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Delaware and the District of Columbia.
[2] Directive 2003/87/EC.
[3] Directive 2009/29/EC.
[4] Directive 2004/101/EC.

the previous section. Its ETS currently is in its third trading phase. In 2009, EU policy-makers engaged in a significant overhaul of the ETS based on earlier experiences. The lessons that the EU learned from its own experience and consequently changed in the revision of its own system can be beneficial also for extra-EU policy-makers when designing and implementing their emissions trading systems.

While the EU ETS was the first regional, mandatory GHG emissions trading scheme, emissions trading has also been adopted by a number of other jurisdictions over the past decade. For example, a number of US states as well as Canadian provinces began filling the US federal regulatory void in climate policy. Three subnational regional GHG emissions trading systems were initiated in the course of the 2000s – the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI) and the Midwest Greenhouse Gas Reduction Accord (MGGRA) – though the latter never was implemented (Biedenkopf 2012). California introduced a state-wide ETS on 1 January 2013. Initially covering large electric power plants and large industrial plants, it will be extended in scope to include fuel distributors (including distributors of heating and transportation fuels) in 2015, at which point the scheme will cover an estimated 85% of total GHGs in California (C2ES 2013).

In 2011, Australia enacted the Clean Energy Act, which introduced a set carbon price for the period 2012-15 (which will rise by 2.5% per year during the period), which will then be replaced by an ETS. The carbon price and subsequent ETS apply to facilities or corporations emitting more than 25,000 tonnes of CO_2e. In July 2012, Australia and the EU agreed to link their respective ETS schemes no later than 1 July 2018 (GLOBE International 2013). South Korea has also enacted legislation that will create an emissions trading system commencing in 2015 (Reuters 2012).

Although no emissions trading schemes with mandatory participation have yet commenced in China, a number of cities and provinces have been experimenting by creating exchanges for voluntary carbon trading for several years. Three such exchanges existed in 2008: the Shanghai Environment Energy Exchange, the Beijing Environment Exchange and the Tianjin Climate Exchange. Zhejiang, Yunnan, Hubei and Guangdong provinces have since established exchanges, and other provinces are planning to do likewise (Li, Ji Feng *et al.* 2012). Nonetheless, these exchanges have so far been largely symbolic. Their total trades accounts for less than 1% of the global voluntary carbon market in terms of total traded volume, and the total volume traded on the Beijing Exchange in its first three years was less than the European Climate Exchange's trade volume in a single day (Huang 2013; Ma 2012).

These exchanges involve private actors such as carbon assets management companies, NGOs, forest carbon-sink institutions, institutional sellers and buyers, and individual buyers, but most of them are state-controlled or –owned enterprises. Only a few provinces and cities have obtained national-level support for implementing carbon trading experiments, but the proliferation of local exchanges was not banned by national legislation. Indeed, the establishment of local exchanges can be seen as local-level policy entrepreneurship in anticipation of the prospect of central government action to create emissions trading pilots. Once it became apparent that the central government was interested in pursuing carbon emissions trading, some provincial and municipal governments rushed to declare their own carbon trading platforms (Huang 2013; Ma 2012).

The first official mention of the central government's intention to introduce carbon emissions trading came in October 2010, when the Communist Party of China (CPC) Central Committee approved the proposals for formulating the development plan for 2011-2015

which included a statement that China "will gradually establish a carbon emissions trading market" (The Climate Group 2010). One year later, in November 2011, the National Development and Reform Commission (NDRC) officially approved the list of pilot emission trading schemes, which are to be established in five cities (Beijing, Tianjin, Shanghai, Chongqing and Shenzhen) and two provinces (Guangdong and Hubei). These seven pilots will account for 27.4% of China's GDP and 18.4% of its population, and have been selected to represent some of China's regional diversity, including both the prosperous cities of Beijing and Shanghai and the relatively poor province of Hubei. The pilots are also being set up with deliberately different coverage and rules, such as the Beijing scheme's focus on large public buildings, heating companies and manufacturing compared to Guangdong's coverage of the main sources of manufacturing emissions such as ceramics, electricity and concrete (Lo 2013).

So far, the two most advanced pilots are those of Guangdong and Beijing. Guangdong province released a detailed plan in September 2012. The ETS will cover nine industries: power, cement, steel, ceramics, petrochemicals, textiles, nonferrous metals, plastics and paper making. Participation will be mandatory for companies that emit more that 20,000 tonnes of CO2 per year, though they will receive free allocations of permits. The scheme will cover 827 companies accounting for 42% of power consumption in the province, and 277 million tonnes of CO2 emissions by 2015 (Wang 2013). Three phases are scheduled: a testing phase from 2012 to 2015, an improvement phase from 2016 to 2020, with full trading thereafter (Hook 2012). In September 2012, the first trade took place in Guangdong, with four cement companies buying 1.3bn permits (Scotney *et al.* 2012).

The Beijing municipal government released draft rules for its pilot scheme in March 2012. These rules stipulate mandatory participation for firms emitting on average more than 10,000 tonnes per year from 2009 to 2011, and installations in the following sectors have been asked to provide emissions data: thermal electricity providers, heating sector, manufacturers and major public buildings (Yu and Elsworth 2012).

The stated aim of the central government is that the seven pilot schemes will pave the way for a national ETS from 2016 onwards, as part of the 13th Five-Year Plan (Global Times 2012). However, recent reports suggest that it may be sometime after 2016 that a national ETS commences (Parnell 2013). Moreover, a number of recent analyses have concluded that the 2016 deadline is highly ambitious (Han *et al.* 2012; Yu and Elsworth 2012). As this section shows, the EU as the supply side has a number of lessons to share and promote. In China, there are developments that hint at a demand. The following section describes the receptiveness of the overall political context in China and then moves to a discussion of EU-China cooperation.

4. The Demand Side: Chinese Climate Policy

The political context and commitment to climate policy shows some receptiveness to lessons from and collaboration with the EU on climate policy and GHG emissions trading. Over recent years, China has taken significant steps to design climate policies and to develop low-carbon growth sectors of its economy. These changes must, of course, be set against continuing unsustainable trends in China's economic development pathway, and the political and institutional constraints on radical transformation (Andrews-Speed 2012). Nonetheless, China's achievements in the low-carbon sphere have been significant. This transition has been driven principally by three of factors.

The first of these was the increasing energy intensity—and therefore increasing energy demand—of the Chinese economy. From 1990 to 2002, China's energy intensity had dropped by 54% (Heggelund and Buan 2009: p 303). However, this trend was reversed during the period 2002 to 2006, during which China's total commercial energy consumption grew by more than 50%, increasing more rapidly than GDP. This was driven by a combination of central government policy at the time which favoured construction and heavy industry, and a surge in trade and investment arising from China's admission to the World Trade Organization in December 2001 (Meidan *et al.* 2009: p 608). As a result, blackouts were common across China, with the exception of the largest cities, which brought the issue of energy security to the forefront of the government agenda (Godement 2007: p 392). In 2004, the central government announced that sustainable use of energy was a key priority for the whole country (Meidan *et al.* 2009: p 610).

Second, alongside the shift in thinking on energy policy, there was a growing awareness among the Chinese leadership of China's ecological vulnerability and ever-worsening local environmental pollution. This is closely related to the issue of energy policy, since China is heavily reliant on coal for energy generation. In 2006, coal constituted 69.4% of overall energy consumption, and nearly 90% of all new power generation was coal. Moreover, since China has 114 billion tonnes of proven coal reserves—coal is bound to remain the dominant fuel for power generation in the near future, and is expected to constitute 53% of total energy consumption in 2030 (Heggelund 2007: p 162).

China's rapid economic growth, particularly the more recent, energy intensive phase, has resulted in extensive environmental degradation across a range of indicators. In 2007, China had 16 of the world's top 20 polluted cities. 90% of Chinese water is polluted, some of it almost completely, while the pace of desertification has doubled since the 1970s (cited in Brown 2007: p 36). Moreover, these local environmental stresses have been recognized publicly by the Chinese Government. In an unusually frank interview with Der Spiegel in 2005, Pan Yue, Vice Minister in the State Environmental Protection Administration, acknowledged the severity of air and water pollution, and suggested that China was losing between 8 and 15% of GDP per annum due to air and water pollution, and highlighted the future prospect of 150 million "environmental refugees" in China (Der Spiegel 2005). Such local environmental problems have led to increasing public unrest. According to surveys conducted by the Chinese Academy for Environmental Planning in 2007, 56% of the public are worried about the safety of drinking water, and almost 95% are worried about the state of the environment (Brown 2007: p 41).

A third important driver has been a desire to develop autonomous innovation and manufacturing capabilities in areas that the Chinese Government view as strategically important in the medium term. China has increasingly viewed the development of a domestic renewables industry as part of its industrial strategy, and not simply as a means of tackling environmental pollution. This is particularly evident in the "Medium and Long Term Renewable Energy Development Plan", published in September 2007 by NDRC (NDRC 2007). As well as setting overall and sectoral targets for renewable energy, the Plan aims to make China self-dependent in terms of innovation, by bringing in foreign technology in the short term and then building up domestic innovation capacity in the longer term. These factors have, arguably more than a concern with the disruptive impacts of climate change *per se*, driven the development of significant climate change policies in China over the past decade.

China's 11th Five Year Plan (FYP), announced in 2005 and covering the period 2006-2010, has been described as "the beginning of a new era of sustainable development in China" (Ng and Mabey 2011: p 8) and as "China's turning point for environmental protection" (O'Gorman and Zhu 2007: p 17). It set a 20% energy intensity target to be achieved by 2010, and a less concrete 15% renewable energy target to be achieved by 2020. In June 2007, the Chinese Government published its first National Climate Change Programme and established a National Leading Group for Climate Change, chaired by the serving Premier, demonstrating that climate change had become an issue of importance for the highest levels of the Chinese Government. Prior to the Copenhagen climate change summit in 2009, the State Council announced a target of reducing carbon intensity—that is, emissions per unit of economic output—by 40 to 45% by 2020 relative to 2005 levels (Xinhua 2009). The 12th Five Year Plan, announced in early 2011, set a compulsory carbon intensity target of 17% reduction by 2015 relative to 2010 levels, and an energy intensity target of 16% (Li, Jun and Wang 2012). Furthermore, the government has announced its intention to draft a comprehensive climate change law, which is expected to be enacted by 2015 (GLOBE International 2013: p 104).

However, there has also been an increasing recognition among the Chinese leadership that there are limits to existing methods of policy-making and implementation, including the dominance of the command-and-control model of regulation. In particular, the model of state-led planning has emphasised setting periodic targets but has been less successful at delivering reform (Andrews-Speed 2012: pp. 129-30). One prominent example of this failure was the efforts by local governments in China to achieve their energy efficiency targets under the 11th FYP. It was widely reported that, in the final months of 2010, local governments in China took steps such cutting off electricity to homes, hospitals and factories in order to meet the energy efficiency targets they had been set (Oster 2010). Such difficulties have prompted China's leaders to move away from command-and-control regulation and towards experimentation with more flexible instruments, including market mechanisms (Han *et al.* 2012; Yu and Elsworth 2012).

China's unsuccessful past experiences with emissions trading for SO_2 is also likely to have contributed to demand for European expertise in the area. Beginning in the late 1980s and early 1990s, a number of Chinese provinces and cities have piloted emissions trading schemes for SO_2 and other pollutants. In the early 1990s, the State Environmental Protection Administration (SEPA) implemented a pilot programme to promote the usage of pollution permits, covering 16 large cities and allowing the polluters in 6 cities to trade pollution permits among themselves (Chang and Wang 2010). A second phase in China's experimentation with emissions trading for SO_2 was strongly facilitated by external actors, including the US Environmental Protection Agency, prominent US NGOs and some of the multilateral development institutions. This led over the following years to SO_2 emissions trading mechanisms being established in four provinces (Shangdong, Shanxi, Suzhou and Henan), three cities (Shanghai, Tianjin and Niuzhou), and one power production company (Hua Neng Group). These schemes aimed at meeting targets for SO_2 reduction under the 10th FYP (2001-2005), and experimented with respect to trading formats, allocation methods, and pricing mechanisms (Chang and Wang 2010; Shin 2012; Tao and Mah 2009).

However, despite government support and the assistance of external actors, these various pilots were unsuccessful. By the end of 2005, Chinese SO_2 emissions had increased by 27%, primarily because of the 64% expansion in coal fired generation capacity during 10th FYP period. That emissions trading was deemed unsuccessful can be seen in the fact that, from 2005 onwards, SEPA and NDRC began to set up a series of new SO_2 policies which included

a subsidisation plan to support major power plants to install new equipment and the shut-down of small and inefficient power plants. In March 2011, China announced that 11th FYP targets for SO_2 reduction had been reached without emissions trading (Shin 2012). China's previous failures with SO_2 emissions trading are likely to have generated interest on the part of Chinese policy-makers in tapping into European experience setting up CO_2 emissions trading.

6. EU-China Cooperation on Emissions Trading

EU-China cooperation on GHG emissions trading takes two routes. One is through China's participation in the CDM and the other, more explicitely focused on policy promotion and capacity building, is cooperation through meetings and information exchange. The EU played a role in fostering understanding of carbon markets in China by allowing European firms use so-called Certified Emission Reductions (CER) generated by CDM projects to offset their domestic emissions. The CDM has been particularly significant in the case of China. As well as enabling European companies to purchase Chinese CERs through the linking of the CDM and EU-ETS, the EU and member states have also participated directly in the CDM through government purchases of CERs, and through provision of capacity building for the CDM in China. One of the most prominent such initiatives is the EU-China Clean Development Mechanism Facilitation Project, launched in April 2007 under the framework of the Partnership on Climate Change, with EUR 2.4 million funding provided by the European Commission. This project aimed to increase domestic institutional capacity in China in relation to the CDM, to introduce European and international standards in quality management of the CDM development process, and to increase awareness of CDM opportunities in China.

EU-China cooperation on emissions trading has taken place against the backdrop of the broader development of EU-China engagement on climate change which, in turn, built upon the progressive deepening of the broader EU-China relationship in the early 2000s (Murphy and Islam 2004; Shambaugh 2004: p 243). EU-China cooperation on climate change has taken the form of the EU-China Partnership on Climate Change, agreed at the EU-China Summit in September 2005, under which both sides committed to strengthening dialogue on climate change policies and to practical cooperation on the development, deployment and transfer of low carbon technology. Cooperation has taken the form of institutionalized dialogue through a bilateral consultation mechanism which meets once or twice per year at senior official level, as well as practical cooperation in a range of areas such as carbon capture and storage, renewable energy and capacity-building support for province-level climate policy-making and implementation in China.

Not only the EU, in particular the European Commission, but also some individual EU Member States and Norway equally as the World Bank engage in cooperation with different Chinese actors and regions on emissions trading. These activities are complimentary and focus on different pilot projects or the national level. The EU and European countries coordinate their activities. For example, in April 2013, there will be a coordination meeting between all the European players and the Chinese actors involved.

The EU is currently in the process of awarding a tender to a consortium of European and Chinese experts for a three-year project that will be launched in summer 2013. The aim of this project is to provide expertise and to engage in capacity building. The consortium is a mix of European and Chinese experts since the European Commission acknowledged the need for international expertise as well as local knowledge for implementing a successful

project. The funding however comes entirely from the EU and amounts to €5 million. It is part of a 2012 agreement between China and the EU to invest €25 million over 4 years, on a EU-China low carbon and environmental sustainability programme.[5] Since the funding, despite being significant, would not be sufficient for engaging in all seven Chinese pilot projects, the project consortium will prioritise and share work with the other European and international actors involved. For this reason, there are attempts to develop a coordinated approach between the different European actors.

The main additional European actors involved in capacity building on GHG emissions trading in China are Germany, the United Kingdom and Norway. Germany, more precisely its international cooperation agency GIZ, funds with €4 million a cooperation project on specific issues in some of the pilot projects over the period of July 2012 – July 2016. The aim of this project is to train technical experts and decision-makers on ETS design and implementation, to contribute to in-depth knowledge building of a legal and institutional emissions trading framework and to enhance the dialogue between political decision-makers and the private sector.[6] The UK is active with capacity building measures in one of the pilot projects, Guangdong, which is one of the most developed pilots. The region has a similar GDP to Germany and the same range of industrial sectors as many EU countries. For this reason, this particular pilot project seems very interesting for Europeans to get involved and share their experiences. Norway is the third important player. It funds a $5 million project targeted at the national level. The country works with the NDRC on basic issues such as the establishment of a registry and on measurement, reporting and verification (MRV). In addition to these European efforts, some other countries such as Australia are active on capacity building in China but to a lesser degree than the European. One international actor, namely the World Bank, is another important player in the development of Chinese emissions trading programmes. It will fund a $8 million project for supporting the development of a national system in the period of 2014-2016.

Beside the above-mentioned project, the European Commission engages with actors from a number of the pilot projects and from the national government. A European Commission representative visited three of the pilot project regions, namely Guangdong, Hubei and Beijing, where workshops on emissions trading were organised. In addition, Chinese delegations visited Europe to meet with EU and Member State experts (mainly from Germany and the UK) on emissions trading. These delegations came from the pilot projects of Shanghai, Beijing and Guangdong. These delegation visits were organised on the request of the Chinese visitors. The British Consulate financed the Guangdong delegation. The Shanghai delegation was financed by the German agency on international cooperation GIZ and the Beijing delegation was self-financed.

Examples of EU engagement with Chinese actors on emissions trading are a 2009 workshop held in Beijing, co-hosted by the European Commission and the NDRC. This followed on a first workshop earlier in the same year co-hosted by the NGO The Climate Group and the European Commission where European representatives shared Europe's experience with the EU emissions trading system (ETS) (The Climate Group 2010). In May 2011, the Economic Forecast Department of the Chines State Information Centre (SIC) sent a delegation to Germany and France with the aim to study the establishment of emission trading systems in Europe. In July 2011, the French think tank IDDRI engaged in the organisation of an

[5] European Commission (2012), "The European Union and China Join Forces to Address Environment, Urbanisation and Climate Change Challenges", Press release IP/12/989.
[6] http://mitigationpartnership.net/capacity-building-set-emission-trading-scheme-ets-china

international forum in Beijing to draw the lessons from the EU ETS experience. This resulted in the drafting of ten key policy recommendations for the establishment of an ETS in China.[7]

7. Challenges and Areas for Cooperation

The Chinese efforts to introduce the pilot projects and as a second step a national emissions trading system can equally been seen as the areas with the greatest need and scope for EU-China cooperation. Establishing a credible system requires the design, implementation and enforcement of a reliable measurement, reporting and verification (MRV) system. GHG emissions from industrial site need to be measured and reported reliably for an ETS to work. One of the most important tasks for China is thus ensuring the collection and analysis of data. Currently, the Chinese statistics show some inconsistencies. The GHG statistics from the National Bureau of Statistics of China and the added data from the 30 provincial statistics bureaus do not match (Liu and Xu 2012).[8] The EU has extensive experience with MRV regulation and has already identified this as an area for its capacity building measures.

A challenge and at the same time a factor that might require some adjustment from the EU system is the fact that the Chinese state is heavily involved in the system and most companies potentially covered by the ETS are state-owned. Power prices are under political control. This was one of the problems that the Chinese SO_2 emissions trading systems encountered and contributed to their failure (Tao and Mah 2009). The implementation of a market-based system in a non-liberal economy differs from the EU experience and explains why not all EU lessons are fully transferrable to China.

China has not set an emissions cap. This marks a difference between China and the EU. It is not clear whether and when China will set a cap and whether this will be an absolute or an intensity cap. Moreover, China is also working on the introduction of a carbon tax. The integration of a tax and an emissions trading system is unclear and an area in which the EU does not have extensive experience.

The timelines for establishing the pilot projects as well as the 2016 deadline for a national system seem very ambitious (Liu and Xu 2012, Yu and Elsworth 2012). European involvement and assistance could help China in its ambitious endeavour.

8. Conclusion

This paper is a first draft of an analysis of the EU-China cooperation on GHG emissions trading. It largely is based on academic and media articles. More in-depth empirical investigation will be conducted in the upcoming months. The paper demonstrates however that the involvement of European actors with China on emissions trading is significant; most likely the most intensive EU cooperation effort with another country on GHG emissions trading. The domestic context in China explains, on the one hand, a certain degree of receptiveness for lessons from the EU ETS experience and for EU capacity building efforts. On the other hand, the Chinese domestic context differs on some significant aspects from the EU, explaining why the eventual Chinese ETS will most likely not be a copy of the EU ETS. Based on the supply and demand framework outlined in this paper, the empirical study will be based on a qualitative process tracing approach. The main actors involved on the EU side

[7] http://www.iddri.org/Publications/Establishing-an-Emissions-Trading-System-in-China-under-the-Twelfth-Five-Year-Plan-Policy-Considerations

[8] http://www.nature.com/news/china-has-the-capacity-to-lead-in-carbon-trading-1.12212

were or will be interviewed followed by a study of the Chinese pilot projects and national discussions.

This paper indicates that the EU's external governance depends on the EU's commitment, which is given in the case of Chinese GHG emissions trading system(s) but it equally depends on the domestic context in China. This makes it difficult to assess whether the EU-China bilateral efforts can complement and support the multilateral UNFCCC process. As discussed, some aspects of the Chinese economy and institutional system differ significantly from the EU. They delineate the limits of the EU ETS as a model. Yet, on some aspects such as MRV, EU capacity building efforts cold support and provide an impetus for changes in the Chinese system so as to help ensuring the design and adoption of an efficient system. Some other domestic factors, for example the great extent of state-control of the economy, seem more difficult challenges that are not likely to be altered based on EU lessons and capacity building. On these aspects, a Chinese ETS will have its own characteristics and differ from the EU. This leaves the question open if the EU and the Chinese emissions trading systems could be linked and to what extent this bottom up climate policy-making can make a significant contribution to achieving global climate change mitigation goals.

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