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Chinese and American oil companies and their environmental practices in

Chad: a quiet confluence of streams or silence before the battle?

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Summary. While the notion of "double standard" has been extensively utilized when analyzing the difference in behavior of northern MNC's operating in less regulated southern countries (Brandt report, 1980), it is less evident to apply in the case of a Chinese firm operating in today's Chad. Based on recent empirical research we will focus on the entangled relationships which are emerging following the arrival of the Chinese National Petroleum Company (CNPC) in the Chadian oil sector (initially dominated by Exxon, a US oil major). Faced to growing external and internal pressures, China has mostly closed the gap between demand and supply of environmental regulation, although the supply of enforcement still lags behind demand. In the oil sector both environmental regulations and their enforcement have been the object of increased and combined scrutiny from the State, private foreign partners (northern oil and gas majors), public opinion and media. This resulted in a composite environmental management system, influenced by Chinese, international and local practices. When entering the Chadian oil sector in 2007, the CNPC appears thus to be well endowed to face the comparison with the "Exxon-Doba" project, an heritage of the widely known World Bank Group project (1998-2007), but without being able to become a producer of norms. Despite the shortcomings of the Bank's involvement in the oil sector in Chad -a history that has not yet ended and needs to be written- this heritage is still strongly marking the minds of all actors involved in the oil sector in Chad. The notion of double standard might thus operate but in reverse or at least in both directions. The Doba heritage functions indeed as a threshold with which CNPC managers deal pragmatically every day, the mere because larger parts of the expected oil production in the CNPC fields will have to be exported. Among the several options, the most viable appears to be transporting the oil from the CNPC oil field through the pipeline build and administered by Exxon. Chad and the confluence of its diverse oil streams may thus represent the first example of a peaceful "depoliticization" of Sino-US energy policy advocated by Lee and Shalmon (2007). But the implementation of other options might involve the risk of reducing the rich institutional heritage of the Exxon-to a mere pipeline.

Keywords : China, Chad, Health Security Environment (HSE) standards and practices, CNPC, Exxon, double standard.

Introduction

Within the frame of a wider reflection on the practice of environmental regulation¹ in the extractive industries, the overall aim of this paper is to contribute to an understanding of the challenges involved in the interaction between a public multinational corporation from China (Chinese National Petroleum Company CNPC) and a private multinational corporation from an OECD country (Exxon, a US oil major) both operating in one of the margins of the world petroleum system, in a Least Developed Country (LDC), *in casu* Chad (Central Africa).

Our reflexion is embedded in the confluence of three linked research domains. The first concerns the debate around the fast growing presence of China in Africa during the last ten years (Servant, 2005; Alden, 2007; Perret, 2007; Gu, Humphrey and Messner, 2008; The Economist, 15 March 2008), through foreign direct investment (FDI) (Jenkins and Edwards, 2006; Cui and Jiang, 2009; Holslag, 2006, 2007), particularly in the oil sector (Alden et al., 2008; Chen, 2008; Heinrigs, 2007; Finkelstein, 2009). Alden (2007) provides a phasing of the history of China's presence in Africa (a period of high activity during the liberation wars and during the post-independence years –sixties and seventies-, a period of neglect in the eighties, and the rediscovery in the nineties). Alden distinguishes three ways in which China's increasing activities might be regarded (as a development partner, as a competitor or as a colonizer). Alden highlights China's adaptive approaches, depending on the political regimes in recipient countries ("pariah states, illiberal regimes or weak democracies with commodity-based economies or democracies with diversified economies", Alden, 2007:59). Alden argues that Chinese future deployment in Africa will be influenced by two intertwined factors: a. the reactions from African elites and people towards Chinese presence, for example, by throwing the issue in the national electoral debates (cases of Angola and Zambia) and; b. the increasing pressures from the national Chinese government in order to obtain changes in the behaviour of Chinese enterprises in their operations in China and abroad. Recent environmental regulations do indeed provide policy signals that increasingly affect the behaviour of larger Chinese corporations.

¹ Under the term "environmental regulation" we refer to those (sets of) rules, that may be self-produced, imposed by thirds, or voluntarily adhered to, of a formal (laws, conventions, decrees, policies, strategies, codes, norms, standards) or informal (customs, norms) character, with effects in the private or in the public sphere, and aiming at limiting the access to natural resources or modify the conditions for their utilization.

The second research domain concerns the discussions on the emergence of recent environmental regulation in China and their real implications for the evolution of corporate management practices on the working floors in China (Zeng, Tam, Tam and Deng, 2004), and abroad. While studies do exist on the compliance of Chinese public environmental regulation by Chinese firms in China (Sims, 1999; Peiyuan, 2005; OECD, 2008; Gang, 2009), research on the enforcement of environmental policies and standards abroad is still scarce (the exception being Bossard, 2008, who provided a general overview). This constitutes an invitation for case studies and to dig deeper into the issues around cross-border environmental management (Christiansen and Garcia, 2004) and the returning questions around the practice of “double standard”² (already evocated in Brandt, 1980).

While the notion of "double standard" has been extensively utilized when analyzing the difference in behaviour of northern MNC's operating in less regulated southern countries, it appears less evident to apply in the case of a Chinese firm operating in today's Chad. The literature around environmental cross-border management mistakenly identifies norms and standards from OECD countries as being “universal references”. The nature of the norms and standards applied at home by Chinese firms and the roles, visions and strategies of the different actors in and around these Chinese firms are insufficiently known (although Soares, 2008 states that Chinese firms will bring the lack of standards as a competitive advantage).k.

The third domain concerns the debates around the “resource curse” (Ross, 1999, Rosser, 2006) and the role of FDIs in the consolidation of cursed trajectories (refer to the notion of “sustainable failed States”, Soares de Oliveira, 2007). The extensive literature on the “resource curse” has been synthesised by Rosser (2006) and deals with three interrelated dimensions: the decreasing economic performance, the failure of institutions and the tendency to authoritarian regimes (Engerman and Sokoloff 1977, 2002; Collier and Hoefler, 2005a and 2005b), and finally the contribution of resources to the intensity and duration of conflicts (Ross, 1999; Humphreys, 2005; Rosser, 2005; Guesnet *et al.*, 2008). Magrin and van Vliet

² The notion of « double standard » usually refers to the practice of Northern firms, when they operate in southern countries that are less well endowed with rules and the capacity to enforce them, which consist of respecting standards that are less strict than in the firm's home countries. The Northern firms thus take an advantage of the differential, while at the same time arguing that they have to respect -and are duly respecting- the national regulations in the host countries.

(2009) have suggested adding a fourth environmental dimension to the debate on the resource curse. Earlier hypothesis were formulated regarding the dynamics of corporate social and environmental behaviour and its interactions with local communities along the long term mining cycle (van Vliet, 1998). Based on the revival of the discussions around the concepts trajectory and bifurcations (or “critical junctures” as defined by Capoccia and Kelemen, 2007)³, it was argued that resource curse approaches are putting too much emphasises on “trajectories” and shade insufficient light on the potential role of extractive activities in the production of “bifurcations” (van Vliet and Magrin, 2009).

Within this conceptual framework, and based on recent empirical research we will focus on the entangled relationships which are emerging following the arrival of the CNPC in the Chadian petroleum sector, initially dominated by a consortium led by Exxon.

The Exxon Doba oil fields in the South of Chad are linked through a pipeline running southward from the main extraction facilities in Komé (Chad) to a shipping terminal in Kribi (Cameroun), the whole project having been implemented with the support and under the umbrella of the World Bank Group (Pegg, 2009). The Doba project is at a mature exploitation stage, where maintaining the volumes of extraction at reasonable levels demands increasing investment efforts from the Exxon consortium.

The recognition by Chad of the Peoples Republic of China in 2006, which paved the way for the arrival of CNPC in 2007, is the result of intensive and multisided diplomatic efforts⁴ aiming at reducing the tensions in the Darfur (Soudan) and within Chad (Maoundonodji, 2009). Following a common pattern found elsewhere, the CNPC Rônier project is carried out in the framework of a more comprehensive and unpublished bilateral agreement between China and the Chadian Government. At this stage, the CNPC Rônier Project consists of the exploitation of oil fields situated some 20 km South of Bousso, linking the oilfield through a 311 km long pipeline with a refinery under construction in Djermaya (40 Km North of N’Djamena, the capital). The Rônier project is situated at the very start of the exploitation cycle, in the midst of the construction phase (foreseen from 2009 to 2011).

³ Capoccia & Kelemen (2007) utilise the notion “bifurcation” to describe an observable change in the internal resource base and/or in the environment of an organisation, which substantially broadens the range of options available to the organisation and increases the potential reach of the consequences of the decisions eventually taken.

⁴ During our fieldwork, we were informed by a reliable source that the embassy of one of the OECD countries had also actively maneuvered in favor of the arrival of the CNPC in the Chadian oil sector.

The CNPC project represents several challenges. The CNPC Rônier project aims at extracting oil but also at refining part of it locally, which represents a contribution to industrialization in Sub-Saharan Africa that differs from Exxon's approach. However, the foreseen oil production in the Rônier field (about 60.000 barrels/day) is expected to be larger than the projected refining capacity (20.000 barrels a day). Another oil field situated in Sedigui (north of Lake Chad) via a second pipeline would still add another 20.000 barrels a day. The question for CNPC and the Chadian government is then: to where could the rest of the extracted oil be transported?

The range of viable options for transportation elsewhere is not wide. One option is to build a pipeline eastwards in order to link Rônier with existing CNPC facilities in Soudan (more than 1300 km away). While this option would connect Rônier to a known environment (the Chinese build oil complex in Soudan, with direct maritime access to the East), it requires a huge investment in a geopolitically risky region.. A second option - would be to connect Rônier through a 100 km pipeline with the already existing southward pipeline system from Kome to Kribi, the still underutilized infrastructure operated by Exxon and its partners, including the Chadian government and Petronas, the public Malaysian oil firm with which China formed a consortium in Soudan... This second option could be implemented through a CNPC buyout of Exxon's share (a sub-option not to be discarded at this stage of the exploitation cycle - van Vliet, 1998), or through a collaboration between the two firms.

Such collaboration between Exxon and CNPC would imply a tough negotiation process, in particular around fitting the respective norms and standards and their enforcement mechanisms. From the strict engineering point of view, technological challenges are foreseen, but are described as being solvable, according to interviewed staff. However, streamlining the environmental and social norms and standards would at first sight seem more difficult.

The specific question we will try to answer in this paper is: Does CNPC intends to and is it in a position to engage in "a race to the bottom" on environmental standards when operating in Chad and in its eventual future negotiations with Exxon?

In order to try to provide an answer to this question, we have implemented the following approach. Our entry point is the study of environmental regulations and their enforcement in the world of extractive activities (oil, gas and mining). Contrary to common practice, we reviewed CNPCs environmental management practices in Chad from the standpoint of China's own environmental regulations and through the lens of CNPC's own policies,

standards and procedures, which did not impede us from comparing the practices of Exxon and CNPC, but at a later stage. To implement this perspective, working side by side with Chinese, European and Chadian researchers was more than vital. We have reviewed the available literature and performed field work in China and in Chad (between 20 May and 10 September 2010). Interviews with members of neighboring villagers, staff from CNPC, staff from Exxon, the Chadian ministries of oil, environment, mining and labor, and with staff from embassies all provided useful information. Previous experience in Chad through expertise also brought its share of information. The need for such empirical research (Alden, 2007) was the more justified because of divergent views developed in China regarding the role of natural resources in African development and even regarding the mere perception of the “resource curse” (*e.g.* Gu *et al.* 2008). As we recognized the complex nature of the object to be studied we mobilized the views of researchers from different disciplines (political science, economy, political economy and geography).

We will try to argue that, at this stage, the CNPC is not in a position -and there are no indications of any CNPC intent- to engage in “a race to the bottom” on environmental standards in Chad and in its interaction with Exxon. In order to develop that argument we will first focus on the emergence of environmental regulation in China, its limits and the obligations it nevertheless creates for the larger Chinese firms, in particular in the oil sector. We will then recall the main elements of the Exxon-Doba heritage, and show how the space for bifurcation has been maintained and still operates as a new threshold for any newcomer in the oil sector. We will then analyze the environmental practices of CNPC thus far in Chad and focus on what they have in common and in what they differ from those of Exxon. This will allow us to discuss the challenges involved in the CNPC-Exxon relationship in Chad and analyze the reasons explaining the probable pacified confluence of the several oil streams, while scenarios that might revive tensions should not be excluded. Our conclusions will then wrap up our main findings.

The emergence of environmental regulation in China. In China, the gap between internal demand and supply of environmental regulation has been closing fast, especially during the last 10 years (the Law on Cleaner Production was promulgated in June 2002; formal public legislation is each time more comprehensive and detailed; environmental protection is progressively woven into the public policies –*e.g.* the five year development plans; taxation- (OECD, 2008; Gang, 2008, Liang, Wang and Yang, 2010); gently aided by the restricted

access to raw materials, firms are firmly invited to put into practice the concepts of circular economy and cleaner production techniques (Mol and Liu, 2005); environmental impact evaluations (EIE) are required for even relatively small investments, leading to administrative refusals in several cases; the consultation of citizens is stimulated and even required in the EIEs for larger projects; voluntarily adopted environmental measures within the production sphere are promoted; although not yet adhering to the Equator principles (Equator principles, 2006), several Chinese development Banks –Eximbank, China Development Bank- adopted environmental screening procedures for their investments (Bosshard, 2008); fiscal consequences of environmental misbehavior has a deterring effect, specifically for larger firms (Liang, Wang and Yang, 2010); environmental reporting is obligatory, specifically for middle and larger firms (Peiyuan, 2005). The theory and practice of corporate environmental management has been boosted. The access to “green” credits and subsidies seeks to stimulate cleaner production approaches. In October 2007, the State Agency for Environment Protection (SEPA) and the Ministry of Commerce (MOFCOM) announced a “green trade policy” to reduce or withdraw the export quota or license for high-polluting or energy-consuming enterprises. In December 2007, MOFCOM revised the Catalogue for Guiding Foreign Direct Investment adding environmentally friendly investment projects to the list of encouraged investment categories (OECD, 2008). A stronger Ministry of Environment Protection (MEP) replaced the SEPA in March 2008. Peiyuan (2005) studied the practice of corporate environmental reporting in several industrial branches in China concluding that although it was still not yet a widely accepted practice the awareness towards environmental issues has been raised. Geng et al. (2008) have compared the intentions and practical implications of the notion of circular economy at a regional level concluding that the implementation could be improved if each region participated in the making of the policy by providing its own and adapted definition of “circular economy”. While the emergence new rules of the game provided an answer to internal demands, enforcement is still impeded because of factors like: the superposition of legislations, incompleteness and ambiguity (Gang, 2009), lack of transparency and publicity; sanctions that are not commensurate with the impacts created and incentives that are not always relevant enough to modify behaviors. Behind these factors, the effectiveness of environmental regulation is more fundamentally compromised by the imbalanced power relationship among State, (public and private) firms and civil society which often leads to a prioritization of immediate economic goals over long term environmental protection (Liang, Wang and Yang, 2010).

In the petroleum industry, a sector with a long tradition in self regulation and voluntarily adopted standards and norms environmental regulation has also seen remarkable changes, despite of -but also thanks to- the spectacular accidents of the 10 last years. Due to increasing demand and dwindling reserves in China, China has become a net oil importer since 1993, and in 2009 it is the world third largest oil importer behind USA and Japan, with a total import of 203.8 million tons of crude oil (National Energy Administration, 2009). In recent years, the national oil companies have increased sharply their abroad investments and Chinese oil companies are present in oil-producing regions of all continents (Liang, Wang and Yang, 2010). At home and abroad, Chinese oil firms have been confronted with the environmental impacts and risk involved in oil exploration, exploitation, storage and transportation. The need to set guides and standards was acknowledged.

Government has played an essential role in the emergence of environmental regulation in the oil and gas sector. Taking into account the specificities of the petroleum sector, the government has promulgated a series of administrative decrees to regulate the sector's environmental issues, including a reference to the obligation for Chinese firms and foreign partners to "follow international practices" regarding the protection of agriculture and environment (Liang, Wang and Yang, 2010). Most of the regulations for the petroleum sector have been formulated at the national level but lower governments have also issued petroleum specific regulations (such as the provinces of Hebei, Liaoning and Heilongjian and the Xinjiang Uygur Autonomous Region) (Liang, Wang and Yang, 2010). Based on learning and adaptation, under increasing pressures from citizens, party, media, markets and governments, a composite and comprehensive regulatory framework has emerged for the Chinese petroleum companies, containing elements from home legislation, from host countries or from international public or private organizations. In several domains (air and water pollution, discharges, recycling etc.), the Chinese environmental regulations are stricter than those in OECD countries, and thus now also operate as non-tariff barriers for undesired competitors in China.

Despite these developments, the lack of a General Law for Petroleum Sector leaves a number of vacuums and contradictions between the general environmental regulations and the sector-specific regulations. The State-owned nature of oil companies implies a very close relationship between government departments and oil companies, as illustrated by the history of CNPC, which was created out of the former Ministry for the Petroleum Industry. The government is at same time the owner and regulator of the oil companies and these functions

are not exercised by separate bodies within government. In view of the importance of oil companies for national economy and energy security, part of government tends to prioritize economic expansion of the sector over environmental protection. As the functions of entrepreneur and regulator are not clearly separated within government, environmental enforcement actions involving large public enterprises do not always lead to drastic decisions (Liang, Wang and Yang, 2010). Accidents and pollution incidents still grow along with the expansion of the petroleum sector throughout the country, as illustrated by a series of oil industry accidents in recent years, from the gas pipe explosion in Kai County of ChongQing municipality in 2003, to Songhua River pollution caused by an explosion of petrochemical factory in Jilin province in 2005, then to recent oil spill in Bohai Sea due to a blast of oil pipeline in Dalian City during summer 2010. With the sharp increase of China's oil export, the oil spill accidents in the seas along China's coast increased steadily during the last decade. However, the Chinese government tends to be each time more reactive when faced to accidents in the petroleum sector. The recent oil spill accident provoked by a blast of the oil pipeline in Dalian in July 2010 gave birth to a new Law on the Protection of Oil and Natural Gas Pipelines which took effect in October 1st, 2010 (Liang, Wang and Yang, 2010). These accidents have also prompted corrective measures within the oil firms themselves.

Within the Chinese oil firms, a steady development of the engineering, health, safety and environmental standards may be observed. Chinese oil firms have been updating health, safety and environmental standards under the pressure of many factors (the defense of their trademark, the honor of the engineering profession and the demands from staff, citizens, media, local and national authorities at home and abroad, the party, consortium members, consumers and banks). Internally, the lower hierarchical rank of HSE managers in the Chinese Oil firms is not always favorable to the full implementation of HSE policies. However, the exposure to all these demands has been stimulated during the opening up phase, thanks to the first partnerships with foreign oil firms (for example Shell) and then again, within the frame of the "going out strategy", when Chinese firms performed their first steps outside China, first as deliverers and installers of very basic equipments, then as qualified subcontractors, and finally as consortium members or even consortium leaders. The case of CNPC encapsulates this adequately (Liang, Wang and Yang, 2010).

The CNPC was created in 1988 and has successively expanded its activity scope from initial upstream resource exploration to downstream business, from oil exploration and refining to technical services and equipment manufacturing, from domestic operations to overseas

expansion. Based on its domestic dominance, CNPC is also becoming a large international oil company with ambitious overseas expansion projects. Encouraged by the government “Go-out” policy and preferential credit policy⁵, CNPC is today the largest Chinese overseas investor in the petroleum sector. However, the rapid expansion of the company’s activity was accompanied by a number of production accidents which caused human and economic losses and environmental disasters. Under pressure at home and abroad and in order to improve company’s domestic and international image and to gain and maintain access to reserves abroad, CNPC has paid an increasing attention to environmental issues and established a number of environmental protection measures to reduce discharges of wastes, adopt clean production system and international environmental standards (Liang, Wang and Yang, 2010).

In 1997, CNPC adopted the ISO14001 Environmental Management System, which obliges firms to define all work procedures and their potential impacts, to foresee preventive measures, to perceive and report on failures, to take corrective and preventive measures. By the end of 2007, CNPC's 216 affiliates had received ISO14001 certification. The company issued a series of environmental management rules and plans⁶ to enforce an effective environmental management system, a pollution-reduction indicator system, a monitoring system and an evaluation system. In terms of ensuring clean operations, CNPC adopted a clean production technology innovation program. A series of new technologies and equipments were developed, including clean operation in well drilling, ecological protection during pipeline construction, recycling of refinery sewage and the reduction of greenhouse gas emissions. A three-tier HSE management system was implemented to ensure that environmental protection facilities and major engineering projects are designed, constructed and completed simultaneously (in line with the government’s “three synchronization policy”). Safety management guidelines have been conceived and implemented. Advice and expertise from western firms has been systematically sought in all domains. To meet the demands of offshore business and prospecting work in the Bohai Sea, CNPC established the Offshore Emergency Rescue and Response Center to take charge of handling offshore accidents, including rescue, firefighting, oil-spill treatment and key project protection (Liang, Wang and Yang, 2010). In previous operations abroad, and more specifically in nearby Sudan, these environmental standards have been applied and gradually improved, in interaction with

⁵ In 2009, China Development Bank gave to CNPC a long-term loan of US\$ 30 billion to support its overseas development for a period of 5 years.

⁶ Including Management of Environmental Monitoring, Statistical Environmental Management and the Plan for Establishing an Online Pollution Source Monitoring System, Technical Guidelines for the Identification and Selection of Environmental Factors.

consortium partners that might have been initially surprised by certain technical procedures (Petronas, a member of the International Oil and Gas Producers Association) or with environmental organizations that contested the choice of the drilling sites or their timing (Dittgen, 2010). When arriving in Chad in 2007, through (hard) falling and (rapid) learning the CNPC had already acquired the status of an experienced global operator and was thus technically prepared to engage in the interaction with the Doba-Exxon project (Liang, Wang and Yang, 2010; Lin, 2010).

How the “failed” Exxon-Doba project contributed to a bifurcation (van Vliet and Magrin 2009). Although it is easy to announce the death of the model Chad-Cameroon Pipeline Project, 3 years after it supposedly occurred in 2006 (Pegg, 2009) it does not fully give credit to the many interesting features of the Doba experiment.... In our view the Doba-Exxon experience produced an essential bifurcation in at least four manners: firstly through the sudden widening of public choices as a consequence of freely disposable oil and gas revenues. Access to unconditioned resources created conditions for more autonomous public policy making. This new space was indeed utilized by the Chadian State to escape from the traditional IMF and WB policies tending to privilege investments (thus infrastructures) over operation (thus salaries and functioning expenses). Freely disposable resources also introduced another basic new choice in Chad (our second domain of bifurcation): the choice for the State between coercion (which was opted for in a first stance to slay the rebellion down) and legitimization (a function which is each time more experimented with).. The third domain of bifurcation is related to the acceptance by the State of interdependencies (learning to work with multinational firms and NGOs) and the following increased national and international scrutiny on everything the State decides. The fourth domain of bifurcation is related to the former and concerns the evolution of the State. A State that would be able to answer the divergent requirements of the oil and gas sector (that is, to be foreseeable, to provide security but also social peace, to respect the decision sphere of the firms), and that would also take into account these new social demands, would need to dispose of a space of relative autonomy (Poulantzas, 1968) vis-à-vis the oil and gas firm(s) and vis-à-vis the other demands in Society (van Vliet and Magrin, 2009).

A bifurcation that may now constitute a threshold and even traces a path for newcomers... (Magrin, 2010a). The heritage of the World Bank’s past involvement is there and well and alive, although the level of debate has considerably cooled down, although

security worries of the last years have tended to harden the relations between State, firms and NGO's and villagers in some areas and although the first (small) oil spill has been signaled – and cleaned up. Indeed, the monitoring capacity of the State –initially financed by the World Bank- may have been temporarily disturbed the amounts for social compensation may have been adjusted over time, and the number of civic consultations may have decreased, but many of the positions gained during the debates have been respected (the agreed environment procedures; the transparency regarding alerts and responses; the principles and criteria for relocation and compensation, the right for NGO's to be informed, the right for affected communities, to be heard in consultations, the supervision by external expert commissions, etc.). Most importantly, as was emphasized during the interviews, the Doba project has contributed to a noticeable increase in capacities (Chadian staff in the firm, NGO's, functionaries), the sharing of a common language and even of values (the respect of basic norms, the importance of dialogue). Hundreds of resource persons have been trained in EIE, environmental reporting, monitoring and negotiation. Beyond the 2006 crisis in the relationship between the Chadian State and the World Bank, environmental rules of the game have been formulated, experimented with, and widely applied in and around the Doba project (even by ENCANA who explored the Ronier Area in 2000 and who sold its shares to CNPC). And these regulations are today still influencing CNPC's recent entrance in the Chadian oil sector (Magrin, 2010a).

Doba's influence on Health, Safety and Environment procedures implemented by CNPC in Chad and its limits (Lin, 2010; Tavares and Doudjidingao, 2010). The environmental obligations inherited from the contractual agreements signed years ago between ENCANA and the Chadian government represent CNPC's first frame of reference. As mentioned, there has been a dominant influence of the Doba experience on ENCANA's HSE procedures and standards. The second frame of reference is CNPC's own HSE procedures and standards, which are of a composite nature. They are the result of a progressive mixing, integration and adaptation of rules from diverse origins (CNPC's own rules, national public Chinese norms and standards, norms and standards as agreed in multilateral bodies and norms and standards adapted or integrated from the international oil and gas association and their members). The predominance of internationally adopted best practices is striking, although CNPC prefers to decompose the often to comprehensive schemes and instead only provides precise indications for each given step. The third frame of reference for CNPC is the Chadian oil law, including environmental obligations, also influenced by the Doba debates. The fourth frame of

reference are the rules and procedures from the Doba project itself, which are continually referred to by functionaries, villagers and NGO's alike, and which indeed function as a threshold with which CNPC managers deal pragmatically every day. Most of these frames of reference appear to have inspired HSE implementation in the CNPC. The foreseen impacts are relatively modest, in view of the classic nature and the small scope of the investment, the lack of striking environmental challenges (except the Chari river crossing and the floodable refinery site) and the low density of population (Magrin, 2010b). The technical solutions adopted for the river crossing take into account the available best international practices. With one very regretful exception (a child drowned when playing in an unguarded and unprotected road building materials extraction site –an event which was immediately responded with corrective and preventive measures by CNPC), we did not find striking cases showing an intent or a disposition to avoid or bypass the thus adopted regulations. Globally, when faced with technical or environmental problems, CNPC provided response. Regarding the implementation of EIE, it may be observed that the project has been split in two components (the refinery and oilfield and pipeline) which is explainable because of the financing structure (the refinery is to be financed by Exim Bank) but not recommendable from the point of view of Chinese regulations on EIE (which recommend a comprehensive impact evaluation). The EIE concerning the refinery passed through all foreseen stages (probably due to the more stringent environmental procedures applied by Exim Bank, which did not yet approve the loan in September 2010). The EIE regarding extraction and storage facilities and the pipeline did not pass through all stages before the start of activities (the final approval by the Ministry of Environment was still lacking in September 2010). However, we could observe that the draft EIE report had indeed influenced the organization of the activities, the consultation process with communities and the final trajectory of the pipeline. The environment management plan and the oil spill prevention plan, both demanded for in the CNPC procedures, in the Chadian legislation and by international best practice (including Doba) were not accessible during our fieldwork (Lin, 2010; Tavares and Doudjidingao, 2010).

Comparing the corporate environmental management approaches of CNPC and Exxon in Tchad (Maoundonodji, 2010; Lin, 2010; Tavares and Doudjidingao, 2010). This lack of preparedness to communicate, or to engage in dialogues, appears to be a returning feature of CNPC's approach to corporate environmental management, at least as observed in Chad. The firm has apparently nothing to hide (no significant problems have been detected, even after very tight scrutiny from local NGO's), it may have the documents, it probably has its internal

monitoring procedures, the internal learning processes are probably rich, staff may know answers to many of the evident questions that are daily asked, but the firm does barely or simply not communicate, neither with functionaries, neither with NGO's, villagers or researchers. Language barrier should be accounted for but does not seem to explain it all⁷. Cultural differences may contribute to an explanation: talking positively about one's own work is not positively perceived in China (Lin, 2010⁸). In the CNPC HSE seems to play a mere technical role: accidents and incidents should be avoided, responded and prevented. In Exxon, HSE is perceived in a much wider scope: beyond its technical functions, corporate environmental management plays an active role in mediation and dialogue with the stakeholders in the surroundings of the firm and even lobbying. This results in a different hierarchical role for HSE managers in both firms. In CNPC, the HSE department appears to have a rather discrete and technical position in the hierarchy. Few staff members seem to be dedicated 100% of their time to HSE functions: HSE functions appear to be spread and embedded all over the organization. In Exxon, the HSE director (a Chadian) is in charge of a large department. He directly operates as the second in line and also plays a role in external relations, a function he shares with a political heavyweight (Maoundonodji, 2010). While technological difficulties are not perceived as an obstacle, and while HSE approaches, standards and criteria in both firms appear to be converging, what then are the main challenges in the relationship between the Exxon Doba and the CNPC Rônier projects?

The oil sector is a heavily regulated and organized market. Any global firm cannot just suggest a new, or reject an established standard. Depending on its position in a specific market, a firm will be able to operate either as a producer or as a mere consumer of norms and standards. Furthermore, in a given country, and this is also valid for the oil sector, the first firm tends to set the norms and standards to which the following are looked at. This makes the entry for non- or less performing firms difficult but represents no hindrance to other global competitors. Until now, there are no indications that CNPC suffered such a hindrance. An eventual collaboration between CNPC and Exxon will bring together two firms with mostly

⁷ The lack of capacity to communicate and to engage in dialogues with stakeholders in their surroundings has been acknowledged by the commercial attaché at the Chinese Embassy as one of the priorities and main challenges for Chinese firms in Chad.

⁸ Contacts between oil firms and researchers are still very uncommon in China, even for Chinese researchers; the worlds of social/environmental sciences and of engineering remain far apart, also in China; the language barrier for non Chinese speakers is huge; we are the more grateful for the exchanges we had with CNPC staff.

shared goals in the field of environmental management and suffering very similar upward pushing pressures on standards, behavior and impacts (from media, markets, governments, parties, financial institutions, NGO's, worker unions, citizens). While Exxon, with the support of the World Bank, clearly appears as the producer of norms and standards, the role of CNPC is more ambiguous. Like Exxon's, CNPC's environmental standards and norms are of a composite nature. However, the originality and the effectiveness of the specific Chinese contribution to global HSE norms are not easily perceivable and the CNPC does not communicate about it. In order to suggest a new standard, you need to communicate, you need to convince. No new practice is established without the capacity to communicate, to convince and to gain adherence to one's new suggested best practice. Because of its restraint on this domain, the impression emerges that CNPC still operates as a consumer of worldwide best practices, rather than as a producer. We anticipate that this might change in the next future, because it is probable that CNPC will continue pushing for higher environmental standards in the oil sector, all be it to continue expanding in the global market and to be accepted as a competitor or partner in any component of the world petroleum, and not only in its margins.

A peaceful arrangement between CNPC and Exxon thus represent several challenges, which appear as resolvable. Such an arrangement would represent the first concrete manifestation in Central Africa, of a common strategy for the "depoliticization" of the respective energy policies of China and the US (as advocated by Lee and Shalmon, 2007)⁹, while at the same time pursuing experimenting the space for bifurcation created by Chads sudden access to oil and gas resources in Chad. The fact that the contractual obligations in the loan documents with WB and the International Finance Corporation clearly stipulate that all companies using the pipeline should respect the same Doba standards represents an additional incentive for cooperation. (Maoundonodji, 2010).

However, a (reverse) bifurcation might be envisaged if CNPC does not fully capture the quintessence of the Exxon-Doba project and it's most interesting dimension. A simple buy out of the Exxon facilities or an unfriendly takeover would reduce the rich institutional heritage of the Exxon Doba project to a mere pipeline. In that event, CNPC would be severed from the access to what appears today as it's most scare resource: the capacity to communicate, to

⁹ In a convincing essay, Lee and Shalmon argue that, faced to oil exporters, oil importers rarely win by increasing tensions among each other ; as China and the US share the same situation as net oil importers, they should instead work together (Lee and Shalmon, 2007).

establish dialogues with the surroundings and the ability to convince and mobilize. This will be the condition *sine qua non* in view of playing a more significant role in the future setting of international environment standards in the oil and gas industry.

Conclusions

In China, the gap between demand and supply of environmental regulation has been progressively reduced over the last 15 years, even if enforcement still lags behind. In the petroleum sector, the flagship of Chinese public investments at home and abroad, the distance between regulation and enforcement of environment regulations has been increasingly reduced over the last 10 years. China requires access to the core of the world petroleum system and cannot maintain its operations in the margins. As a public MNC, CNPC has to compete or to collaborate with firms from the OECD and their environmental standards. Competition and/or collaboration are exercising the same demands on health, safety and environmental practices in the firm. Internal (citizens claims, media, demands from within the party) and external pressures (need to compete globally and overcome the non tariff barriers) have contributed to rapid policy learning and to the closure of the gap between internal demand and supply of environmental regulation. When operating in Chad, CNPC appears thus as adequately endowed in terms of environmental management tools and practices and can face a comparison with environmental practices of Exxon.

In Chad, CNPC does have no leeway for the practice of a classic double standard approach. When CNPC arrives in Chad in 2007, its corporate environmental management practice is at the same timescrutinized by higher HSE management within the firm, by the State council and the Exim bank andfaced with the Doba Heritage. In the case of CNPC in Chad. We did not find evidence in support of Soares statement that Chinese firms are presenting eventual lower standards as a sale argument to enter the market.

Despite the shortcomings of the Bank's involvement in the oil sector in Chad this heritage is still strongly marking the minds of all actors involved in the oil sector in Chad. The peculiar relationship between Exxon and the World Bank Group has generated a series of specific norms and standards, a threshold and a new path, which cannot be avoided at this stage.

Although CNPC deals pragmatically with the encountered situation, and has to adapt to and compete with the capacity to communicate of Exxon's HSE department, the Chinese firm has

not yet been in a position to set new and more stringent norms. The double standard might thus operate but in a paradoxical way, in inverse direction.

Till now, only a few firms from OECD countries were in a position to participate in the competition for new technologies, approaches and procedures and were able to move through the decision meanders of the self-regulated and west centered oil and gas organizations, the media, public opinion, competitors and to see their efforts recognized and proclaimed as new “best practices”. Besides good practice, this requires capacity to communicate, to convince, to gain adhesion.

What might happen if CNPC is denied access to the Exxon operated pipeline and has to move eastwards to Soudan, or in the case of an unfriendly takeover of the Exxon Doba facilities by CNPC, remains an open book. However, reducing the rich institutional heritage of the Exxon-Doba project to a mere pipeline could be a strategic mistake for CNPC.

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Bibliography (verifications and corrections pending)

ALDEN, C. (2007), *China in Africa*, Zed Books, London / New York.

ALDEN, C., D. LARGE AND R. SOARES DE OLIVEIRA (eds.) (2008), *China returns to Africa: a rising power and a continent embrace*, Hurst and Co Publishers.

BOSSARD, P. (2008), « CHINA'S ENVIRONMENTAL FOOTPRINT IN AFRICA », SAIIA CHINA IN AFRICA POLICY BRIEFING, N° 3, SA INSTITUTE OF INTERNATIONAL AFFAIRS (SAIIA), JOHANNESBURG.

BRANDT (1980) "NORTH-SOUTH : A PROGRAM FOR SURVIVAL", INDEPENDENT COMMISSION ON INTERNATIONAL Development Issues, présidée par Willy Brandt.

CAPOCCIA, G. AND R. DANIEL (2007), « The Study of Critical Junctures: Theory, Narrative, and Counterfactuals in Historical Institutionalism », *World Politics*, The Johns Hopkins University Press, Volume 59, Number 4 : 341-369.

CHEN, S. (2008), "China's Outbound FDI and Energy Security", East Asian Institute, Paper draft submitted for the Annual Meeting of American Political Science Association, Boston, USA.

CHRISTIANSEN, H. AND E. GARCÍA (2004), *An Overview of Corporate Environmental Management Practices*, a Joint Study by the OECD Secretariat and EIRIS.

COLLIER, P. AND A. HOEFFLER (2005a), "Resource Rents, Governance, and Conflict", *Journal of Conflict Resolution* 49.4 : 625-633.

COLLIER, P. AND A. HOEFFLER (2005b), « Démocraties pétrolières », *Afrique contemporaine* n°216 : 107-123.

CUI, L. AND F. JIANG (2009), "FDI entry mode choice of Chinese firms: A strategic behavior perspective", *Journal of World Business*, 44(4):434-444.

DAI (2007) "From Curse to Cures: Practical Perspectives on Remediating the Resource Curse", *Developing Alternatives*, volume 11, issue 1.

DITGEN R. (2010), « Chapitre 11 La CNPC en Afrique médiane : comparaison des expériences de gestion environnementale au Soudan, au Niger et au Tchad » pp. 360-390 in: van Vliet and Magrin eds. "La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

ENGERMAN, S.L. AND K.L. SOKOLOFF (2002), "Factor Endowments, Inequality, and Paths of Development Among New World Economics", NBER Working Paper No. 9259.

EQUATOR PRINCIPLES: a financial industry benchmark for determining, assessing and managing social & environmental risk in project financing (2006), <http://www.equator-principles.com/principles.shtml>, consulté le 19 October 2010.

FINKELSTEIN, D. (2009), "China's External Grand Strategy", presentation, 38th Taiwan-U.S. Conference on Contemporary China: China Faces the Future, CNAPS-IIR, The Brookings Institution, July 14-15. iir.nccu.edu.tw/attachments/news/modify/Finkelstein.pdf, consulté le 3 novembre 2010.

HEINRIGS, P. (2007), "Oil and Gas", in Atlas on Regional Integration in West Africa, Economy series, ECOWAS-SWAC/OECD

HOLSLAG, J. (2006), "Unleash the Dragon: A New Phase in China's Economic Transition," Vrije Universiteit Brussel, (VUB) Asia Paper of the Brussels Institute of Contemporary China Studies, October 2006, <<http://www.vub.ac.be/biccs>>, p.9, consulté le 3 novembre 2010

HOLSLAG, J. (2007), "Friendly Giant? China's Evolving Africa Policy", *Asia Paper* vol. 2 (5), Brussels Institute of Contemporary, China Studies (BICCS).

HUMPHREYS, M. (2005), "Natural Resources, Conflict and Conflict Resolution: Uncovering the Mechanisms," *Journal of Conflict Resolution*, Vol. 49 No. 4, Sage Publications : 508-537

GANG, C. (2009), Politics of China's environmental protection: problems and progress, *Series on Contemporary China*, volume 17.

GARCIA, J., BLUFFSTONE R., AND T. STERNER (2009), "Corporate Environmental Management in Transition Economies: The Case of Central and Eastern Europe," *Czech Journal of Economics and Finance*. Vol. 59 (5): 410-425.

GENG, Y., Q. ZHU, B. DOBERSTEIN AND T. FUJITA (2008), "Implementing China's circular economy concept at the regional level: A review of progress in Dalian, China", [*Waste Management*, Volume 29, Issue 2](#), February 2009 :996-1002.

GRAMSCI, A. (1975), *Notas sobre Maquiavelo, sobre política y sobre el Estado Moderno* (traduit de l'italien [1966] par José M. Arico), Mexico, Juan Pablos Editor.

GU, J., J. HUMPHREY AND D. MESSNER (2008), "Global governance and developing countries : the implications of the rise of China", *World development*, 2008, Vol. 26, No 2 : 274-292.

GUESNET, L., J. SCHURE AND W.-C. PAES, éditeurs (2008), “Digging for Peace: Private Companies and Emerging Economies in Zones of Conflict”, Report of the Fatal Transactions Conference, Bonn, 21–22 November.

JENKINS, R., AND C. EDWARDS, (2006) « The economic impact of China and India on sub-Saharan Africa : trends and prospects », *Journal of Asian Economics* 17 (2006) : 207-225.

KLOFF, S. AND C. WICKS (2005). Gestion environnementale de l’exploitation de pétrole offshore et du transport maritime pétrolier, FIBA, WWF, IUCN, PRCM.

LEE, H. AND D. A. SHALMON (2007). “Searching for Oil: China’s Oil Initiatives in the Middle East,” BCSIA Discussion Paper, Cambridge, MA: Belfer Center for Science and International Affairs, Kennedy School of Government, Harvard University.

LIANG G., F. WANG AND W. YANG (2010), “The emergence of environmental laws and regulations in China”, pp. 50-89 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

LIANG G., F. WANG AND W. YANG (2010), “Implementation and enforcement of China’s environmental laws and regulations”, pp. 90-122 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

LIANG G., F. WANG AND W. YANG (2010), “Environmental regulations for the petroleum sector and their implementation in China”, pp. 123-163 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

LIN, Y. (2010), “ Dispositifs et pratiques de la CNPC dans le domaine environnemental, pp. 293-321 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

MAGRIN, G. (2001), Le sud du Tchad en mutation. Des champs de coton aux sirènes de l’or noir, Sepia-Cirad, Paris.

MAGRIN, G., (2003a), « Le pétrole contre l'enclavement : un enjeu de la mondialisation au sud du Tchad », Afrique, n°spécial de la revue Labyrinthe, n°16, décembre 2003 : 19-34.

MAGRIN, G., (2003b), Les enjeux d'un enrichissement pétrolier en Afrique centrale. Le cas du Tchad, Paris, coll. mémoires et documents de l'UMR PRODIG, Graphigéo n°22.

MAGRIN, G., (2006), « Le pétrole ». Tchad, Atlas Jeune Afrique : 38-39.

MAGRIN, G. (2010a), "Un héritage pour le projet Rônier : le modèle de Doba à l'épreuve du temps", pp. 197-226 in: van Vliet and Magrin eds. "La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

MAGRIN, G. (2010b), " Les enjeux du projet Rônier", pp. 167-292 in: van Vliet and Magrin eds. "La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

MAGRIN, G. AND G. VAN VLIET (2005), « Greffe pétrolière et dynamiques territoriales : l'exemple de l'on shore tchadien », Afrique contemporaine, n°216, 2005-4 : 87-10, <http://www.cairn.info/revue-afrique-contemporaine-2005-4-page-87.htm>, consulté le 3 novembre 2010.

MAGRIN, G. AND G. VAN VLIET (2009), The use of oil revenues in Africa, in : J. Lesourne (ed.), *Governance of Oil in Africa: Unfinished Business*, Paris, Ifri, Les Etudes Ifri, Gouvernance européenne et géopolitique de l'énergie, Tome 6, www.ifri.org/files/Energie/MAGRIN.pdf, consulté le 3 novembre 2010.

MAOUNDONODJI, G. (2009), Les enjeux géopolitiques et géostratégiques de l'exploitation du pétrole au Tchad, Thèse de doctorat, Université Louvain-La-Neuve.

MAOUNDONODJI, G. (2010), «Les entreprises chinoises sont elles plus « vertes » que les multinationales occidentales? Une analyse comparative des projets d'Exxon (Doba) et de CNPCI (Rônier) au Tchad », pp. 340-360 in: van Vliet and Magrin eds. "La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

MATUS, C., (1987), Planificación y gobierno en sistemas de baja gobernabilidad, in: Seminario Internacional sobre Economía Campesina y Pobreza Rural. Fondo DRI. Bogotá.

MICHEL S. AND M. BEURET (2008), *La Chinafrique : Pékin à la conquête du continent noir*, Paris, Grasset.

MOL, A.P.J. AND LIU, Y. (2005), "Institutionalising cleaner production in China: the cleaner production promotion law", *Int. J. Environment and Sustainable Development*, Vol. 4, No. 3, 2005 : 227-24.

MUNSON, P. AND R. ZHENG (2010), "Feeding the Dragon: Managing Chinese Resource Acquisition in Africa", research paper, Partnership for Environmental Law, Vermont Law School and USAID.

NARMA (2005), "Proposal for the creation of a Network for applied research on mining, oil and gas activities NARMA", by van Vliet G. et G. Magrin, miméogr., Cirad, Montpellier.

NATIONAL PEOPLE'S CONGRESS (2002a), Cleaner Production Promotion Law, 29th June.

NATIONAL PEOPLE'S CONGRESS (2002b), Law of the People's Republic of China on the Environmental Impact Assessment, unofficial translation (Adopted October 28, 2002. Effective September 1, 2003), <http://www.lexadin.nl/wlg/legis/nofr/oeur/lxwechi.htm>, consulté le 19 October 2010.

OECD / ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (2008), "OECD investment policy reviews: China 2008".

OZAWA, C. P. (1996), "Science in Environmental Conflicts," *Sociological Perspectives* 39 (2): 219-230.

PEGG, S. (2009), "Chronicle of a death foretold : the collapse of the Chad-Cameroon Pipeline Project", *African Affairs* 108/432 : 311-320.

PEIYUAN, G. (2005), *Corporate Environmental Reporting and Disclosure in China*, Research Paper, School of Public Policy and Management, Tsinghua University, Beijing (Edited by Richard Welford).

PERRET, C. (2007), "AFRICA AND CHINA", IN : ATLAS ON REGIONAL INTEGRATION IN WEST AFRICA, ECONOMY SERIES, ECOWAS-SWAC/OECD.

POULANTZAS, N. (1968). *POUVOIR POLITIQUE ET SCIENCES SOCIALES*. MASPERO, PARIS.

POURTIER, R. AND G. MAGRIN, (2005) « *Le pétrole en Afrique : entre réseaux et territoires* », conférence au Festival International de Géographie de Saint Dié, 1^{er} octobre 2005.

REINER K. AND A. TUSON (2009), Most Environmentally and Socially Controversial Companies in June and July 2009, Zurich, August 3, 2009 / ECOFACT AG.

ROSS, M. (1999), “The Political Economy of The Resource Curse”, *World Politics* 51.2 : 297-322.

ROSSER, A. (2006), “The Political Economy of the Resource Curse: A Literature Survey”, April 2006, Working paper 268, Institute of development Studies, Centre for the Future State.

SHI, H. AND ZHANG, L. (2006), “China’s Environmental Governance of Rapid Industrialisation”, *Environmental Politics*, Vol. 15, No. 2 : 271-292.

SIMS, H. (1999), “One fifth of the sky: China’s environmental stewardship”, *World Development*, 1999, Vol 27, No 7 :1227-1245.

SOARES DE OLIVEIRA, R. (2007). Oil and politics in the Gulf of Guinea. New York: Columbia University Press.

SOARES DE OLIVEIRA R. (2008), « Making sense of Chinese Oil Investment in Africa », in China returns to Africa (ALDEN, LARGE, SOARES DE OLIVEIRA eds), Hurst Publishers Ltd, London, pp. 83-110.

TAVARES M.A AND A. DOUDJIDINGAO (2010), “Chapitre 9 Le projet Rônier : réalisations, impacts et apprentissages » pp. 340-360 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

TSANG S. AND A. KOLK (2010), “Evolution of Chinese Policies and Governance Structures on Environment, Energy and Climate”, [Environmental Policy and Governance, Volume 20, Issue 3](#).

UNITED NATIONS (2004), Making FDI Work for sustainable development (Executive summary). United Nations Conference on trade and Development and Sustainable Business Institute at the European Business School (UNCTAD/DITC/TED/9).

VAN VLIET, G. (1997), Le pilotage aux confins mouvants de la gouvernance: économie, politique, écologie et régulation en Amazonie Colombienne 1975-1990, PhD Thesis,

Université de Paris I Panthéon Sorbonne, sous la direction du Professeur René Passet. http://tel.ccsd.cnrs.fr/documents/archives0/00/00/74/90/index_fr.html (consulté le 20 octobre 2010).

VAN VLIET, G. (1998), Activités minières, barrages, et problématiques de négociation : hypothèses pour une réflexion, présentation, <http://www.iucn.org/about/union/commissions/ceesp/wg/seaprise/> (consulté le 20/10/2010).

van Vliet, G. (2010), « Introduction », pp. 30-40 in: van Vliet and Magrin eds. “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

VAN VLIET, G. AND G. MAGRIN (2011), « Une autre lecture du projet pétrolier de Doba au Tchad : l'écorce et le noyau », In: Etat, acteur du développement, Karthala, Paris (in press)

VAN VLIET, G. AND G. MAGRIN (2010), “Conclusions” pp. 391-395, in: van Vliet, G. and G. Magrin (eds.) (2010), “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

VAN VLIET, G. and G. MAGRIN (eds.) (2010), “La gestion environnementale de la CNPC au Tchad : enjeux et mise en perspective en début de cycle pétrolier », final report, mimeogr., CIRAD/UIBE/GRAMPTC, 427 p.

VAN VLIET, G., G. MAGRIN, B. VAN DESSEL AND L. CHABASON (2008) : “The scientific panel on oil and gas activities in the Islamic Republic of Mauritania : intentions, results, challenges”, communication presented at the workshop : Independent Scientific Panels: towards informed decision making (Thematic Stream Safeguarding the diversity of Life), IUCN WCC, 8 October 2008, Barcelone disponibles sur le site : http://intranet.iucn.org/webfiles/ftp/public/ForumEvents/E1517/Final%20Document/1517_Van%20Vliet_G_Independant%20Scientific%20Panels%20-%20towards%20informed%20decision%20making.pdf (consulté le 20 octobre 2010).

VAN VLIET, G. AND G. MAGRIN (2009a), “Public steering in the hydro-fuel sector: conditions for trajectory bifurcation in Chad and Mauritania”, 21st World Congress of Political Science, Panel: Oil governance in the current energy crisis, July 12 to 16, Santiago de Chile.

VAN VLIET, G., G. MAGRIN, B. VAN DESSEL AND L. CHABASON (2009b), Rapport définitif du Panel scientifique indépendant sur les activités pétrolières et gazières en République Islamique de Mauritanie, Nouakchott, UICN.

ZENG, S.X, C.M.TAM, V.W.Y TAM AND Z.M. DENG (2005), “Towards implementarion of ISO 14001 environmental management systems in selected industries in China, Journal of cleaner production 13: 645-656.

Articles de presse

THE ECONOMIST (2008), “A ravenous dragon: a special report on China’s quest for resources”, 15 March 2008.

SERVANT J.C. (2005), “La Chine à l’assaut du marché africain », *Le Monde Diplomatique*, Mai 2005.

FRENCH H.W. AND L. POLGREEN (2007), “China, Filling a Void, Drills for Riches in Chad” *New York Times*, August 13.

http://www.nytimes.com/2007/08/13/world/africa/13chinaafrica.html?_r=2&pagewanted=2&sq=chad%20cnpc&st=cse&scp=2, consulté le 13 October 2010