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A National Oil Company as Social Development Agent

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International business and strategy literature documents how some multinational oil and gas corporations are playing a role in socioeconomic development of the regions in which they operate. This paper examines the case of a Latin American national oil and gas company, with a history of low social performance and poor environmental responsibility, in its innovation of new strategies toward sustainable development in the region of its last remaining large oil field.

Major Research Area: Management

1. Introduction

Rising oil and gas prices and decline of world hydrocarbon reserves are motivating petroleum companies to explore and produce from 'hard to get' oil locations. 'Hard to get' refers to technically challenging reserves where more advanced technology is typically required often implying environmentally and socially vulnerable areas. As conventional energy resources dwindle, petroleum companies are expanding into increasingly remote areas having a greater impact particularly on indigenous communities, within whose territories lie much of the world's future energy resources (Lertzman 2008; Garcia and Vredenburg 2003; Hall and Vredenburg 2003, 2004, 2005; Hall, Matos and Vredenburg 2005). Predicted hydrocarbon production declines over the next decades have motivated not only private oil companies but also state owned firms to look abroad. For example the national Chinese and Indian oil companies are aggressively exploring for oil on different continents.

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State owned oil companies in Latin America are also suffering the decline of their reserves and many countries may face an energy crisis in the next 10 years or less if action is not taken to find new oil reserves. One recent example is that of Argentina's inability to maintain natural gas supply levels to Chile forcing a reduction of energy consumption in Chilean industries and their economy. This trend towards energy crisis will be seen over the next decades throughout the region as many countries have reached peak oil production including Colombia, Peru, Mexico, and Argentina.

This paper examines the case of one Latin American state-run oil and gas company facing the production decline dilemma and how it chose to innovate new strategies towards sustainable development of the region of its last and largest oil field. For confidentiality purposes, the name of the country, the national oil company and project region along with key organizational players in the case have been disguised. It is not within the scope of this paper to address the definition of sustainable development and its application to resource industries.

Since publication of the Brundtland Commission report, *Our Common Future* (WCED 1987), a hallmark of sustainable development has been the coalescence of social and environmental variables with economic agendas. We argue from the positions put forward in Sharma and Vredenburg (1998), Vredenburg and Westley (2002), and Lertzman and Vredenburg (2005) that sustainable development must have an ecological foundation while addressing also social and cultural dimensions.[i] Nor do we address here the relevant topic of whether petroleum companies, whose primary assets are non-renewable, are inherently unsustainable. We assert, however, that companies in the petroleum industry can improve their social and environmental performance, which is a step in the right direction, thus playing a role in the transition towards sustainability.

Data collection for research of this case involved several trips to the country's capital for meetings with key organizational players and field trips to communities in the region of the company's petroleum project area. Interviews, both formal and informal, with open-ended questioning formats were conducted. Approximately 25 hours of interviews were either manually recorded by pen and paper or audio recorded when appropriate. These were transcribed and analyzed. Along with access to confidential corporate and internal agency reports relevant to the case, document review included other industry and media sources, as well as academic literature from the fields of business strategy and organizational theory, community and international development, and anthropology.

2. Strategic Bridging And Corporations

The literature addressing corporations acting as agents for positive social change is relatively new but growing. It includes the business case for sustainable development and motives for corporations acting as social change agents at the micro, meso and macro levels (Bies, Bartunek, Fort and Mayer 2007). One strategy multinational corporations (MNCs) use to address environmental issues and engage local communities for initiatives of socioeconomic development has been described as bridging (Brown 1991) or strategic bridging (Westley and Vredenburg 1991; Sharma Vredenburg and Westley 1994; Garcia and Vredenburg 2003).

The concept of strategic bridging comes from the notion of the ‘bridging organization’. Sustainable development, it has been argued (Brown 1991), is fundamentally an institutional problem where organizational capacity is a key limiting factor. Development processes typically involve building social institutions which enable a society’s members to improve their quality of life in a sustainable and just manner. In the absence of such institutions, injections of capital, technology and other resources result in aggrandizing existing structures exacerbating conditions of socioeconomic inequity. Thus, Brown (1991) argued that in such instances the long-term viability of sustainable development projects hinge on linkages which facilitate cooperation between organizations. In the context of sustainable development, therefore, linkages amongst diverse organizations in both the private and public sectors are increasingly important.

Organizational and intersectoral collaboration has spread in various forms in this context including public and private sector partnerships, joint ventures and interorganizational networks. Such collaborative efforts have emerged as a problem solving mechanism for issues of community economic development and urban renewal (Brown 1991). *Bridging organizations* are thus instrumental in addressing institutional challenges and organizational needs of sustainable development in both industrialized and developing countries. These strategic organizations play the role of linking various agencies in the public, private and civil sectors to engage in collaborative efforts for sustainability. According to Brown (1991) such networks provide leverage well beyond the bridging organization’s own capacities. Bridging organizations are therefore established to cope with and draw strength from diversity. Consequently, they can be small in size or budget, yet mobilize considerable resources wielding significant influence. As a central agent amongst diverse social actors, the bridging organization provides a conduit for ideas, innovation and information, is a broker of resources, negotiator of deals, strategist and mediator (Brown, 1991). Being central to development activities and social change they are ‘strategic organizations’ (Khandwalla, 1988). This places the bridging organization in a high degree of visibility making it vulnerable to pressures from the constituents and stakeholders it seeks to connect.

Given that bridging entails the connecting of parties previously considered separate, many forms of collaboration have bridging characteristics. Westley and Vredenburg (1991) assert that *strategic bridging* implies linking, and is a special form of collaboration distinct others such as joint ventures, mediation, round tables and task forces. They suggest such collaboration most likely occurs when problems are complex, wide in scope and beyond the means of a single organization to solve unilaterally. Another distinction of strategic bridging is in the degree of interpenetration. Interpenetration refers to the process whereby stakeholders seeking to collaborate in a problem domain engage in direct or mutual negotiations, pool resources, and/or create or employ a third party as a linking device. Strategic bridging differs from other forms of collaboration also in the particular balance between processes of interorganizational collaboration and intraorganizational commitment building, which is determined by the degree of interpenetration.

Westley and Vredenburg (1991) contend that strategic bridging is characterized by the presence of a third party that is historically separate and distinct from the resources and personnel of the island organizations it seeks to link. Rather than providing a communal focus, as with negotiators, strategic bridging organizations tend to negotiate bilaterally with key stakeholders. Unlike mediators, bridging organizations enter into collaborative negotiations to forward their own ends whilst serving as a broker to provide links among domain stakeholders. Thus, bridging organizations can be stakeholders in the very process they broker. Although potentially advantageous, the dual role of being both agent and broker creates a certain stress for bridging organizations. This is that organizations providing strategic bridging are faced with having to “sell” outcomes in order to secure commitment. Though negotiators in joint ventures and multiparty task forces can face this situation, the problem is considerably reduced because mediators do not act as stakeholders.

Figure 1 below depicts organizational strategic bridging.

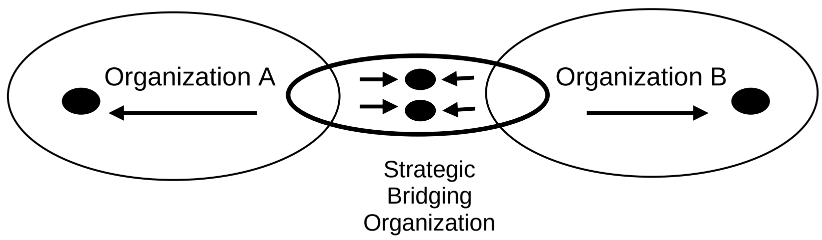

Figure 1: Strategic Bridging

Source: Westley and Vredenburg (1991, p.69)

Westley and Vredenburg (1991) offer three distinctions to characterize bridging organizations including: mandated versus voluntary; problem-focused versus self-serving; and transformational versus maintenance oriented. They use these distinctions to cluster strategic bridging organizations into two ideal types: altruistic and egoistical; however deviation exists as does overlap. For example, a voluntary, self-serving organization may also be transformational.

Research suggests strategic bridging organizations can be effective when motivated by self-interest (Sharma, Vredenburg, and Westley, 1994). In this case, an MNC with a permanent presence and significant resources committed in a West African country was found to have egoistic interests in the development processes of local people. This self-serving interest in long-term relationship building was beneficial also for government and an international financial agency. Cultural adaptation to local people's customs was a primary factor for success. By learning to work within kinship groups and tribal structures, the company gained support from local elders and chiefs. These relationships created a social network for the company to leverage government support and gain a significant development loan for the country. The loan helped farmers develop capacity enabling the company to purchase products and inject capital at the local level. This cross-cultural capacity has implications for the case we examine below where the region of our case's project area is inhabited by indigenous peoples. Cross-cultural bridging is a strategic capability for companies who seek to work effectively and responsibly in the territories of indigenous peoples (Lertzman and Vredenburg 2005).

2.1 Vulnerability

Garcia and Vredenburg (2003) examine organizational vulnerability of strategic bridging which can fail under three scenarios: (a) if one of the organizations tries to absorb or control the strategic bridging organization; (b) if the bridging organization collapses due to internal or financial difficulties; and, (c) if one organization leaves the bridge for any reason. This can occur on either end; for example, the company may curtail funding if it feels the expected results are not being obtained. This may also occur if one of the other organizations perceives the bridging organization as acting without independence. The Garcia-Vredenburg case is also relevant in that it describes how a private petroleum MNC funded for a period of time the creation of an independent community development foundation in the Ecuadorian Amazon.

3. National Oil Companies (NOCs) vs International Oil Companies (IOCs)

In 2005, 77% of the 1,148 billion barrels of globally proved oil reserves were in the control of national oil companies (NOCs) (Chen, 2007). In contrast, international oil companies (IOCs), most of which are publicly traded such as ExxonMobil, BP, Chevron and Royal Dutch Shell, controlled less than 10% of the world's oil and gas resources (Chen 2007). Of the top 20 oil producing companies worldwide, 14 are NOCs or newly privatized NOCs, the major international companies being pushed to second place. The growing importance of NOCs, thus raises questions about their policies, priorities and practices in terms of impact on global and future energy markets. For the purposes of our work, we are particularly interested in social and environmental performance as part of the transition to sustainable development.

Social and environmental performance varies amongst NOCs. For example, Chen (2007) points out that Statoil (Norwegian Energy Group) and Petrobras (Brazilian Petroleum Company) have developed significant sustainability profiles.[ii] CNPC (Chinese National Petroleum Company), ONGC (India National Oil Company) and PDVSA (Petroleos de Venezuela), however, have not focused on sustainability performance and practices of corporate responsibility.[iii] It could be argued that publicly traded IOCs with large international profiles are more subject to public scrutiny and the need for social license to operate than are NOCs. IOCs are susceptible to demands for improving social and environmental performance from NGOs, civil society, government and their shareholders. NOCs have, thus far, been largely insulated from such societal pressures due to their lack of vulnerability in public stock markets.

As NOCs become privatized, however, as they look increasingly for international financing and partnership with IOCs in the global marketplace, they become subject to similar demands. Thus, NOCs may need to behave more like IOCs in order to succeed in the global business environment. Of course institutional theory would have predicted this as NOC's move into the international business arena. Institutional theory suggests that organizations must conform to the rules and norms prevailing in the business environment in order to survive and thrive (DiMaggio and Powell, 1983; Meyer and Rowan, 1977).

4. The Case Of A Latin American National Petroleum Company

Our case examines the efforts of a national petroleum company (NPC) to improve its social and environmental performance throughout the project life of the country's last large oil field. The NPC approached an international government organization (IGO) with well-known international development programs to serve as a bridge to other organizations with expertise in key areas where the company lacked capability.

The IGO created bridges with a local university from the project area's region, an international resource management consulting firm with offices in the country, and a North American university with research and consulting experience in business strategy, resource management and community development. The names of participating organizations have been disguised for confidentiality. For the purposes of this paper we, thus, refer to the IGO Development Program (IGODP), the National Petroleum Company (NPC), the Regional State University (RSU), the Resource Management Consulting firm (RMC), and the North American University (NAU).

4.1 Case Background

NPC is a state-run Latin American petroleum company. Having developed the country's rich oil fields for the better part of a century, NPC is now a major job source contributing some 40% of the national revenue. It is the consummate national development symbol. NPC also faces serious challenges. Like many state oil companies the organization is top heavy and bureaucratic. NPC has generally operated how, where and when it wants to, offsetting social and environmental impacts with a history of paternalistic philanthropy chiefly directed at infrastructure development and improvement. Although NPC has a high national profile of which many are proud it often makes news headlines with leaks, spills and social conflict.

A growing presence of NGO activity in the country along with an increasingly robust civil society has brought greater public scrutiny to both government and industry to the point that the NPC has become a pivotal national political issue. Concerns of privatization and the potential role of foreign investment in the country's oil industry are also being debated. Moreover, the country appears to have reached peak oil production in its largest field and its reserves are in decline; one significant field of light sweet crude remains to be exploited. This field is the Petroleum Project Area (PPA) for this case and is expected to be active for the next 15-20 years anticipating significant impacts and opportunities for the region.

In response to these pressures NPC initiated a sustainable development strategy with environmental and socioeconomic components. The initiative originated from the company's new CEO and is being spearheaded by a major section of the company's national head office. The first attempt by NPC to engage in more socially and environmentally responsible activities occurred recently in a large gas field in a state neighboring to the PPA. The difficulties of implementing such a strategy with short-term international sub-contractor companies led to the rather disastrous result of the company losing ground in its domestic public relations and, thus, in terms of its social license to operate.

4.2 Case History

The Latin American country's (LAC) long petroleum history began with discovery of its first oil reservoir in 1901. The NPC was created in 1934 to take control of the country's oil and gas industry. Since then many developments have shaped the NPC's structure and organization. For example a national oil workers union was established in 1935. In 1971 a fisherman detected oil traces on the ocean and eight years later the first well started production of one of the world's largest marine oil reservoirs. In 1992 NPC's current organizational structure was configured through national legislation creating four subsidiaries: NPC Exploration and Production; NPC Refinery; NPC Gas and Basic Petrochemicals; and NPC Petrochemicals. The LAC produces an average of 3.5 million barrels of oil per day and 6 million cubic feet of gas per day making it one of the world's major oil and gas producers.

4.3 Case Region: The Petroleum Project Area (PPA)

The PPA is an NPC Exploration and Production project and includes the exploration and development of 29 hydrocarbon fields (oil and gas). The PPA was originally developed in the 1950s; however, technological development and rising oil prices coupled with the country's declining reserves have made the field suitable for re-exploitation. The project's objective is to accelerate recovery of hydrocarbon reserves by drilling approximately 16,000 wells using a newly configured high technology design, each with a one hectare footprint, and repairing more than 7,000 additional wells over a 20 year period.

The PPA basin includes 12 municipalities and covers an area approximately 123 km long and 25 km wide. The basin was discovered in 1926 and commercial production began in 1952. It includes 39% of LAC's total reserves and 56% of probable reserves. A project was initiated in 2003 to increase production of oil and gas from the basin and to stimulate the region's economy. This project evolved into the PPA. The region is biologically and culturally diverse, characterized predominantly by small and medium scale agriculture including significant concentrations of indigenous peoples who are largely politically and economically marginalized. Lack of employment opportunities with considerable worker out-migration is a growing concern for the region, which is well-known for its archaeological sites, native cultures and important natural areas.

4.4 Environmental And Social Experiences

Most of NPC oil and gas production comes from the ocean with little direct contact to local communities. Onshore, the NPC is operating relatively low production oil fields in different states; however, company activities have caused negative environmental impacts resulting in conflicts with local communities. For instance, on January 29, 1996, thousands of indigenous people blocked the passage to 59 oil wells. Three of the seven demonstration sites were forcibly dispersed by police and military ten days later; however, the worst confrontation, with over 2,000 people, was violently removed by police and armed forces. People who live in petroleum producing zones claim to have incurred great loss due to contamination of soil, air, and water throughout the recent 20 years of oil production by the NPC. Indigenous people from one of the municipalities most severely affected by contamination report a 60% decrease in the production of coconuts, as well as drastic decreases in the production of corn, beans, oranges, cacao, bananas, mangos and other food subsistence crops. Fishermen in the coastal areas have reported significant decreases in fish and oyster production.

Although the majority of people in the PPA are of mestizo (mixed) origin, indigenous peoples comprise up to fifty percent of the population in key municipalities. Most are from two main indigenous ethno-linguistic groups with two others of considerably smaller size. Interviews with representatives from the two larger indigenous groups confirmed that their people feel extremely vulnerable to the impacts of industry and mestizo society at large. Their concerns are supported by ethnographic research which describes how traditional subsistence economies have been increasingly curtailed by the expansion of commercial agriculture. Endemic prejudice towards indigenous peoples makes it difficult to gather accurate demographic data as indigenous languages speakers are fearful to self-identify due to concerns over discrimination. In our field research, one indigenous educator from the region explained, “If you are Indigenous you are excluded from work and education; the best you can do to get a job is lie…the rule is you have to renounce your culture.” The result is that many people, especially youth, leave the region to seek work elsewhere. These young people are at risk of social isolation and suicide while home communities experience ongoing attrition.

Indigenous peoples we interviewed were concerned about the environmental, social and cultural impacts of petroleum development in the PPA. Their concerns and other related social conflicts are part of the long history of struggle between indigenous peoples and the LAC government. Community leaders say the government disregards both the needs of the people living in the region and the environmental impacts caused by contamination from NPC activities. A major long-term indigenous peoples uprising, with international attention and activist support, has been sustained in the state neighbouring the PPA. This is a matter of which NPC senior management are acutely aware. Moreover, in the fall of 2007 the NPC had six pipelines blown up. The so-called “leftist” guerrillas who claimed responsibility were not associated with indigenous peoples’ groups, however, the PPA was directly mentioned in the public statement issued by guerrillas following the action.

Even though the NPC is a state-run oil company, social license to operate has clearly become a significant issue for the company. This is underscored by the complex social, cultural and ecological variables of the PPA which have added greater demands to NPC’s performance capabilities. In response to this the CEO of NPC has fostered new institutional innovation and strategy to manage the PPA on principles of sustainable development.

4.5 New Management Strategies

Considering its image and reputation within local communities, the NPC has decided to take a new approach to production for the PPA based upon new business models and principles of sustainable development. Key features of this approach are improved environmental performance and recognition of the need to contribute to the socioeconomic viability of the region. One objective within this strategy was to develop a detailed environmental impact assessment for the PPA. The other major feature was to earmark 1.5-2% of the PPA's total 40 billion dollar investment for local socioeconomic development of the region over the next twenty years. In recognition of the NPC's lack of credibility and capability in areas of environmental performance and socioeconomic development, the company sought the services of the International Government Organization Development Program (IGODP) who has a strong reputation and background in local and international development. Thus, IGODP came to play the role of a strategic bridging organization lending its reputation and credibility to the NPC while bridging with other specialist organizations to recruit strategic capabilities.

Through an independent bidding process on requests for proposals, the IGODP enlisted the services of three external organizations to partner on key pieces of the NPC's sustainable development strategy for the PPA. To assemble a baseline demography of social, economic and environmental characteristics for the PPA, the IGODP enlisted the services of an interdisciplinary team from a local university in the project area's region, the Regional State University (RSU). To conduct the environmental impact assessment of the PPA the IGOPD contracted an international resource management consulting firm (RMC) with a national office in the country. To develop a strategy for directing funding into local socioeconomic development projects the IGOPD recruited a team from a North American university (NAU) with research and consulting expertise in community development, resource management and business strategy. This final piece proved to be the most challenging and is the focus of the rest of our discussion.

4.6 Strategy For Socioeconomic Development

The strategy proposed by the NAU team was simple at its core. This was to create a process whereby local communities could be engaged to articulate their own development agendas while bringing on resources to help them develop the capacity to achieve these goals. The mechanism to achieve this would be an independent regional community foundation (RCF). Community foundations are legally defined organizations that grant funds intended to address local needs and development priorities. They act as social entrepreneurs investing in and providing professional support to initiatives that have the potential to provide beneficial long-term local impacts. A distinguishing feature of the community foundation is its independence, governed by a board of directors, representing and accountable to the community it serves. Thus, the RCF board would be comprised of local stakeholders with representatives from key economic sectors, from social and health professions, industry, women and indigenous peoples. A central feature of community foundations is the capacity to work within communities at the grassroots level to help seed ideas, develop projects and the capacities for their implementation. Along with the independent board, therefore, the RCF would be run by a qualified executive director and staffed with trained community development professionals.

Members of the RCF would engage in a series of community-based visioning exercises to support local people in articulating their development needs. A set of regional development priorities would be developed from these workshops. Staff would then support local proponents and community members to propose and develop specific projects with monitoring and support through the RCF. Projects would be proposed, developed, implemented and monitored along the lines of twelve substantive areas considered to be key “drivers” for the dimensions of sustainable development including: ecological; social; cultural; economic; health; education; gender, youth and elders; procedural; capacity building; organizational/institutional development; communications; technology transfer. The NAU developed a work plan and timetable for the strategy including an interim transition phase with immediate lines of spending and medium to longer-term goals.

5. Discussion and Conclusions

The strategy described above exposed interesting organizational dynamics and tensions between the bridging organization IGODP and the NAU as well as within the NPC. The IGODP had expected NAU experts to use the demographic study prepared by the RSU as a basis for proposing individual projects throughout the region. The NAU team was hesitant to do this both in substance and in principle. Not only did the NAU believe the RSU report to be insufficiently detailed as a basis for making such explicit recommendations, they maintained that to make such decisions in the absence of local peoples’ input was strategically and ethically in error (see argument in Lertzman and Vredenburg 2005). In the NAU team’s opinion, the results would be unproductive and nepotistic enhancing existing power dynamics and paternalism to the exclusion of those parties most in need of access to opportunity (cf. Brown 1991). Not only would this be of little benefit to communities, it would yield little positive results for the company and possibly a net loss of position similarly to previous NPC attempts to engage in socially and environmentally responsible practices.

The IGODP exhibited the classic stress and vulnerability of a strategic bridging organization as a result of their relationship with NAU and the NPC. The IGODP brought on NAU to impart strategic capabilities lacking in the client organization NPC. The task from the NPC’s point of view was quite simple: the IGODP was to provide certain deliverables (i.e. specific project recommendations) supplied through the expertise of the bridging partner team from the NAU. However the NAU, due to its experience and expertise, had insights into the problem which were effectively in the client’s blind spot. With either ‘island’ organization potentially withdrawing from the project, the IGODP was vulnerable. The IGODP could see the reason behind NAU’s position yet felt even greater pressure from the NPC. Thus, the IOGDP was caught in the bind referred to earlier in the paper where strategic bridging organizations experience the tension of being both institutional broker and stakeholder with their own reputation and fiscal agenda at stake. Thus, the IGODP pressed NAU to compromise through a series of revisions and follow-up service demands. It might also be observed that although the IGODP may have regarded its own goals as transformational, the role it played as a strategic bridging organization conformed more to one of maintenance.

Even more interesting were the NPC's internal dynamics revealed by the NAU proposed strategy. Development of an overall sustainability program was under the purveyance of a newly created business group through the NPC head office. Yet implementation was within the responsibility of PPA management and engineering. While the new business group was favourably disposed to the NAU strategy, PPA upper management winced at the risk of giving control to an independent body. Moreover, they had the distinct concern that such strategy could go too far; in giving so much agency to local peoples things might get out of hand. Interestingly, the new office created within the PPA to implement these recommendations was especially excited with the strategy and had already begun implementing principles found in NAU preliminary reports prior to the final product's delivery.

Our chief observation is that NPC organizational dynamics described above reveal an institutional transformation-in-process occurring through generational transition towards sustainable development founded on improved social and environmental performance. As a bureaucratic top-heavy institution, like with most state-run oil companies, NPC is unable to respond quickly and develop new capabilities in the rapid manner of some private sector organizations. However, as is the case with privately owned companies, business environmentalism presents a continuum ranging from mere compliance to the active pursuit of sustainable development goals (Payne and Raiborn 2001). Similarly to big picture change in the private sector, transformation in the public sector of a state-run petroleum company requires top-level leadership. None of this would be happening, however, without grass-roots effort and broad-scale multi-sectoral demand for social change. In this case, the transition to sustainable development appears to be as much a bottom-up process as it is top-down. It likely requires both.

Pursuing strategy for sustainable development within state-run oil companies involves similar capacity development to that of the private sector in terms of human resources as well as organizational capabilities. However, case-specific strategies are required for those seeking to engage such long-term organizational transformations from within. For example, change sponsoring leaders and senior management visionaries must actively cultivate and support talented human resources to foster such organizational transformation. This includes upper and mid-level management, as well as entry-level and on the ground initiative. Paying attention to organizational dynamics that hinder or help create capacity for organizational cultural change is key. Such developments are more likely to occur for NOCs who are moving towards privatization, seeking foreign investment and publically traded partners who already have corporate responsibility and sustainable development profiles. These contribute to the political and economic conditions that make social license to operate a more compelling argument for the NOC business case. Moreover, citizens and civil society organizations are like the shareholders of an NOC. They can exert pressure and foster a social climate that supports from outside the transformation of organizational culture from within.

Endnotes

[i] In "Indigenous Peoples, Resource Extraction and Sustainable Development: An Ethical Approach" Lertzman and Vredenburg proposed an holistic approach to sustainable development based on conservation of natural, social and cultural capital with implications for business ethics and practice. For other relevant discussion see also William Rees (1989) "Defining Sustainable Development", UBC Centre for Human Settlements, CHS Research Bulletin, University of British Columbia; William Rees (1995), "Achieving Sustainability: Reform or Transformation?" Journal of Planning Literature, 9(4):333-360; and, Francis Westley and Harrie Vredenburg (1996), "Sustainability and the Corporation: Criteria for Aligning Economic Practice With Environmental Protection", Journal of Management Inquiry, 5(2):104-119.

[ii] In spite of ongoing disputes with environmentalists due to spills in the Barents and North seas and ongoing pressure to curtail drilling in the Barents, Staoil now StatoilHydro, regards "zero harm" as its environmental goal. Petrobras is now traded on the Dow Jones Sustainability Index.

[iii] PDVSA did initiate some corporate responsibility practices prior to the election of President Hugo Chavez and the subsequent changes he brought to PDVSA. ONGC has been recognized for achievements in governance and corporate citizenship; however, involvement with Sudan has led to criticism. The CNPC has received major criticism for its role in Sudan (E.g. see: *PetroChina, CNPC and Sudan: Perpetuating Genocide:* Sudan Divestment Taskforce, Washington DC, 2007).

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