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A dark art: Field notes on carbon capture and storage policy negotiations at COP17

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Introduction

I started learning about the controversies surrounding carbon capture and storage (CCS) negotiations during my ethnographic fieldwork on the development of a clean technology and renewable energy sector in Abu Dhabi, United Arab Emirates, between September 2010 and June 2011. The environmental consultants I worked with had been preparing a policy submission to the United Nations Framework Convention for Climate Change (UNFCCC) regarding the inclusion of CCS technology under the Clean Development Mechanism (CDM).[1] My involvement in the project as an anthropologist and an intern allowed me to develop an understanding of how the CDM operated, as well as what CCS technologies comprised. I became further interested in how the CCS issue in the CDM debate would be resolved. In this essay, I trace the unfolding and resolution of the CCS in the CDM negotiations in Durban, South Africa during the COP17. In this way, I hope to present a critique of climate change policy infrastructures, underlining the various incongruities that characterized the negotiations.

CDM is a market-based 'flexibility mechanism'[2] that was initiated under the Kyoto Protocol with the intention of encouraging industrialized countries to invest in greenhouse gas emission reduction programs in developing countries, such as

1 The environmental consultants that I worked with have advanced engineering degrees. They come from different countries around the world, and mostly were in the UAE for temporary periods. The individuals who informed this essay – through meetings, interviews or informal conversations – originat specifically from Algeria, Germany, India, Iran, Lebanon, the United Arab Emirates, and the United Kingdom.

2 For a summary of carbon trading and flexibility mechanisms under the Kyoto Protocol, see: Hepburn, C. (2007) 'Carbon trading: A review of the Kyoto mechanisms, *Annual Review of Environment and Resources* 32: 375-393. Also see: Lohmann, L. (2006) 'Carbon trading: A critical conversation on climate change, privatisation and power', *Development Dialogue*, no. 48, special issue [http://www.dhf.uu.se/Publications/dd.html].

hydropower, wind energy or solar energy projects.[3] This way, the environmental consultants explained to me, industrialized countries could meet their own emission reduction commitments, while fostering sustainable development within host countries. Most importantly, they stressed, CDM projects had to satisfy the so-called 'additionality' requirement. In other words, the project proponents had to prove that the given project would not have been initiated without the additional CDM incentive from the UNFCCC. As such, the first step for starting a CDM application to the UNFCCC constituted proving how the project would not have happened without this additional push. The environmental consultants that I worked with produced baselines, estimating future greenhouse gas emissions in the absence of the proposed projects. They suggested that they needed to act like attorneys and defend the proposal as if it were a legal case.

These project proposals would then be evaluated by third-party Designated Operational Entities (DOEs) to guarantee that the project would instigate valid emission reductions. If the DOE gave approval to the project, the proposal would be submitted to the CDM Executive Board within the UNFCCC, waiting to be registered. 'But the registration of hundreds of Clean Development Mechanism (CDM) projects at the United Nations Framework Convention for Climate Change (UNFCCC) only shows how successful the consultants that work within these procedures are, rather than proving the success of CDM as a program', a senior environmental consultant that I worked with told me, thereby questioning the legitimacy of the policy infrastructures that they worked with. Upon registration at the UNFCCC, the project would start to produce carbon credits for the involved entities, based on the supposed emissions reductions gained from its implementation.

In this framework, if China decided to build a solar power station, with technology or expertise from a German company, rather than relying on lower cost energy from coal plants, the reduced carbon emissions attributed to this investment could be credited towards the German company's emission reduction commitment, set by the Kyoto Protocol. The development of a solar power station would also contribute to sustainable development in China, or at least this is what CDM proposed.[4]

However, if carbon capture and storage were to be included under the CDM, the environmental policy consultants explained to me, China could build a coal powered plant, provided that it is equipped with CCS technologies, and still receive carbon credits for it. Carbon capture and storage technology, as my interlocutors outlined, operated by obtaining carbon dioxide from large industrial compounds, such as coal plants, carrying it in solid, liquid or gas form to storage sites, and injecting it into geological formations such as deep saline aquifers, unmineable coal seams or maturing

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3 A helpful journalistic account of the workings of the Clean Development Mechanism and carbon trading can also be found at: Schapiro, M. (2010) 'Conning the climate: Inside the carbon-trading shell game, *Harper's,* February, 31-39.

4 For some critiques of CDM mechanisms, see: Fogel, C. (2004) 'The local, the global, and the Kyoto protocol' in S. Jasanoff and M.L. Martello (eds.) *Earthly politics: Local and global in environmental governance*. Cambridge: MIT Press, and Schreuder, Y. (2009) *The corporate greenhouse: Climate change policy in a globalizing world*. London: Zed.

oilfields, kilometers below the ground. Accordingly, the inclusion of CCS in the CDM would mean that carbon credits would be issued for carbon dioxide sequestered through future carbon capture and storage projects undertaken in so-called developing countries, providing incentives for further investments in this technology.

CCS controversies

Yet, ever since its inception as a climate change mitigation technique, my interlocutors reminded me, CCS had been a controversial technology. 'Issues such as site feasibility, high operational costs, future safety and unresolved legal liability make carbon capture and storage projects challenging to initiate, implement and operate', the environmental consultants summarized. In addition, parties who were critical of CCS projects often suggested that including CCS in the CDM could incur a crowding out effect, leading investment away from other climate change mitigation strategies, such as renewable energy or energy efficiency projects. So, rather than building a solar power plant and reducing carbon emissions, developing countries could proceed with coal-powered plants and attempt to use CCS technologies to later bury the emissions resulting from such operations. Surely, this development could negatively influence the flourishing of renewable energy projects around the world. Accordingly, the opponents of CCS in CDM argued, CCS projects do not necessarily reduce dependence on coal or oil, thereby failing to promote the transition from coal or oil based power sources to renewable energy. In this way, it was underlined, CCS is not in line with the main principles of the CDM.

Secondly, the environmental consultants noted, when implementing CCS projects, oil-producing countries could use maturing oilfields as storage locations for the carbon dioxide that they obtained, as these oilfields are considered naturally sealed reserves. And yet, injecting gas into oil reservoirs leads to increased oil production as well, a process commonly known in the industry as enhanced oil recovery (EOR). By injecting carbon dioxide into ageing fields and pumping oil out, oil producers may increase the lifetime of the fields by up to 30 percent, while freeing up the natural gas more commonly used in such processes. The inclusion of CCS as an eligible technology for decreasing carbon emissions then becomes a perverse incentive for further oil production. The entities that earn carbon credits from CCS activities in turn become oil-producing countries.

Regardless of these controversies, the environmental consultants I worked with believed that the 17th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), or COP17, in Durban, South Africa, would be a milestone for carbon capture and storage negotiations, allowing this controversial climate change mitigation technology to be included under the CDM. While Durban negotiations did prove to be a victory for the proponents of CCS in the CDM, in this essay I would like to show that they also highlighted the numerous inequalities that are part and parcel of the production and implementation of climate change policies.

Constructive ambiguity

The longwinded carbon capture and storage deliberations, which officially started at the COP11 in Montreal in 2005, had reached a breaking point last year at the COP16 in Cancun when the decision was made to include CCS in CDM, with the provision that safety and liability protocols could be resolved. In February 2011, parties submitted proposals regarding modalities and procedures guidelines on CCS projects. After collecting the submissions, the UNFCCC secretariat put together a synthesis report. Next, a technical workshop was organized in Abu Dhabi, in September 2011, inviting parties to learn more about the current status of carbon capture and storage technologies. Following the technical workshop, the secretariat published a workshop report and a modalities and procedures draft, which was opened for negotiation in the Durban meeting.[5] After two long contact group discussions, modalities and procedures guidelines were finally accepted on December 3rd 2011, with liability protocols remaining as the only outstanding issue. The parties had not been able to agree upon whether host countries or carbon credit holders should be liable for the stored carbon dioxide, or if the liability should be shared between the two stakeholders.

During the second week of COP17, the liability provisions were settled as well, requiring that countries hosting projects develop thorough regulations for carbon dioxide storage and liability. It was stipulated that project developers place five percent of the carbon credits earned from CCS projects in a reserve fund. The carbon credits in this reserve fund would be awarded to the project proponents only after twenty years of monitoring, provided that no carbon dioxide leaks from the underground storage site. It was also decided that in case a project participant was unable to go on with the project, liability would automatically be transferred to the host country. Such provisions were expected to mitigate concerns for the uncertainties of CCS technologies, especially in regards to long-term liability.

However, there remained certain inconclusive issues as well. For instance, what did it mean to defer the liability for CCS projects completely to host countries? This type of provision evidenced the current inability to put together an international treaty on the issue, while making it more difficult for future provisions to be produced, as they could potentially contradict host country rulings. Resolutions on transboundary movement of carbon dioxide, which involves capturing carbon dioxide in one nation state, transporting it and storing it in another was also postponed to the COP18 in Doha, Qatar, as it would require defining project boundaries, characterization of carbon dioxide as toxic or non-toxic material, its legitimacy under other international treaties and administering the participation of multiple project proponents. However, as significant as this issue may be for the future implementation of CCS projects, it did not hinder the process for including CCS projects in the CDM. As such, at the end of the Durban negotiations, many parties argued, carbon capture and storage did manage to receive the legitimacy that it sought.

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5 The modalities and procedures draft text which started the discussions in Durban is available at: http://unfccc.int/resource/docs/2011/sbsta/eng/04.pdf.

While waiting for the Subsidiary Body for Scientific and Technological Advice (SBSTA) meeting where the CCS in CDM decision would be announced, I chatted with three CCS experts, at times working with the secretariat. 'How big is the damage done, you think?' one of them asked another. 'The monitoring criteria were supposed to be *stringent*', he replied, quoting the initial policy document. When I asked what adjective he would use instead, he laughingly proposed that 'wishy-washy' would be a good alternative. 'What we are trying to achieve in putting together this document is constructive ambiguity', one of them later told me. Here, 'constructive ambiguity' implied a quick resolution of the debates, without producing further controversy amongst the delegates. He understood the production of constructive ambiguity as an aesthetic challenge as well, created step by step through highlighting the document in different colors, bracketing unresolved sentences and finally cleansing the text of colors and brackets.[6] The application of such constructive ambiguity could eventually result in 'wishy-washy' protocols as well, wherein the goal-oriented nature of the negotiations could at times curtail a rigorous analysis of the final policy decisions. Finally, they argued that the inclusion of CCS in CDM was symbolic, more than anything else. 'It will be technically complicated to implement CCS projects and acquire carbon credits in the next few years, with the given state of technology. So even when CCS is included in the CDM, it's not like we're going to have an upsurge of CCS projects', they summarized with much relief.

Bargaining devices

'One of the West African countries says they don't want their country to be used as a video game', Lisa,[7] a Greenpeace campaigner, reported after concluding her meetings with various delegates participating in the CCS in CDM policy-making sessions. 'They say that including CCS in CDM will pave the way for developed countries to test unverified technologies within developing countries'. Through the video game analogy, the West African delegate pointed to how the decision-makers were detached from the actual space and time in which the results of their actions would be experienced. He showed disbelief in the functional purpose of the practices of implementing this specific technology. It was more like a game, where unproven technologies would be experimented with and perhaps later discarded. And then the nation state in which this game had been played would have to attend to the possibly dire consequences.

But Lisa doubted that the West African delegate would state this position during the debates. 'There must be other countries with opposing views', she sighed, 'what about Panama or Jamaica, or maybe Uganda?' She sat down to write an email to one of these delegates, whom she had briefly interacted with after a contact group meeting, when he asked a question regarding the current state of CCS technologies. 'A lot of countries don't have the resources or the time to pay attention to different issues, so they may not know anything about CCS in particular', Lisa reminded me. If a delegate were unsure or uninformed then Greenpeace would provide infrastructure and give information on policies. 'In the past year, there have been twelve failed CCS projects in Europe', she

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6 See Riles, A. (2000) The network inside out. Ann Arbor: University of Michigan Press.

7 The names provided in this note are pseudonyms.

said, 'I don't understand why they want to export a failed technology to developing countries'. She added this argument to the end of her email and wondered if the delegates she had been in touch with would be attending the meetings during the next few days.

Overall, CCS negotiations have been characterized by low levels of participation, with the major stakeholders being Saudi Arabia, Brazil, Norway, the European Union, Australia, the United Arab Emirates, Kuwait and the Alliance of Small Island States (AOSIS) countries. When I asked why this is the case, Michael, a member of the UNFCCC secretariat, who has been following the debates, told me that many countries do not have the technical expertise to participate in the debates on an emergent technology such as carbon capture and storage. Countries that already have full-fledged oil industries, and thereby first class geologists and reservoir engineers, were able to negotiate better, given their access to a more thorough understanding of the subsurface. They could rely upon their oil experts in presenting arguments for and against CCS in CDM. As such, it was not surprising that Brazil's CCS delegate was an executive at Petrobras, the state-owned oil company, while the Saudi Arabian delegate worked with Saudi Aramco. In this sense, expertise seemed to be highly permeable in the climate change debates, allowing a Petrobras or Aramco representative to temporarily give up his affiliations and to serve as a delegate for his country. While this enabled countries to have stronger and more reliable perspectives on technical issues, it may also raise questions on whose interest becomes represented in the debates.

Many participants to the Durban meetings were curious about why AOSIS countries refrained from engaging with the CCS in CDM negotiations, especially after being strong opponents for many years. When I asked a senior negotiator about the absence of AOSIS countries in the Durban negotiations, he suggested, 'One of the AOSIS members seemed like it was opposing CCS in CDM but then again, the delegate is not well-prepared, does not really know what he's saying, so his interventions do not make much sense. It's not like they've studied the issue before', he underlined, 'and I mean, they just needed to read eight policy papers in preparing for the meeting here'. The senior negotiator later suggested that AOSIS does not want to invest more time on CCS in the CDM, especially because they are more concerned about general Kyoto Protocol issues and added how they do not have a common understanding of CCS, which prohibits them from intervening further.

When I asked Michael why AOSIS delegations were no longer active, he explained, 'They cannot really oppose this issue anymore. This is all that Saudi Arabia wants. If it doesn't get it, then it will put sand in all other negotiations. AOSIS have so many more stakes in the climate debates – they would like to have the support of Saudi Arabia and the other oil-producers', he argued, and emphasized how the politics behind these debates made him very frustrated. 'In an ideal world, every issue would be thought through separately, so when producing arguments regarding CCS in CDM, parties would not think about how this decision would impact other climate issues, or see this as a bargaining device. But this is not an ideal world and this is all we have', he concluded. According to him, participants did not prioritize studying the various problems associated with the issue, such as the reliability of technology or its potential environmental impact, but rather focused on the political power that they would accrue

by bargaining in a specific manner. Likewise, another delegate, who had been actively following the negotiations, suggested how Brazil had been against the inclusion of CCS in CDM for many years, especially because they did not want to divert attention away from unavoided deforestation projects, known as REDD+, which constituted another battleground for inclusion under the CDM. After years of opposition, when finally giving support to CCS in CDM, Brazil also expected that Saudi Arabia would be favourable to the inclusion of REDD+ under the CDM in Durban and next year at the COP18 in Doha, Qatar.

But why was Saudi Arabia so dedicated to CCS in the CDM? The Saudi Arabian delegate explained to me how his country does not have any CDM projects. 'If CCS is included in the CDM, then Saudi Arabia can also start to play its part in contributing to climate change mitigation', he added. When I asked him about the role of EOR and whether EOR projects would be included in the CDM, he explained that such projects should be considered on a case-by-case basis. According to him, it did not make sense to produce an international treaty on this issue. EOR, which had been a significant subject matter in the debates on CCS in the CDM, was not mentioned in the final modalities and procedures draft. A secretariat member that I spoke with explained how 'no one brought up EOR in the debates', finally leading to the omission of the whole issue from the documents. As the Saudi Arabian delegate told me, it would be considered on a case-by-case basis.

Positions of criticality

'Do you know what civil society organizations think about the decision', some secretariat members asked me on the day when the results of the negotiations were going to be publicly announced, 'how did Greenpeace or CDM Watch react?' Having had the opportunity to spend time with Greenpeace and CDM Watch campaigners throughout the negotiations, at times helping them with their campaigning work, I explained how these NGOs did not believe that big oil should also earn carbon credits, in addition to the extra oil that they procure through enhanced oil recovery. 'Well, they are right', they responded, 'We really have nothing to say'.

Greenpeace and CDM Watch members worked long hours, developing arguments and communication strategies to oppose to the inclusion of CCS in CDM. Every morning, they picked up recently printed copies of the new policy draft along with the daily program and went through them to underline the changes that had been made during the previous day's contact group meetings. They tried to identify resisting parties, consulted legal and technical experts inside and outside the conference to find loopholes in the policy documents and looked for ways of manipulating the decision-making process. Pointing out the inequality of resources among different delegations, and showing how certain countries do not have enough staff to follow each climate change issue, they produced material on CCS for delegates to use and rely upon and provided both big picture information and small details. They produced press releases, organized press conferences where they could express their understandings of the context, and briefed individual journalists. Overall, Greenpeace and CDM Watch members had managed to

develop a vast network of contacts and a clear understanding of how the COP works, thereby serving a position of criticality throughout the negotiations.

Besides NGOs like Greenpeace and CDM Watch, other lobbying organizations such as Global CCS Institute, CCS Association or Bellona occupied prominent positions during the Durban CCS debates. Organizing many side events with oil industry representatives, energy ministers, corporate figures or geologists, they managed to give shape to the predominant discourse on CCS during the meeting, framing it as a critical climate change mitigation strategy. 'We need every bit of energy we can get and therefore CCS is vital. It allows us to consume coal or oil, without worrying about the carbon emissions they produce', a Shell representative, who had presented at one of the side events, told me later during a short interview, 'I imagine that if I came back to the world in 100 years, maybe then I could see a place which is fuelled by renewable energy sources, but not before then', he added. Karen, a geologist from a research university in the United States, who had also participated in the technical workshop in Abu Dhabi in September 2011, concurred and suggested that she does not understand why people are so afraid of carbon capture and storage. 'CCS is not a dark art', another CCS lobbyist added.

Yet, most importantly, many underlined, carbon capture and storage would help development continue in countries such as China and India, which still relied upon coal plants. During one of these side events, when a representative from a German NGO got up to explain how and why civil society organizations in Germany were resisting the implementation of carbon capture and storage technologies within the country's boundaries and proposed that the capital invested in CCS should actually be utilized to improve renewable energy infrastructures, a delegate from a West African country adamantly stated, 'We can't improve our industry on solar power. We need to uplift our people and we will need coal for that. Germany has educated its people and now it's time for it to clean up'. It was time for developed countries to give up their coal plants, but the developing countries would need them for longer, so as to create industrial infrastructures that match countries like Germany. Maybe CCS in the CDM could be helpful in such cases, the representative said. As much as CCS was criticized as a way in which the fossil fuel industry was reinventing itself or testing unverified technologies within developing countries, in this case it was perceived as a desirable means of development.

A new definition of justice

Overall, the carbon capture and storage negotiations in Durban disclosed the many inequalities that parties suffer from both in bargaining for and implementing climate change mitigation techniques. The resources that parties can spare for specific issues, their levels of preparedness, negotiating powers and existing industrial infrastructures all constituted factors influencing decision making.

In discussing such incongruities, one researcher I spoke with proposed that we should come up with a new definition of justice, wherein vulnerability would be prioritized, more than anything else. In this framework, the most vulnerable countries' interests

would be served first, making climate policy relatively simpler. 'Islands, for instance', he reminded me, 'they will be suffering from fresh water problems very soon'. In fabricating climate policy, this understanding of justice would perhaps serve as a useful principle to keep in mind.

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