

Greening the Cement Industry in Morocco: The Role of Multinational Corporations

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Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy  
In  
Planning, Governance, and Globalization

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April 22<sup>nd</sup>, 2016  
Blacksburg, VA

Keywords: Environmental Governance, Globalization, Multinational Corporations,  
Developing Countries

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## ABSTRACT

Corporate environmental responsibility is an emerging concept in developing countries, especially ones where environmental legislation regulating business activity is not enforced. In some instances, business actors voluntarily organize a collective action to institute the adoption of environmental best practices within a given industrial sector. This is the case of the cement industry in Morocco.

This research aimed to determine why and how Moroccan cement companies chose to green their industrial processes and adopt environmental best practices.

Using a process tracing methodology, this research showed how the adoption of environmental best practices was induced in the cement industry. By conducting in-depth interviews with actors involved in the cement environmental program, and analyzing relevant documentation on the global Cement Sustainability Initiative (CSI), this research identified how the pressure from financial institutions and global NGOs was instrumental in inducing change. The role of governmental institutions was relegated to facilitating and coordinating the activities of these companies.

This research also explores the reach of norms and regulations beyond a given country's frontiers, so that they directly influence the organizational fields of other countries. In this research, European institutions were found to be directly influencing the environmental performance of the cement industry in Morocco through the trade relations that existed between organizations in both geographical areas.

## Dedication and Acknowledgement

This dissertation is dedicated to the loving memory of my teacher and mentor Sidi.

I would like to express my deep gratitude to my committee members Drs. Karen Hult, Deborah Gallagher, Edward Weisband, and Ralph Hall. Without their unwavering support and dedication this work would not have been completed. I would also like to acknowledge the contribution of Drs. Carlson and Stephenson.

The presence and support of many persons made this work possible. I would like to mention my family: my sister, brother, uncles, aunts, cousins, father, and most of all my mother and grandmother for their infinite love and support. Special thanks also go to my dear teacher Amina alJamal, who hosted me while I was writing the first draft of this dissertation and who made sure I went back to writing each time I felt discouraged or in doubt, to the Laid family for always having a loving word ready, for Tracy Panuschka and Mary Ber for proofreading my entire dissertation, and doing so with joy and good heartedness, for the Manginos who listened, supported, and treated me in so many ways along this journey, and for my entire group of friends and colleagues, both in Morocco and in the US. Each and every individual helped, supported and encouraged me in a special way.

Finally, this research could not be completed without the collaboration of cement companies in Morocco, and of their headquarters in Europe. I would like to especially mention Mr. Bouhaouli, the director delegate of the cement trade association, who was always one phone call away, and whose openness of mind encouraged the emergence of the Cluster Industriel pour les Services Environnementaux-Maroc, the NGO described in this document's epilogue.

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# **Chapter 1: Introduction**

## **1-1 Introduction**

In the early 1980s, Moroccan cement corporations spearheaded the corporate environmental stewardship movement in the kingdom by adopting environmental best practices in conformance with international norms, and at a time when environmental legislation in the country was quasi nonexistent. This research explores why and how these corporations collectively and voluntarily decided to change their business practices to incorporate environmental norms.

This chapter offers a brief overview of the environmental movement in Morocco. It describes the events surrounding the decision to adopt environmental stewardship as a national strategy and the initial initiatives taken to anchor this new institutional direction. The chapter then reviews the various partnerships established between various national and international actors, provides a summary of the environmental legislation passed following the decision to change course, and gives an overview of the cement industry, including a brief description of the early days of the cement environmental initiative. The chapter provides valuable background information into the problematic presented in the previous paragraph and sets the stage for the following chapters that delve deeper into the process through which Moroccan cement companies successfully adopted environmental best practices in the absence of legislative pressures.

## **1-2 The Moroccan Environmental Agenda**

Following its participation in the Rio de Janeiro Earth Summit in 1992, the Moroccan government made a commitment to the international community to adopt sustainable development principles and make environmental preservation a national priority (Ministere de l'Energie, des Mines, de l'Eau et de l'Environnement Departement de l'Environnement, 2009). Commitments to environmental stewardship were first reflected in the political discourse, but in 1995 a comprehensive water management law was passed, constituting the first building bloc of an environmental regulatory infrastructure. In the early 2000's other regulations followed addressing various aspects of social and economic activity (ibid). A few visionary companies responded to these institutional changes, and from their own initiative, engaged in greening their production processes. However, the number of these firms was limited, as this greening process required heavy financial investments and acquisition of knowledge not yet available in the country. Furthermore, firms had not yet experienced any regulatory pressures, and many doubted the government's sustained commitment to environmental stewardship and enforcement of environmental regulations (Caisse de Depot et de Gestion, 2011). Consequently, cleaner production remained one of the biggest challenges to Morocco's environmental strategy.

The king's establishment of the Foundation Mohamed VI for Environmental Protection, under the leadership of his sister, princess Hasnae, bolstered the country's commitment to environmental stewardship. The foundation's activities revolved around environmental educational campaigns, preservation programs targeting the kingdom's various natural resources, and finally green enterprise. Institutionally, the country entered an incubation period during

which it laid the groundwork for a comprehensive and concerted environmental initiative. This incubation period ended with a royal speech on July 30, 2009, during which the Moroccan king called on the government to take environmental protection into consideration in all tenders, and asked the government to “draft a comprehensive, national environmental charter with the aim of protecting the country’s natural resources ... as part of a sustainable development policy” (King Mohammed VI, 2009). In response to the king’s request, a governmental task force formed to develop a charter, which was passed into law on January 8, 2014.

Following the king’s speech in 2009, environmental stewardship officially entered the Moroccan public discourse. Television programs covered various aspects of the importance of environmental protection, newspapers reported on the progress newly established NGOs were making, and even preachers in mosques prepared discourses centered on the importance of environmental stewardship as it is set forth in Islam. It was then clear to citizens in general and economic actors in particular, that sustainability was the new order of the day.

From an institutional perspective, the ministry of interior being was initially responsible for environmental protection as part of preserving the integrity of the Moroccan territory. This role was then transferred to a stand-alone ministry of environmental protection. Recently, the latter became a part of the Ministry of Energy, Mining, Water, and the Environment, which will be referred to henceforth as MdE.

In order to operationalize these institutional changes, the government engaged in establishing partnerships with various national and international actors. These partnerships took the form of public-private partnerships as in the case of the Moroccan Center for Cleaner Production (Centre Marocain de Production Propre or CMPP) or bilateral partnerships as in the case of the German collaboration.

Le Centre Marocain de Production Propre (CMPP) is Morocco’s center for cleaner production. It was established in June 2000 as part of the Confederation Generale des Entreprises Marocaines (CGEM) or the General Confederation of Moroccan Entreprises. The purpose of the CMPP is to act as a national reference of environmental technical knowledge. Among its services are: industry-oriented sensitization campaigns; promotion of green technology and information diffusion; capacity building for manufacturing companies in environmental engineering and management; and the provision of technical assistance (Representative of the Centre Marocain de Production Propre, 2011).

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) was mandated by the German government in 2008 to be the vehicle of the bilateral relationship between Morocco and Germany. The GIZ provides technical support and capacity building in the areas of water resources management, environmental stewardship, and climate change (Rzepka, 2010). The Programme de Gestion et de Protection de l’Environnement (PGPE), one of GIZ’s many environmental programs in the country collaborates with Moroccan partners to develop judicial and technical frameworks, and provides tools and procedures necessary for the successful implementation of environmental and climatic policies. PGPE’s initiative was successful in implementing a system of profitable environmental management in nearly one hundred manufacturing companies. This system revolved around reducing production costs through



efficient use of resources. Participating companies were able to save 22 M Dirham (\$2,200,000) within a two-year time frame (Temmam & Frey, 2011).

The Fond de Depolution (FODEP), or pollution abatement fund, is another industry oriented GIZ program. Instead of providing technical expertise, this program provides companies with financial assistance for up to 40% of the cost of environmentally sound equipment. It also guarantees a loan with 0% interest from a Moroccan bank for another 40% of the upgrade cost (Secretariat d'Etat aupres du Ministere de l'Energie, des Mines, de l'Eau et de l'Environnement, charge de l'Eau et de l'Environnement Departement de l'Environnement, 2011).

Preliminary research conducted in December 2011 revealed that these governmental programs have yet to generate a systemic shift in industrial processes. Interviews showed that industry's attitude toward environmental responsibility and stewardship remained unchanged. Regulations were not enforced, and firms remained non-compliant for the most part. In addition, several interviewed industrialists expressed unease with the new direction the country was taking, and confessed having little intention of following suit. Governmental officials corroborated these findings, and explained that while Morocco has made monumental progress institutionally in developing environmental legislation and collaborating with various national and international bodies aimed at helping business adopt environmental best practices, there still has not been a significant shift in the industrial paradigm toward environmental responsibility and stewardship. In addition, the country lacked an effective process to monitor and measure the extent to which firms complied with laws.

This was not the case in the cement industry. The 2011 interviews documented that cement manufacturers have, since the early 1990's, collaborated with the government to set goals for reducing their environmental footprint. Moreover, their current performance surpasses regulatory requirements, and exceeds that of any other industry in the country. The 2011 interviews also showed that cement companies helped the government develop environmental regulation, set environmental performance norms, and develop incentive programs, even for activities not tied to cement production (Representative of the Department of Regulation and Monitoring, 2011, APC Director Delegate, 2011). This puzzling finding led to further research, and to ultimately the questions driving this research, which are: **why did cement companies voluntarily choose to adopt environmental best practices in the absence of regulation, and how did they acquire the necessary knowledge and expertise to implement these best practices in their production processes?**

Figure 1 provides the timeline of the institutional changes relating to environmental protection.

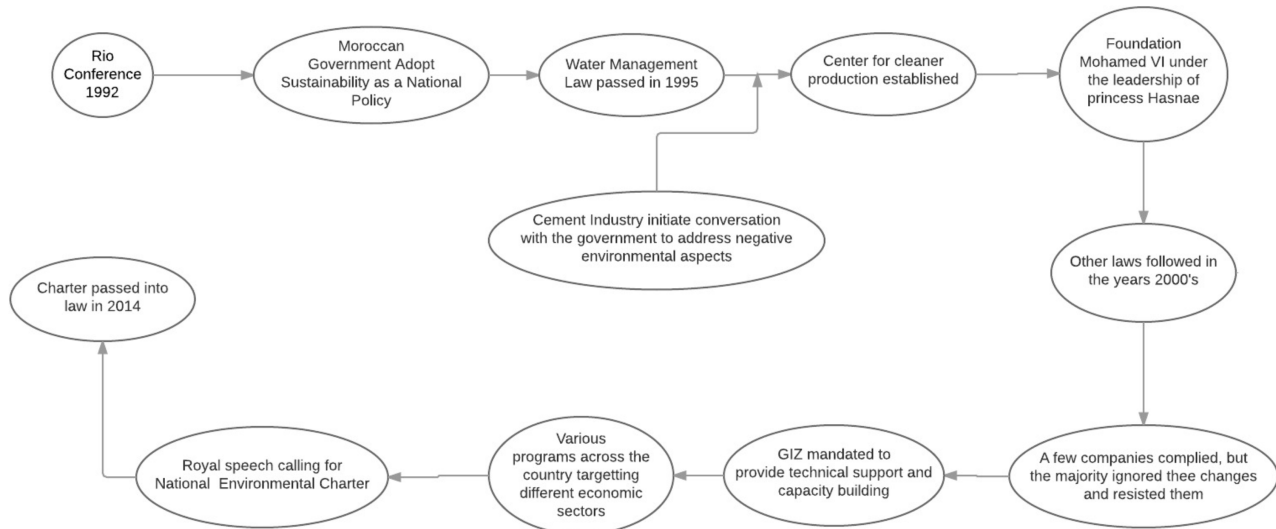


Figure 1: Timeline of the institutional changes promoting corporate environmental responsibility

The following section provides a summary of the environmental regulation the cement industry helped develop. While these regulations apply to cement production, cement companies exceed by far the performance expectations set in law, as will be discussed in the results chapters.

### 1-3 Environmental Legislation

As the government's commitment to steer the country towards sustainable development and green industry became stronger, foreign aid became increasingly contingent on the presence of robust environmental legislation, and often was limited to supporting environmental programs (Caisse de Depot et de Gestion, 2011; Representative of the Department of Regulation and Monitoring, 2011). This provided the needed push to regulate industrial activity. Up until this point, companies voluntarily adopting environmental best practices, like those in the cement industry, conformed to international regulations and norms. Given the fledgling MdE and its lack of experience in environmental standard settings, the emission limits and standards proposed were copied from those of European countries. Cement companies, by virtue of being part of European multinationals were heavily involved in this process. In fact, the Moroccan cement subsidiaries conducted benchmark studies, and based on the results of these gave feedback on the proposed limits (APC Director Delegate, 2011, Representative of the Department of Regulation and Monitoring, 2011). This partnership resulted in the development of the following regulations that impact cement companies:

- Law 10-95** on Water was passed in 1995 to set limits for emissions released into water. To ensure its proper application, basin agencies were created to control and monitor water quality and ensure industrialists and agriculturists complied with its requirements. Legislative texts regulating water quality and usage reference those elaborated at the beginning of the 20<sup>th</sup> century, which make explicit water ownership by the state and the necessity of preserving its pristine state. This law puts in place a national policy for water based on a prospective vision, as well as legal dispositions aiming at rationalizing water usage, the generalization of access to water, inter-regional solidarity, and the reduction of

disparities between villages and towns to ensure hydraulic safety for the entire country (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement).

- **Law 11-03** for environmental protection is a general text defining the principles and legal orientation of the national environmental strategy and assigns roles and responsibilities to industrial actors in protecting the environment. It highlights the importance of adopting an integrated and global approach to environmental protection to ensure the best possible equilibrium between the needs to preserve natural resources and the needs for economic development in the country. This text also strives to make the environmental legislating process more cohesive, especially given the involvement of various governmental departments in the legislation process; and aims to constitute a reference point, listing fundamental principles based on which targeted future texts will be developed. This legislation was first presented to the general secretariat of government in 1985, and then 1993, and was finally passed in 2003. It includes six chapters. The first discusses general rules and principles related to environmental protection, and specifies the department responsible for each one. The second requires the inclusion of the environment in all documents and actions related to land management. The third talks about the necessity to preserve and protect natural resources. The fourth discusses pollution prevention measures. The fifth presents new instruments capable of facilitating a rational and balanced exploitation of natural resources, while preventing pollution. This chapter lists mainly norms and standards, impact studies, and emergency plans. Finally, the sixth chapter requires the establishment of a specific responsibility plan, which ensures better reparation of ecological loss and guarantees compensation to victims, who often are unable to determine fault. It also discusses competences and procedures necessary for determining infraction (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement).
- **Law 12-03** Environmental impact studies, also passed in 2003, requires the conducting of environmental impact studies (EIS) before the realization of industrial and other projects. This law provides the procedure for conducting these studies and the required content of the study reports. The law assigns the responsibility of reviewing study reports and approving projects to the national committee for environmental impact studies, presided by the ministry of the environment (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement).
- **Law 13-03** on air pollution is the first comprehensive law regulating emissions to air. It prohibits emissions of toxic or corrosive gas, of smoke, vapors, heat, dust, and odors beyond a specific limit. In the absence of established norms by regulatory texts, relevant organizations are expected to prevent and reduce emissions applying the most advanced technique available (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement).
- **Law 28-00** on waste management and processing organizes waste into the following four categories: household; industrial; medical; and dangerous waste. It requires the reduction

of waste generation at the source, the use of biodegradable raw materials, and the tracing of products along the value chains. This law also provides the proper disposal method of each waste category. Law 28-00 is however only enforced to the extent that industrial sectors are classified based on their level of harm to the environment. Companies are still not held accountable for their emissions and there are still no penalties for not complying with law 28-00 (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement, Caisse de Depot et de Gestion, 2011).

- **Law 08-01** on quarry exploitation and rehabilitation explains the conditions under which quarry exploitation is lawful, and the best practices that should accompany the activity. This law especially explains the responsibilities incumbent upon the exploiter after the end of the exploitation period, especially in terms of rehabilitation (Association Professionnelle des Cimentiers, 2008, Secretariat d'Etat Charge de l'Eau et de l'Environnement Departement de l'Environnement).

None of these regulations are being rigorously enforced, except for law 12-03. This non-enforcement is partly due to the lack of a trained work force, the centralization of the legal system, and the challenging economic conditions of the country, especially outside the large cities (Representative of the Department of Regulation and Monitoring, 2011). Even though legal counsel participated in the development of these regulations along with relevant ministries, magistrates are often ignorant of the full extent of the damage caused by any given environmental incident, and, as a result, often rule in favor of corporations. Such actions have caused the public to doubt the rigor of the legal system and lose faith in due process (Legal Expert- Caisse de Depot et de Gestion, 2011).

#### **1-4 Overview of the Cement Industry's Environmental Initiative**

The cement production value chain consists of six steps: raw material extraction, raw material preparation, raw grinding, pyroprocessing, finish grinding, and distribution (see Figure 2). Due to high distribution costs, cement is produced for a local market, with plants rarely serving customers beyond a 300 km radius (WBCSD, 2002). The environmental footprint of the cement industry is considerable. Not only does cement production involve the destruction of landscape, and intensive water usage, it also constitutes a major contributor to global CO<sub>2</sub> emissions. In fact, it is considered to be responsible for 5% of global man-made CO<sub>2</sub> emissions each year (McCaffrey, 2002). Figure 2 shows the different phases of cement production.<sup>1</sup>

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<sup>1</sup> Source for Figure 2: <http://www.slideshare.net/puneet24038/cement-supply-chain>

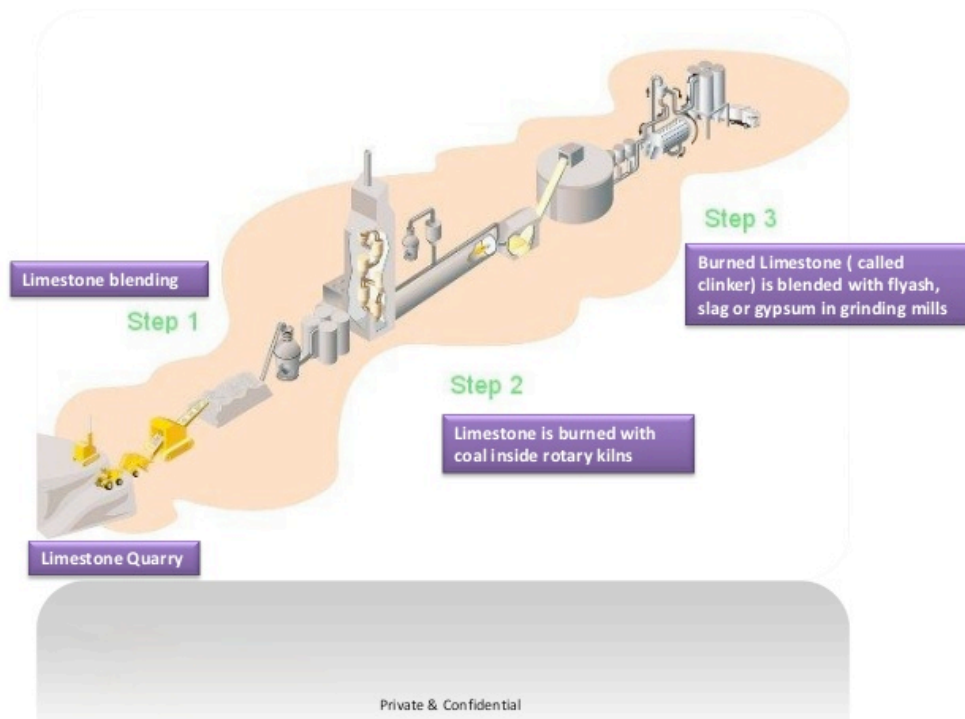


Figure 2: Cement value chain

Foreseeing the increasing importance of corporate environmental and social performances in the global marketplace, three multinational companies CimPor, Holcim, and Lafarge initiated conversations with the World Business Council in 1999 to evaluate the sustainable development challenges the industry would face in the following two decades. This resulted in the development of a guide for cement plant managers on managing and improving local stakeholder communications, a standard protocol for measuring and reporting CO<sub>2</sub> emissions (WBCSD, 2002), and the establishment of the Cement Sustainability Initiative (CSI), which is a voluntary initiative aimed at helping managers understand the environmental footprint of cement production (especially its impact on climate change). Twenty-five major cement manufacturers operating in 100 countries and producing 30% of world cement have joined the CSI (Agenda for Action, 2012). Member firms are required to sign and adhere to the CSI charter, and to commit to developing practical actions in the following areas (Agenda for Action, 2012):

- CO<sub>2</sub> and climate protection;
- Responsible use of fuels and raw materials;
- Employee health and safety;
- Emissions monitoring and reduction;
- Local impacts on land and communities; and
- Concrete recycling.

In tackling these issues, the CSI advocates the use of sectoral market mechanisms, which stress the collaboration of both governments and companies in setting emission reductions goals in order to capitalize on existing emission reduction efforts and further advance national priorities (Agenda for Action, 2012).

### **1-5 Historical Background on the Cement Industry in Morocco**

The cement industry is a cornerstone of the Moroccan economy, and is one of the most well-organized and well-structured industrial sectors in the country. Four multinational corporations (MNCs) dominate the industry, and each serves the market of a distinct region (APC Director Delegate, 2011; Historique du marché du ciments au Maroc, 2010). Chaux et ciment, the kingdom's first cement company, was established in 1913 by the French government using Moroccan funds, to accompany French colonial aspirations. It remained the only cement company in the country until the 1950's when four more companies were created in Agadir, Meknes, Tetouan, and Tangiers. A fifth company was established in Oujda in 1972 (APC Director Delegate, 2011, Historique du marché du ciments au Maroc, 2010). These companies were all government owned, and thus dictated what prices to charge for cement and which markets to cater to. During the 1990's the Moroccan economy faced a major downturn, characterized by a sizeable budgetary deficit. On the International Monetary Fund's (IMF's) behest, the Moroccan government moved to privatize its publically held companies. It is at this time that cement multinationals became central to the Moroccan economy. LAFARGE, Holcim, Ciment Français (which was later acquired by ItalCementi), and CimPort acquired various cement plants, dividing the country into four regions, with each region served by one company (APC Director Delegate, 2011; Representative of the Department of Regulation and Monitoring, 2011; LAFARGE Communications Communications, 2013; Ciment du Maroc A. P., 2013; Ciment du Maroc Director of Human Resources, 2013).

The French cement maker, Lafarge, entered the Moroccan market in 1928 and accompanied Morocco through various urban, economic, and political transformations. It set up its first plant in Casablanca, followed by a second plant in Meknes in 1953. In 1971, the Moroccan investment holding, SNI, the national bank of economic development, and the Caisse de Depot et de Gestion CDG acquired 50% of LAFARGE-Morocco. In 1983, the Bousekoura plant was inaugurated, and four years later, the Casablanca plant closed down. In 1994, Lafarge acquired Cementos Tanger, and in 2003 the Tetouan plant was established. Since 1995, Lafarge has been a 50% joint venture with the SNI (Lafarge-Maroc, 2004). In 2015, Lafarge and the Swiss cement company Holcim Ltd, which up to this point owned the eastern cement plants, merged into one company: LafargeHolcim.

Ciment du Maroc, initially called Ciment Français was established in Morocco in 1951 in Agadir, under the name of Société Ciments d'Agadir (SCA). In 1973, SCA shares were traded in the Casablanca stock exchange and the ownership of Ciment Français decreased to 37% of SCA's shares. In 1990, Ciment Français recovered the majority of SCA's shares, and initiated the construction of another plant in Safi. In 1992, Italcementi acquired Ciments Français, and the Safi and Agadir plants merged under the name of Ciment du Maroc. In 1999, Ciments du Maroc acquired the Marrakech plant, and in 2005 the company signed an MOU with the Moroccan

government to initiate the construction of another plant in the region of Agadir and close the first plant since it had been reached by urban sprawl. CimPort acquired the AsmentTemara plant that was founded and owned by a Moroccan entrepreneur. In 2012, the plant was sold to the Brazilian Votorantim (Asment Temara Director General, 2013; CimPor Sustainable Development Director, 2013). Table 1 summarizes this information.

*Table 1: Cement headquarters and corresponding subsidiaries, and individual plants (2016)*

<b>Company</b>	<b>Subsidiary</b>	<b>Plants</b>
Italcementi	Ciment Français/ Ciment du Maroc	- Marrakech plant - Safi plant - Agadir plant
Holcim	Holcim Maroc	- Settat plant - Oujda plant - Fes plant - Benslimane plant
Lafarge	Lafarge Maroc	- Bousekkoura plant - Tetouan plant - Meknes plant
CimPor (pre-2012)	Asment Temara	- Asment Temara

Currently, the cement industry in Morocco is composed of 62 subsidiaries of the four multinationals. They each specialize in specific steps of the cement value chain and serve a regional market. Italcementi owns 30 facilities (Italcementi Group Morocco, 2012); Holcim owns 17 facilities (Historique du marché du ciments au Maroc, 2010); and Lafarge owns 6 facilities (Lafarge-Maroc, 2004). It is not clear how LafargeHolcim will consolidate their subsidiaries as a result of their merger. This will be announced in 2016. Further, CimPor owned 9 facilities in Morocco (CimPor Sustainable Development Director, 2013); however, the ownership of these is not yet clear after the Votorantim acquisition.

In 1980, the cement sector organized into the Association Professionnelle des Cimentiers (APC) or the Professional Association of Cement Manufacturers, for the purpose of bringing about an institutional environment favorable to its activities and to promote the adoption of best practices. In 1997, cement manufacturers voluntarily pledged to the Moroccan Ministry of the Environment that in a period of six years, they would upgrade all facilities in anticipation of the environmental regulation then under development. Cement manufacturers committed to eliminating or at least reducing the use of toxic materials, optimizing energy consumption of production processes, and taking steps to operationalize the national strategy for sustainable development. In return, the ministry committed to providing technical and financial assistance (APC Director Delegate, 2011).

In 2003, the Moroccan government hired two Swiss consulting firms to audit cement manufacturers. These firms concluded that cement companies were in conformance with their pledge, and effectively met the norms set (APC Director Delegate, 2011). In 2004, APC members signed their own sustainable development charter to remain focused on their commitment to environmental protection and social responsibility. Realizing production cost

savings as a result of the environmental upgrades, cement manufacturers, through the APC, signed another agreement with the government. This agreement permitted the use of byproducts of other industries as a source of energy, which reduced overall energy costs of cement production. This was an important agreement for cement companies, as expenditure on energy constitutes 60% of cement production costs (APC Director Delegate, 2011). Eventually, these firms turned their focus to renewable sources of energy, and invested both in wind and solar power generation. For instance the Lafarge plant in Tetouan has become known for its small-scale wind power generation. However, the transition to renewable energy has not been without obstacles. Inefficient policies favoring the national office for electricity, l'Office National d'Électricité (ONE), made the generation of more than 10 mgw of clean electricity illegal. Eventually the law changed, allowing the generation of greater amounts of energy, which encouraged the proliferation of solar and wind energy farms next to cement plants across the country (APC Director Delegate, 2011).

Cement manufacturers also play an important role in disposing of dangerous waste, which amounts to 300,000 tons a year. The APC, in partnership with the government, developed waste assessment centers to evaluate the content and the quality of wastes, so that cement companies were able to burn all types of waste in their kilns, that do not compromise the quality of their product, even if this waste has no calorific value. Cement manufacturers currently eliminate more solid waste than they generate, which has won them the title of de-polluters by the government. By taking such action, the cement sector has, in many ways, been a partner of the Moroccan government and has worked together and in parallel to operationalize the environmental agenda.

## **1-6 Conclusion**

Morocco is in the middle of a paradigmatic shift, whereby it strives to institutionalize corporate environmental responsibility. This shift is the result both of international pressures and the increasingly salient cost of environmental deterioration. To support this shift, several programs were developed in collaboration with various Moroccan and international organizations. These programs aimed specifically at working alongside the private sector to entice it to adopt environmental best practices. While the majority of private sector actors have opposed the government's move to mandate corporate environmental responsibility and resisted change, the cement industry stood out as a willing partner, voluntarily adopting environmental best practices and in many ways initiating the development of environmental norms and standards. This research aims to determine why the cement industry adopted a proactive stance toward corporate environmental responsibility, and identify the processes through which it evolved into an environmental leader.

The next chapter presents several relevant theoretical perspectives. It will provide an overview of Realism as an epistemological framework for this research and discuss the research question in light of institutional and network theories. Chapter 3 will introduce process tracing as the methodology chosen for this research and explain why it is appropriate. It will also list the individuals interviewed, the locations visited during the data collection process, and the limitations of this research. Chapter 4 presents the first set of results that relate to the beginning of the Cement Sustainability Initiative in Europe. This chapter traces the process through which



the CSI came into existence, the stakeholders involved in its inception, and the conditions leading to its development. Chapter 5 will describe the early days of the cement environmental initiative in Morocco and explain how best practices were transferred from Europe to Morocco. Chapter 6 explores the role relation-based governance played in the transfer of best practices and know-how, thus ensuring conformance with standards set in Europe. The conclusion summarizes research results and answers the initial research question. Finally, the epilogue presents a project inspired by the results of this research, to create an eco-cluster that mirrors the work of the CSI.

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## Chapter 2: Theoretical Perspectives

### 2-1 Introduction

The previous chapter explained the relevance of this research project in terms of understanding why and how Moroccan cement companies adopted environmental best practices in the absence of governmental coercion. Answering this question will shed light on the dynamics likely to facilitate the implementation of corporate environmental responsibility in Morocco. This chapter develops the theoretical framework of this project within political realism whereby the purpose of analysis is the uncovering of the constellation of power-relationships linking various actors and institutions, which enabled the cement industry to organize and institute an environmental performance standard considered impossible, if not heretical, a few years prior. In addition to providing an overview of political realism, this chapter will also explore the implications of institutional theory as seen by Scott (1987), especially how various normative and institutional pressures are mobilized to induce isomorphism; and how network theory can be used to assess the influence of firm interaction on the transfer and adoption of environmental best practices.

### 2-2 Political Realism

The chemical reaction yielding cement out of limestone and clay is as follows:  $4\text{CaCO}_3 + \text{Al}_2(\text{SiO}_3)_3 \rightarrow \text{CaO} + 4\text{CO}_2 + \text{Al}_2\text{O}_3 + 3\text{CaSiO}_4$  (PhysicsForums, 2010). Therefore, even if the process of cement making is 100% waste and byproduct free, and even if it relied solely on renewable sources of energy, cement production would still have a heavy environmental impact, through the decarbonation of limestone and thus the release of  $\text{CO}_2$ . This elevated environmental impact, however, does not prevent cement from being an integral part of today's infrastructure development and there are currently few incentives for developers to search for alternate solutions.

Consequently, instead of making a value judgment of whether cement production is 'good' or 'bad', by conducting this research within the framework of political realism, the focus will be on examining *why* and *how* leading cement manufacturing corporations in Morocco, collectively and voluntarily, decided to utilize the available intellectual, technological, and financial resources to reduce the environmental impacts of their activities and make environmental responsibility a core value of their business practices. This research will pay special attention to how these companies structured and organized their action, through the development of norms enforced at all subsidiaries, "to control forms of disorder that they might find excessive or intolerable" (Geuss, 2008, p. 22). Forms of disorder in this case are represented by the non-conformance to environmental norms set by the industry and result in elevated negative environmental impacts. This research will identify relevant social, economic, and political institutions operating in Morocco and elsewhere, and explore the role each has played, individually or collectively, to bring about cement industry's environmental performance.

Following Geuss's recommendation, the concepts of agency, power, interests, and the relationships between these will be explored through answering the following questions:

- Who instigated the adoption of environmental best practices by Moroccan cement corporations?
- Who developed the norms to be respected?
- What systems were put in place to ensure all cement manufacturers conformed to these norms?
- Who enforced conformance?
- Who punished non-conformance?
- How did the concept gain leverage across the industry?

Doing so will help develop a map of roles and responsibilities for inducing desired change, which in this case, is the adoption of environmental best practices. In the next section, I will provide an overview of political realism and elucidate the unique contribution it makes to this research.

### **2-3 A Review of Political Realism**

As explained above, the relevance of political realism for this study resides in its focus on uncovering the power structures enabling a given outcome, in this case, the environmental responsibility of Moroccan cement companies in the absence of regulatory pressures, and in the context of a developing country. Realism contends that political action is better understood through a contextual and practical analysis of why and how political power is “displayed” than through the operationalization of an arbitrary, obscure, and pre-determined set of ideals. Political actors falling prey to emotions of fear, anger, and love of wealth and power, as with the rest of humanity, are rarely immune from making use of political power to advance selfish pursuits. In addition, ideals and ethics vary widely among individuals and communities as well as over time, and so, deciding which moral code will prevail is eventually based on variables other than ideals and morals. In fact, the very same absence of a unifying moral code is what warrants political action (Geuss, 2008; Leiter, 2012; Rossi, 2010; Rossi, 2012; Rossi, 2013). Departing from mainstream political thought, realists conclude that ethics are not and should not act as precursors of political action. In other words, through a political realism lens, Moroccan cement companies’ environmental performance would not be explored through the premise that these companies hold higher ideals than others, though that might be true, but through the premise that there were unique conditions and circumstances leading to specific power dynamics, which were instrumental in inducing or allowing cement companies to have their current environmental performance.

Realist thought traces its history back to the sophist Thucydides of the Hellenic era. In his “Melian Dialogue”, a reconstruction of the exchange between Athenians and Melians before the fall of the island of Melos to Athens, he exposes the true thinking process of the Athenians, the strongest party:

“... we on our side will use no fine phrases saying, for example, that we have a right to our empire because we defeated the Persians, ... a great mass of words that nobody would believe. And we ask you on your side not to imagine that you will influence us by saying that you, though a colony of Sparta, have not joined Sparta in the war, or that you have never done us any harm. Instead we recommend that you should try to get what it is

possible for you to get, taking into consideration what we both really think; since you know as well as we do that, when these matters are discussed by practical people, the standard of justice depends on the equality of power to compel and that in fact the strong do what they have the power to do and the weak accept what they have to accept” (Thucydides 5.84-116, Rex Warner tr.).

Although Thucydides’ is a fictional account of the exchange having taken place between the winning Athenians and loosing Melians, and though Athenians have probably not expressed their motivations and reasoning as candidly as they do in his text, Thucydides accurately and crudely uncovers the thinking process and the decision making mechanisms of his time. Political decisions were not made based on what is ‘good’ or ‘just’, but based on what the stronger party sees as the best course of action to advance his purposes. The pursuit of justice, which is at the heart of the moralist viewpoint, is only realistically viable when the two negotiating parties are equally powerful. As showcased in Thucydides text, the preservation of Athenian’s leadership status trumps the ideals of fairness and justice and result in the fall of neutral and inoffensive Melos. Having behaved in a different way would have generated chaos in Athenian military ranks, and resulted in the weakening of its state.

Geuss (2008, p. 31) revisits this concept of the true purpose of political action and asserts that instead of striving to do what is ‘good’ and ‘rational’, politics aim to do “what is good in a particular concrete case by agents with limited powers and resources, where choice of one thing to pursue means failure to choose and pursue another”. Indeed, deciding based on the available information, the course of action likely to yield the desired results, at a specific time, is the backbone of efficacious political action (Geuss, 2008). Realism in other words, recognizes the non-moral forces shaping political action, and rejects the need to disentangle these forces in order to come up with a purely idealistic pre-political statement of what the purpose of political action should be (Rossi, 2012).

The legitimation process is not value free, but in fact reflects the ideals the polity in question holds dear. In the case of the Hellenic example above, Athenian leaders acted in a way that preserved their status at the head of the state by preserving the supremacy of Athens, an accepted and reasonable aim at the time. This normality of the legitimation process is different from the contingency of the idealistic basis of political action through moralism. Indeed, legitimation mechanisms are deduced from the empirical analysis of the “context and practice-sensitive understanding of the purpose of political power” (Rossi, 2012, p. 1) to understand “who (does) what to whom for whose benefit” (Geuss, 2008, p. 25); while political action in the moralists’ viewpoint stems from an abstract ideal of what is ‘right’. For realists, political action should be analyzed through the lenses of social and historical legitimation mechanisms and thus requires an understanding of how “power interests, priorities, values, and forms of legitimation concretely interact in society” (Rossi, 2010, p. 509). In Thucydides text, the actions of the Athenians are legitimate based on the customs and the rules of survival of their era. They are adopting the behavior of leaders of their time in order to preserve their primacy. Then ethical behavior, instead of being determined by a set of pre-determined ideals and morals, becomes the application of an empirically determined conception of legitimacy, based on a “context and practice-sensitive understanding of the purpose of political power” (Rossi, 2010, p. 510). This is not to say that political theory no longer informs political action. Indeed, Rossi (2010) explains

that “articulating a normative political theory is itself a form of political action, and political action itself shapes the horizons of normative thinking, so long as we remember that political theory is ‘dead’ to real politics so long as it purports itself only on ethics”. In other words, the realist viewpoint sees a feedback loop between the political theory and action (Rossi, 2010).

The realistic rendering of the purpose of political power, while it seems to limit the ability for “critical engagement with social and political reality”, provides a framework for effectively bringing about desired change (Rossi, 2010, p. 509). Understanding how political action is executed enables a concrete and realistic plan to undertake action for a different purpose. When examining the business paradigm of the 20<sup>th</sup> century through a realist lens, it is not surprising that corporations did not factor in the impact of their activities on the environment. Accepted practices favored the maximization of profit at all cost. Surviving in such a business environment required the abdication of humane values to the rules of competition. In recent years, the environmental cost of the business practices of previous years have become more salient. The increasing cost of raw materials, changing climatic patterns, the increased cost of cleaning up and of loss of public image is undermining the legitimacy of business as usual practices. In other words, the legitimation mechanism of business activity is changing. This is likely to be at the root of the cement industry’s decision to change course and explore sustainability as a business strategy.

- **Hypothesis 1:** Changes in the external environment of cement companies, exemplified in the higher cost of raw materials, changing climatic patterns, and loss of public image due to excessive pollution, undermined the legitimacy of business as usual and enticed the cement industry to explore a new business model for its activities.

Legitimation mechanisms of business activity reflect the corporate and societal priorities of their stakeholders, and change with them. When these priorities change, stakeholders emit pressures onto corporations as a means to inducing change. Thus, when governments fail to enforce environmental regulation and the socioeconomic conditions of a country are such that financial prosperity is prioritized over environmental, health, and safety measures, why are some firms and industries willing to green their processes, while others subjected to similar domestic pressures are not?

In the literature, traditional theoretical approaches are centered on threats of sanctions from governments in cases of corporate non-compliance with environmental standards. More recent work argues for an interactive effect of government regulation and forms of governance through private authorities. Some scholars argue that the effectiveness of competitive market pressures to improve organizational behavior is conditional upon the governance approach adopted by domestic regulatory bodies (Locke, Amengual, & Mangla, 2009). Normatively, this school of thought emphasizes private governance authorities, as well as the role of policy networks for joint problem solving and diffusion of best practices. According to this view, such organizational networks can more effectively induce the commitment of both businesses and governments to set and follow environmental goals as opposed to traditional top-down regulatory structures.

Additionally, a different theoretical tradition – social network theory – emphasizes similar precepts. Not only do networks enable joint problem solving (Uzzi, 1997) and facilitate the diffusion of new technologies and competitive strategies, they also promote behavioral imitation and diffusion of norms (Brass, et al., 2004). Consequently, networks lend themselves well to improve governance and generate credible commitment. Therefore, the formation of industrial networks may enhance firms' response to normative global pressures, and thus improve corporate environmental performance in developing countries.

This research brings these disparate theoretical streams together. It explores how normative pressures led firms or sectors to upgrade their environmental standards. I hypothesize that the interaction of these pressures with the governance approach adopted by regulating organizations is a promising analytical territory. This research will also examine an increasingly important form of response to rising popular demand for corporate environmental compliance: inter-organizational networks that allow the emergence and diffusion of global greening standards.

Two types of institutional pressures have been identified as relevant for corporate environmental performance: coercive governmental and normative pressures stemming from membership in global forums. The interplay of these two types of pressures raises environmental standards in a given organizational field, and forces corporations to respond by improving their environmental performances.

Governmental coercive forces are essential in promoting and supporting adoption of green processes. Delmas (2002) argued that governments play a central role in producing and disseminating sustainable organizational practices. They achieve these goals by reducing the transaction costs of implementation, and by incentivizing or sanctioning the adoption of specific organizational processes (Delmas, 2002; Delmas & Montes-Sancho, 2010). Governments can also provide or subsidize technical capacity to help firms develop the know-how necessary for organizations to be environmentally certified (Delmas, 2002).

Normative pressures, on the other hand, stem from voluntary programs adopted by industries that compel individual firms to adhere to a higher level of environmental performance than that enforced by the state. The purpose of normative pressures is to increase firm legitimacy, especially in the context of global business activity. Since developing states often fail to regulate business environmental performance, global forums step in and compensate for this lack of regulatory enforcement by imposing market driven normative pressures (Cashore, 2002).

The response of corporations to either of these influences is not uniform. Organizational dynamics (Delmas, 2002), as well as governance approaches (Locke, Amengual, & Mangla, 2009), moderate the extent to which such pressures change organizational behavior. Consequently, in trying to improve the level of corporate environmental performance, it is essential to understand the relevant institutional dynamics that shape organizational behavior.

Although the interplay between coercive and normative forces is relevant in a myriad of settings, this research focuses on its implication in the context of developing countries. Given that Moroccan cement companies are in fact subsidiaries to leading cement multinational

corporations, I argue that both coercive pressures *and* normative pressures play an important role in influencing corporate environmental performance. This is especially true in developing countries where market demands are often more effective than government regulation.

## **2-4 Institutional Pressures**

Institutional isomorphism is the primary mechanism through which the institutional environment shapes organizational behavior. The compounded effect of coercive, normative, and cognitive pressures that stem from various actors of any organizational field lead to organizational change (Hoffman, 2002). Government coercive pressures interact with normative pressures from extensive professionalization and membership in global forums to raise the environmental standards in a given organizational field. Actors then gradually embrace environmental ideals and adopt environmentally friendly practices, slowly shifting the field's rules, norms, and beliefs (Hoffman, 2002).

Delmas (2002) posited that coercive force is essential in promoting and supporting the adoption of environmental management systems (Delmas & Montes-Sancho, 2010). Jennings and Zandbergen (1995) argued that mimicry driven by the wish to gain competitive advantage and legitimacy is a more influential mechanism for spreading sustainable practices across an organizational field. However, in the case of environmental management, Delmas and Montes-Sancho (2010) noted that mimetic and normative pressures seldom generate momentum before the desired behavior is fully institutionalized. This is because the benefits of these environmentally conscious behaviors are not salient early on, and evidence of their value is anecdotal. Consequently, without strong governmental endorsement, the environmental management initiative would come to a halt (Delmas & Montes-Sancho, 2010).

However, Delmas and Toffel (2004) noted that organizational dynamics such as managers' perceptions of environmental regulations and of firms' internal idiosyncrasies moderate the extent to which coercive pressures will change organizational behavior. For example, in the context of a developing country where the government has a weak record of enforcing regulation, variables such as the level of education in a particular industry type will moderate the extent to which governmental pressures will encourage organizational change. This leaves the burden of promoting corporate environmental stewardship on market-based normative pressures.

Normative pressures aim to compensate for the inability or the unwillingness of developing country governments to enforce their regulations. These pressures result from global corporations pledging to use their market power to improve substandard environmental performance (Delmas & Toffel, 2004; Locke, Amengual, & Mangla, 2009). They do this by setting an environmental performance threshold for their subsidiaries. To enforce this requirement, these global companies conduct regularly scheduled audits to monitor subsidiaries' environmental performance.

- **Hypothesis 2:** Moroccan cement companies' environmental performance stems from headquarters normative pressures.



The manifestation of normative pressures is twofold. First, they enhance domestic firms' response to coercive pressures, and second, they hold firms to higher environmental and ethical standards. Like coercive pressures, the success of normative pressures in raising the environmental standards of a given organizational field is not a foregone conclusion. As Locke, Amengual, and Mangla (2009) and Locke, Qin, and Brause (2007) explain, the success of both depends on the governance approach taken. They argue that a traditional governance approach consisting of conducting audits for the sake of punishing non-conformance through the loss of business, fails to generate the much desired performance improvements. Through a relational-based governance approach, global companies use audit results to identify opportunities for improvement, and then proceed to help firms within their supply chain achieve these improvements through learning. Such a governance approach delivers the sought after organizational change.

## **2-5 The Role of Networks**

The parallel between relational-based governance and the inter-organizational networks' role in facilitating knowledge generation and transfer is relatively clear. By virtue of the trust that governs network exchanges, and the spirit of collaboration inherent in embedded ties, networks offer a sound structure for the commitment-oriented governance approach. Consequently, the formation of inter-organizational networks enhances firms' response to coercive and normative pressures, and provides a platform for governing bodies to help firms in developing countries generate the knowledge necessary to improve their environmental performances.

Ties between corporations in a given organizational field range from profit maximizing arm's length ties characterized by opportunistic decision making processes, to embedded ties characterized by the development of long-term, cooperative relationships (Uzzi, 1997). Embeddedness is structured within a network framework, characterized by high levels of collaboration in devising resource deployment strategies and a predisposition for collective action (Brass et al., 2004; Uzzi, 1997). In this way, they enhance achievement of organizational goals (Brass et al., 2004). Network embedded ties enable firms to respond to changes in their external environments by generating new knowledge through joint problem solving, or when necessary, acquiring, integrating, and diffusing new knowledge (Andrew & Delahaye, 2000; Brass et al., 2004; Tsai, 2001).

The strength of network ties impacts the flow of knowledge within and across networks. Granovetter (1983) argues that weak ties are the medium through which ideas are diffused between networks. He further hypothesizes that when high performing networks occasionally interact with low performing networks, they will likely encourage the latter to improve their performance. This means that the development of weak ties between high and low performing networks is likely to encourage the latter to improve their performance. In other words, to improve the environmental performance of a given industrial network, connecting firms in a poorly performing network with firms in a better performing network is likely to improve the performance of the former. The exchange of ideas that takes place during such encounters is likely to stimulate conversations about various environmental strategies as well as success stories; thus, encouraging lower performing firms to adopt greener stances.

Embedded ties facilitate a thick transfer of tacit and intangible information (Uzzi, 1997). When engaged in problem solving, embedded actors strive to find solutions within *existing* relationships, instead of searching for solutions from new relationships (Uzzi, 1997). This loyalty to fellow network members incentivizes various actors to invest in problem solving rather than bypassing the entire process by choosing to transact with different firms. This dynamic describes a recursive learning process where actors are able to innovate through the exchange of information and feedback. A network's functionality is determined by the presence of strong ties and the prevalence of trust moderates a network's ability to promote knowledge creation and diffusion. If the ties connecting various nodes in a given network are weak, then the transfer of tacit and complex knowledge will not take place, and thus learning will not occur. The same is true if trust is not prevalent within the network (Tsai, 2001).

- **Hypothesis 3:** Embedded ties resulting in a relational-based governance structure between headquarters and subsidiaries enhance the adoption of environmental best practices (EBP) by facilitating the transfer of needed expertise and know-how.

## **2-6 Theoretical Implications of Empirical Application**

This research will show that one outcome of global business exchanges is the extension of firms' institutional fields beyond the geographical boundaries of the countries in which they operate. This is especially the case for corporate environmental stewardship in developing countries. This research will show that foreign environmental regulations and normative standards channeled through customer-supplier and headquarter-subsidiary relationships drive the adoption of EBP by some industries in developing countries. In addition, Scott (1987) explains that cultural conditions and ethical standards determine the way in which resources are deployed in industrial processes. This research will show that this order is reversed in the context of developing countries. The EBP mandated by global firms often exceed the expectations of developing countries governments and communities, and can prompt the diffusion of higher environmental values within these countries. This research will also contribute to the literature on network theory by investigating the ability of inter-organizational networks to promote a commitment-oriented governance approach to institutional pressures. Networks have been studied extensively for their role in promoting innovativeness, in supporting knowledge transfer and joint problem solving, and in fostering a trusting and collaborative culture among network actors. It follows then that institutionally superior network actors will naturally lean towards a commitment-based governance approach, and collaborate with their business partners in improving their environmental performance. While such a governance approach can exist outside of a network framework, this study will argue that a traditional command and control governance approach is counterintuitive to networking, and is likely to give way to the more collaborative relation-based approach. This, as Locke et al. (2007) explain, is likely to enhance the ability of institutional pressures to promote the adoption of EBP.

The next chapter will present the research methodology used to explore these theoretical concepts in the context of the Moroccan cement industry.

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## **Chapter 3: Methodology**

### **3-1 Introduction**

This chapter builds on the theoretical perspectives discussed in Chapter 2 and presents the research methodology. The chapter presents process tracing as an appropriate methodology for examining the key research questions and describes how it was applied. In addition to outlining the research protocol and interview questions, this chapter provides information on the interviewees who informed this work and on the documents reviewed. The chapter ends with a discussion of limitations, which summarizes the difficulties encountered in accessing data, determining credibility, and recognizing the possibility of scripting by interviewees.

### **3-2 Review of Process Tracing**

As the previous chapter discussed, institutional theory differentiates between governmental coercive pressures and normative pressures stemming from membership in global forums. Network theory also offers insight into the impact the style of corporate governance has on performance. These theories propose that firm membership in global forums, in addition to firm embeddedness in a network structure, promote firm adoption of environmental best practices (EBP). In examining whether and how these factors enhance environmental performance, this research strove to uncover the process through which Moroccan cement corporations adopted EBP by identifying potential causal mechanisms. By using process tracing methods, this research crafts “a minimally sufficient explanation” (Beach and Pedersen 2013, p. 51) of the cement industry’s progressive and voluntary environmental performance.

Process tracing, as presented by Beach and Pedersen (2013), is a within-case research methodology that aims to identify the causal relationships existing between various entities involved in the unfolding of an event within a given context. It separates the intervening parts of an event of interest, and explains how each part contributes to bringing about a given outcome (Beach & Pedersen, 2013). As an iterative approach, process tracing examines the entire system associated with the event under study rather than particular variables and explores how these elements interact within a specific context to influence the occurrence of the event of interest (Bennett & Checkel, 2012, Beach & Pedersen, 2013; and Falleti and Lynch, 2009). For example, identifying the mechanism through which events a, b, and c produced outcome x offers a thorough understanding of how x came to be (Salmon 1998 as cited in Beach & Pedersen, 2013). According to Beach and Pedersen (2013, p. 25), process tracing focuses on “the dynamic interactive influence of causes on outcomes and in particular how causal forces are transmitted through the series of interlocking parts of a causal mechanism to contribute to producing an outcome”. Although the sequence of events is crucial to process tracing, the emphasis is on necessary and sufficient drivers in a particular context that allow a, b, and c to induce x. Basing analysis on theoretical knowledge, process-tracing aims to uncover causal mechanisms rather than merely tell a story of what happened. In doing so, it opens the “black box of law-like probability statements that simply state the concurrence or the correlation of certain phenomena or events” (Falleti & Lynch, 2009, p. 4).

Tracing its use back to Thucydides, this methodology relies heavily on historical description and rich contextual analysis; both of these processes are essential to making inferences about “causal explanation” in a given case and to constructing the causal mechanism[s] leading to it” (Bennett & Checkel, 2012, p. 5). For Bennett and Checkel (2012, p. 16), causal mechanisms are “Unobservable physical, social, or psychological processes through which agents with causal capacities operate, but only in specific contexts or conditions, to transfer energy, information, or matter to other entities. In doing so, the causal agent changes the affected entities’ characteristics, capacities, or propensities in ways that persist until subsequent causal mechanisms act upon them”. In other words, causal mechanisms refer to the way in which different facets of the units of analysis interact with one another in a particular context, to cause the phenomenon of interest. Mahoney (2000) asserts that mechanisms are sufficient to generate the outcome under study. Thus, if the mechanism actually operates it produces the outcome of interest whenever activated.

Process tracing can be used deductively to test existing hypotheses about the presence of a causal mechanism or inductively to develop hypotheses about a causal mechanism using within-case observations (Bennett & Checkel, 2012 and Beach & Pedersen, 2013). Observations made during process tracing are guided by prior conceptual or empirical knowledge. Conceptual knowledge helps identify and connect topics with explanatory potential, and it delimits the boundaries beyond which the event of interest would not occur. Empirical knowledge helps identify established regularities between phenomena of interest (Beach & Pedersen, 2013).

### **3-3 Propositions**

In process tracing, when extracting propositions from existing theories, researchers strive to identify causal relationships. These relationships are “necessary and/or sufficient to the occurrence” of the outcome of interest (Beach & Pedersen, 2013, p. 47). In this case, theory suggests coercive and normative pressures promote organizational change; however, the extent to which such pressures succeed in doing so depends on the prevailing context. Coercive pressures are directives from a regulating body to a regulated entity, which if not followed result in punishment. Normative pressures are highly recommended or agreed upon behaviors common to members of a given group. Failure to adopt the norm does not result in punishment but it brings scorn to the entity in question and can tarnish its reputation. The extent to which these pressures succeed in influencing firm behavior within a given organizational field depends on the contextual conditions of the field, such as a corporation’s perceptions of relevant pressures (whether coercive or normative), the governance style adopted by regulating organizations, a firm’s participation in global markets, and its membership in inter-organizational networks.

Although typically governments exert coercive environmental pressures, in the present case, since environmental regulations were not enforced, this source of pressure was assumed to be minimal. Corporate headquarters, however, are able to coerce subsidiaries to adopt EBP. In addition, scholars argue that global forums can play the role of institutional bodies inducing firms to adopt stronger EBP in return for increased legitimacy (Delmas and Toffel, 2004; and Locke, Amengual, & Mangla, 2009). This research suggests the following three propositions.

- **Proposition 1:** Normative pressures stemming from membership in the Cement Sustainability Initiative (CSI) induced the adoption of environmental best practices (EBPs) by cement MNCs. These pressures were then channeled through MNCs to subsidiaries operating in Morocco in the form of coercive pressures, and induced subsidiaries' adoption of EBPs developed by the forum.

Locke, Qin, and Brause (2009) argued that adopting a commitment-based governance approach enhances the regulating organization's ability to induce the adoption of EBP by regulated firms. The commitment-based approach to governance aims at helping regulated firms identify opportunities for improvement and to develop the capacities necessary to achieve these improvements. This approach describes a positive relationship between regulating and regulated organizations, one that is based on trust, joint problem solving, and knowledge transfer. These characteristics are similar to those of network-embedded firms (Uzzi, 1996).

- **Proposition 2:** The headquarter-subsidiary relationship among cement companies promotes a commitment-based approach to governance, facilitating the transfer of pressures from the Cement Sustainability Initiative to Moroccan firms and promoting the adoption of EBP.

Scholars of social networks emphasize the essential role that embeddedness plays in facilitating the development, acquisition, and diffusion of new knowledge (Brass et al., 2004; Tsai, 2001; Andrew & Delahaye, 2000). Embeddedness facilitates the flow of knowledge from regulating to regulated organizations, thereby supporting joint problem solving. This cooperation facilitates the adoption of imposed EBP. In addition, as actors adopt new practices, news of this adoption travels across the network. Embeddedness, allowing thick information transfer, enables other network actors to gain a more holistic understanding of these new practices and to observe the outcomes of their adoption (Granovetter, 1983). This open access to information reduces the ambiguity of EBP and enables their propagation across industrial networks.

- **Proposition 3:** Networking through the structure of the Association Professionnelle des Cimentiers further enhanced the adoption of EBP.

Although the available literature provides a portion of the mechanism (Figure 3), it was not fully clear why and how the CSI came to be, how norms are set in the CSI, the forms that coercive pressures from headquarters take, and how the commitment-based governance approach manifests itself. This research explores these questions.



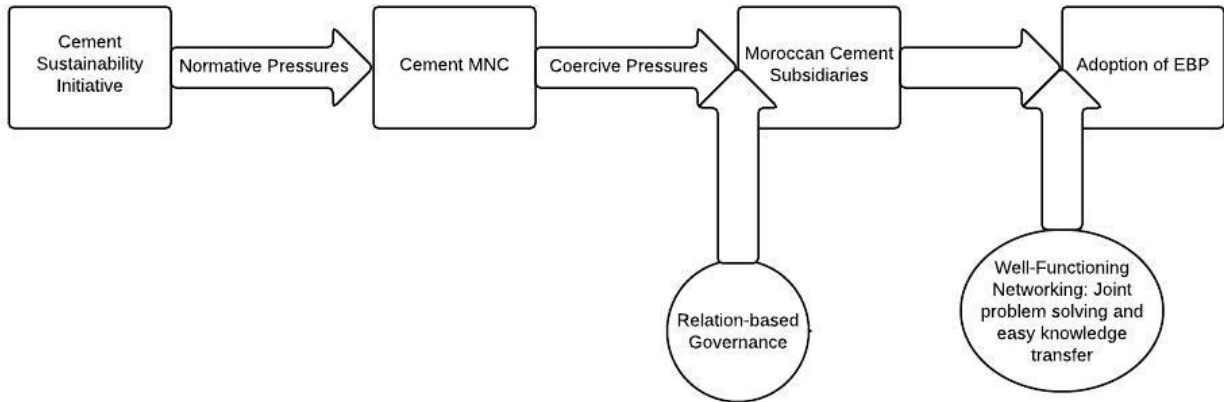


Figure 3: Process of EBP adoption by Moroccan subsidiaries

### 3-4 Drivers of the Adoption of Environmental Best Practices

This research traces one outcome of interest, the adoption of EBP by Moroccan cement companies. The hypothesized literature-based drivers are institutional pressures, the governance approach adopted, and networking among cement firms.

Institutional pressures will be informed by the relationship between regulating and regulated firms. The governance approach is reflected in the level of embeddedness of ties relating regulating and regulated firms, and especially in the extent of collaboration between firms in finding solutions to the environmental challenges they faced. Networking refers to the extent to which regulated firms collaborate with one another in facilitating the adoption of an imposed environmental best practice.

Both the governance approach and networking were measured using indicators that include frequency of contact, joint problem solving, and knowledge diffusion. Figure 4 presents the various drivers identified and how they were expected to influence the adoption of environmental best practices.

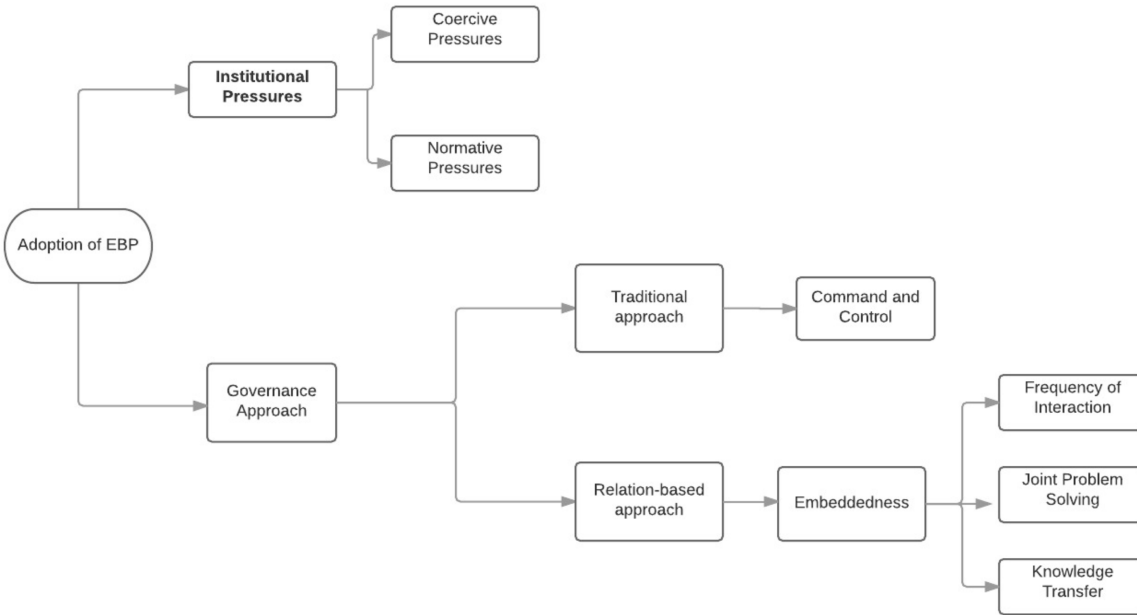


Figure 4: How identified drivers were expected to influence EBP adoption

### 3-5 Causal Process Observations and Methods

This research aimed to understand why and how the cement industry in Morocco adopted environmental best practices at a time when the government was not enforcing environmental regulations. The goal of process tracing was to identify the causes of the adoption of environmental best practices. The objective of this method is to develop a “minimally sufficient explanation” for the outcome of interest, “with sufficiency defined as an explanation that accounts for all of the important aspects of an outcome with no redundant parts being present” (Beach & Pedersen, 2013, p. 18). Such explaining-outcome process tracing is one variant of process tracing; it is an iterative method that combines both deduction and induction. In the deductive segment, theoretical findings are empirically tested to ascertain their accuracy. The inductive segment follows, with the researcher working backwards from the outcome in an attempt to identify the causal mechanism responsible for it (Beach & Pedersen, 2013, p. 20).

When using process analysis, causal process observations (CPOs) are collected. These observations inform the scholar about either the context or the causal mechanism. CPOs do not constitute evidence *per se*; instead they are observations that then undergo a process of accuracy and interpretation in their context (Beach & Pedersen, 2013, p. 73).

In Chapter 1, the phenomenon under study, the Moroccan cement corporations’ collective and voluntary adoption of environmental best practices, was presented within the institutional and economic context of Morocco. Literature was then reviewed to extract already identified pieces of the puzzle. Empirical observations were then made to verify theoretical explanations and identify missing pieces.

Observations came from two sources: semi-structured interviews and document analysis. Reliance on both allowed cross-referencing. Jick (1979) and Berg (2001) note that convergence of findings between two or more data sources strengthens the validity of results. Marshall and Rossman (2006) describe the limitations of interviews as including the cooperation of interviewees and the greater propensity for interviewees’ subjective assumptions. Although documents rarely provide the thick narrative that interviews can offer, they verify information gained from interviews. In addition, Berg (2001) argues that combining methods captures different aspects of empirical reality.

**3-6 Causal Process Observations**

CPOs were made in two phases, as Figure 5 shows.

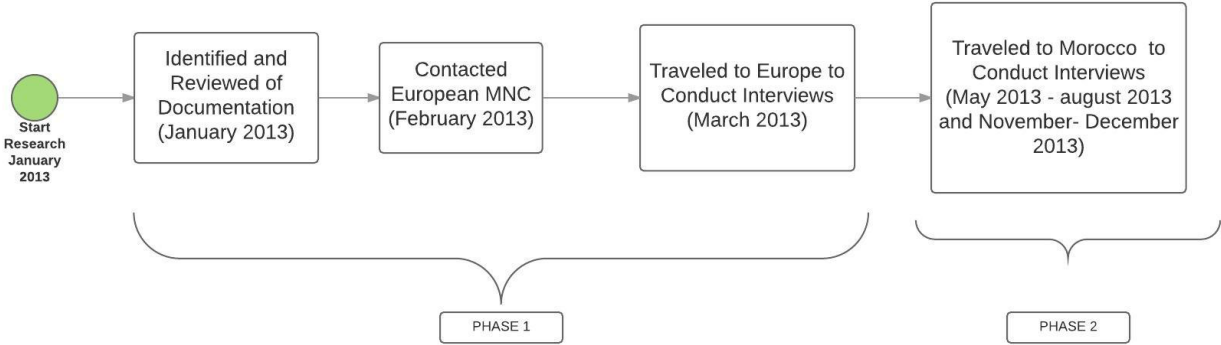


Figure 5: Research protocol

**3-6-1 Phase One**

Phase one focused on understanding the normative pressures on Moroccan cement manufacturers stemming from their membership in global fora or in MNCs. Relevant documents were collected from companies’ websites and from the Cement Sustainability Initiative web page. I then contacted the environmental coordinators of the European headquarters of the four cement corporations present in Morocco, seeking interviews. Table 2 lists the individuals that were interviewed from each headquarters. A later sub-section presents the interview questions. I interviewed, in person, one representative from each corporation. Each interview lasted between 60 to 90 minutes, as discussed below.

Table 2: Interviewees from European headquarters

Company	Interviewee
CimPor	Director of Sustainability
Holcim	Director of Sustainable Development
Italcementi (Ciment Français)	Industrial Ecology Manager
Lafarge	Responsible for Sustainable Development Communications

### 3-6-2 Phase Two

Phase two focused on gathering information in Morocco. Interviews were conducted with the various members of the management team at the headquarters of Moroccan subsidiaries, and then with members of the management team of individual cement plants (see Table 3). These interviews were typically followed by tours of the subsidiaries' cement plants, where environmental processes could be observed first hand. I also interviewed five governmental officials from the ministry of the environment (see Table 4). Pertinent documentation was collected throughout.

*Table 3: Interviewees from Moroccan subsidiaries*

<b>Subsidiary</b>	<b>Headquarters</b>	<b>Plant</b>
Ciment du Maroc	<ul style="list-style-type: none"> <li>- CEO</li> <li>- Technical Director</li> <li>- Environmental Coordinator</li> <li>- Director of Purchasing</li> <li>- Director of Marketing</li> <li>- Responsible for Communication</li> <li>- Human Resources Director</li> </ul>	<ul style="list-style-type: none"> <li>- Marrakech Plant               <ul style="list-style-type: none"> <li>o General Manager</li> <li>o Environmental Manager</li> </ul> </li> <li>- Safi Plant               <ul style="list-style-type: none"> <li>o General Manager</li> <li>o Environmental Manager</li> </ul> </li> <li>- Agadir Plant               <ul style="list-style-type: none"> <li>o General Manager</li> <li>o Environmental Manager</li> </ul> </li> </ul>
Lafarge	<ul style="list-style-type: none"> <li>- Responsible for communication</li> <li>- Environmental Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>- Tetouan Plant               <ul style="list-style-type: none"> <li>o Environmental Manager</li> </ul> </li> <li>- Meknes Plant               <ul style="list-style-type: none"> <li>o Environmental Manager</li> </ul> </li> </ul>
Holcim	<ul style="list-style-type: none"> <li>- Environmental Coordinator</li> <li>- Social Responsibility Coordinator</li> </ul>	<ul style="list-style-type: none"> <li>- Settat Plant               <ul style="list-style-type: none"> <li>o Environmental Manager</li> </ul> </li> </ul>
Asment Temara	<ul style="list-style-type: none"> <li>- CEO</li> <li>- Environmental Coordinator</li> </ul>	N/A

*Table 4: Interviewees from institutions and other organizations*

<b>Institutions/other organizations</b>	<b>Interviewees</b>
Cement Trade Association (APC)	Director
Ministry of the Environment	<ul style="list-style-type: none"> <li>- Representative of the department of monitoring and enforcement</li> <li>- Representative of the department of regulation</li> <li>- Representative of the department of outreach and collaboration</li> </ul>

In making causal process observations, statements with the potential of inducing a

performance change were identified. For instance, as will be discussed in Chapter 4, European headquarters officials noted that they exerted two types of pressure on their subsidiaries. The first type involves directives i.e. non-negotiable mandates requiring subsidiaries to adopt particular processes. The second type comes in the form of suggestions of how subsidiaries can go about adopting these processes.

Other less straightforward CPOs surfaced while analyzing CSI's documentation. These CPOs characterized the external environment, which led to the CSI itself. For instance, at the time the CSI was formed, banks took a company's sustainable performance into account when determining their ability to pay loans back. Those companies that could not demonstrate responsible industrial performance had a harder time accessing needed funds. In this way, it was possible to reconstruct the context in which CSI surfaced in Morocco and in the rest of the world and to describe the process through which this initiative came into existence.

Documentation regarding the transfer of pressures to Moroccan subsidiaries or showing that headquarters imposed a threshold environmental performance was not available. Only statements corroborated by several interviewees were accepted as evidence. One such statement asserted that it was headquarters that "encouraged" subsidiaries to create a sustainability department/environmental responsibility department.

In order to uncover institutional pressure, during the interviews I listened for expressions that reflected a mandatory requirement or a normative expectation. Words such as "demand", "non-negotiable expectation", and "directive" seemed to be clear evidence of such influence. Expressions such as "borrowing criteria included" or "we expect local companies to" sounded more tacit. The pressures emanating from headquarters to subsidiaries were clear and explicit, whereas those emanating from the larger institutional environment were less so.

### **3-6-3 Interview Questions**

As already mentioned, the interviews took place in two stages. The first stage was conducted in Europe and involved the participation of European headquarters officials. The second was in Morocco with the participation of representatives of subsidiaries and cement plants. In both stages, the interviews strove to identify the various forces at play and the ways in which these promoted environmental learning and procedural change.

The interviews were semi-structured. The questions below were used to structure the interviews; however, the interviews evolved organically. Although this strategy prevented standardization, it permitted more detailed data collection. The interviews were digitally recorded and then downloaded onto a computer where they were transcribed before being analyzed.

*Table 5: Questions used to structure interviews*

To employees of the cement industry in Morocco:

1. Describe the environmental best practices (EBP) adopted in your facility?
2. How were they developed?
3. Who was responsible for their development and implementation?
4. Why did you decide to adopt these best practices?
5. Were you under any pressure to adopt these best practices?
6. From whom?
7. What role did headquarters play in the decision to adopt these best practices?
8. What role did headquarters play in the development and implementation of these best practices?
9. What role did the APC play in the decision to adopt these best practices?
10. What role did the APC play in the development and implementation of these best practices?
11. Can you list the companies you interact with on a regular basis?

To leaders of the cement industry in Europe:

Questions 1 to 6 in addition to the following:

Describe your relationship with Moroccan subsidiaries.  
How does membership in the CSI impact your decision to adopt these best practices?  
Do you require subsidiaries to adopt EBP?  
Do you help subsidiaries in the adoption of EBP?  
Describe your involvement in the process through which Moroccan subsidiaries' adopt EBP.

To leaders of the cement industry in Morocco:

How would you describe the involvement of headquarters in the process through which EBP are adopted by your facility?  
How would you describe your interaction with headquarters regarding EBP to be adopted?  
How does this interaction inform your decision-making?  
How does your interaction with other members of the APC impact adoption of EBP?

To government officials:

How were environmental regulation developed in Morocco?  
Are environmental regulations enforced? If so, how?  
How do Moroccan industrialists respond to environmental regulation?  
What is the ministry's relationship with the cement industry?  
What can you say about cement companies' environmental performance?

### **3-7 Methods of Analysis**

Using qualitative methods, I developed theory-guided narratives that captured the reported organizational changes. These narratives brought to light the themes, key steps, and decisions linking “the hypothesized cause or causes with the outcome” of interest (Falleti, 2006, p. 5). For that purpose, a case analysis was conducted in which key events related to the development and adoption of environmental best practices by Moroccan cement subsidiaries were identified. This case analysis described two central events: [1] the formation and membership in CSI, which led to the development and adoption of normative EBP, and [2] the adoption of EBP in Morocco.

#### **3-7-1 Interviews**

Since Moroccan cement firms are subsidiaries to European multinationals and there was no environmental legislation regulating business activity at the start of the cement environmental initiative in Morocco, I expected that European headquarters were likely the source of pressure for a better environmental performance (Proposition 1). Consequently, this research started in Europe, in an effort to gain a better understanding of the environmental programs of cement headquarters. Relevant documentation about the Cement Sustainable Initiative in Europe was identified and consulted before calling the multinationals. These calls were generally transferred to the head of the sustainable development/industrial ecology department in each company. Recruitment letters were then submitted to these persons, along with the interview questions, before appointments for in-person meetings were set-up.

In March 2013, the European interviews took place. This started in Lisbon, Portugal, where I met with the director of Industrial Ecology/Sustainable Development at CimPor. The interviewee met me by the elevator and walked me to the conference room. When I asked permission to record our conversation, he refused, promising to speak slowly so I could take notes. We first started the conversation in English, but a few minutes into the interview, he asked if I spoke French. When I said yes, he asked if we could switch languages, and I felt that he could relate to me better when we spoke French. He actually said something to the effect that it is more Moroccan to speak French than English. While he had stated in our email correspondence that he would only be able to meet for 50 minutes, the interview lasted 90 minutes. The information shared felt genuine and did not sound rehearsed. He had documents with him that he referred to every now and then. Even though I described my research focus and my interest in the governance structure of the company and its managerial and knowledge development processes rather than its actual performance, it took time for the respondent to realize this was true. I had the sense that he was used to having to defend his company. By the end of the interview I felt the interviewee was very open and transparent. He shared information readily and offered to send me additional information by email if needed.

Next, I travelled to Zurich, Switzerland, where I met with the head of the sustainable development department at Holcim. The conversation started with introductions and a restatement of the research question and the purpose of the information I sought. He quizzed my knowledge of the cement industry and its environmental agenda before answering any questions. His first statement was to acknowledge the sizeable environmental footprint of the industry, and

then he went on to describe the level of leadership necessary to consider sustainability. His answers to my questions were substantive. He described the nature of the industry, listed its challenges, and showed how Holcim faces these in collaboration with its stakeholders. He did not try to make a good impression and answered my questions candidly. The interview lasted exactly an hour, and he too offered to answer questions later if needed.

As Chapter 1 discussed, Ciment du Maroc is a subsidiary of Italcementi, which is headquartered in Italy, but it is managed by Ciment Français, also a subsidiary of Italcementi with offices in Paris. Given the focus of this research, I interviewed the head of the sustainable development department in Paris. He was friendly and forthcoming with information, but his answers felt scripted at times, so much so that I wondered if his job description included a responsibility for public relations. When I asked, he responded in the negative. The interview lasted 90 minutes. I was offered hard copies of the annual reports and invited to remain in touch if needed.

My last interview was with Lafarge, which is also headquartered in Paris. The interviewee was the communications specialist in the sustainable development department. Although she was very knowledgeable about the subject matter and Lafarge's current performance, she did not know the history of the initiative at the level of detail needed, and so she put me in contact with her Moroccan counterparts who were able to answer my questions thoroughly. I did not feel that she had an agenda for the interview. She did her best to offer information that she was certain about.

The following summer, I traveled to Morocco to interview officials of subsidiaries and cements plants. I started with Ciment du Maroc. The interviewee from Ciment Français facilitated contact with the CEO of Ciment du Maroc, who readily agreed to meet with me. This first interview provided a historical overview of Ciment du Maroc, and the company's environmental philosophy. The interviewee described an organizational structure that operationalized this vision. The interview lasted almost two hours. Afterwards, I met with the technical director and environmental coordinator who offered a more detailed account of the company's environmental program. At the end of this interview, I asked if I could meet with representatives of other departments. The interviewees agreed and offered to help me. Using this snowballing technique, I was able to hear the perspectives of other departments' directors on how each department contributes to the company's environmental performance. It was interesting to hear the pride each director had about the role his/her department played.

Next, I visited the Ciment du Maroc's three cement plants in Safi, Marrakech, and Agadir. At each plant, I interviewed the plant director and the environmental manager and toured the facility. Each individual interviewed did his best to provide the information needed. In a couple of occasions, I had lunch at the company's canteen and had the opportunity to meet with employees, who provided off the record information. On a third occasion, I was invited to ride the staff bus back to town, which also allowed for informal conversations. I casually asked hotel managers, taxi drivers, and restaurant workers about the plants and whether they are displeased about anything with the plants' behavior. The answer was consistently negative. In fact, these plants had the reputation of being good employers and of being attentive and responsive to the needs of their neighboring communities.



Once finished with Ciment du Maroc, I contacted Lafarge with the help of the French interviewee. I met with the environmental coordinator and the communications expert. Both provided historical background on the company and provided a holistic picture of Lafarge's environmental program. The interview was tense at first. I felt as though I was seen as an auditor. Requiring signature of the IRB form added an additional level of separation. However, when I asked the interviewees to share their opinions about the country's environmental agenda, the energy changed in the room and the conversation flowed better thereafter. At the end of the interview, I asked if I could visit individual plants and talk to directors of other departments, and was told that while the first was possible, the second was going to be difficult given the workload of the season. I traveled to visit the plants in Meknes, Tetouan, and Tangiers and was able to tour and interview the environmental managers of the Meknes and Tetouan plants, but not the Tangiers plant as the interviewee had a family emergency and could not be there. No one could replace him.

Making contact with Holcim took place in November 2013. I interviewed the sustainability director and the social responsibility manager at the same time. Both refused to be recorded, and the interview felt genuine and unscripted. When asked whether I could interview representatives of other departments and visit the plants, I was told that while meeting other individuals would be difficult given the workload, plant visits could be arranged. One interviewee asked me about the subsidiaries interviewed already, and when I mentioned Ciment du Maroc and Lafarge, he said that they all had the same management system, and differed only in their numbers. In the end, I was able to visit only one plant in Settat. Communication with both interviewees afterwards was difficult and rarely yielded a response.

### **3-7-2 Documents**

In attempting to explain why and how the cement industry in Morocco came to have its current environmental performance in the absence of enforced environmental regulations in the country (proposition 1), it was hypothesized that market pressures exerted on European headquarters and on Moroccan subsidiaries have induced this performance. Consequently, I identified documentation that informed this question. In relation to the Cement Sustainability Initiative, the Battelle Report, the industry's Agenda for Action, and reports of best practices provided key information used in this research. The Battelle report described the market pressures influencing the cement industry's environmental strategy. The Agenda for Action presents the industry's environmental commitments, while subsequent reports show how the industry tackled the challenges presented to it.

At the Moroccan level, documentation was used that reflected the way cement subsidiaries organized the Cement Sustainability Initiative in Morocco. This information was provided by the cement trade association (APC) and represented a record of the main events of the initiative in Morocco, especially in relation to the ministry of the environment. This documentation included reports, memoranda of understanding, and agendas.

Information in the documentation was cross checked with that provided in the interviews to verify its accuracy.

### **3-7-3 Qualitative Analysis**

The analysis consisted of coding interview transcripts as well as archival documents, which included audit reports, annual reports, published studies, laws and regulations, and MOUs. Strauss and Corbin (2014) offer a coding protocol consisting of three consecutive coding steps. This protocol starts with open coding, which consists of reading the text and identifying salient ideas. The second step of this protocol is identifying connections, linkages, and distinction between emergent ideas, and organizing these into groups. Axial coding follows, and consists of, the construction of concepts from the disparate themes previously identified. The last step is selective coding. At this stage, categories explaining the most about the phenomenon under study are selected and refined.

### **3-8 Limitations**

In general, obtaining access to information and key individuals while conducting this research was relatively straightforward. However, in some isolated instances gaining access was difficult. For instance, while internal communications would have provided additional support to the observed governance structure adopted by cement multinationals, it was not possible to access this information. Other than in Ciment du Maroc, it was not possible to interview the entire directorate of subsidiaries. This prevented my ability to document how sustainability was embedded in these operations.

Also, the last interview conducted in Morocco with Asment Temara challenged some of the assertions other subsidiaries had made regarding their commitment to continually improving their environmental performance. However, in the absence of documentation and given the interviewee's limited availability, it was difficult to explore this fully.

Finally, to gain a better understanding of the extent of networking that takes place between cement subsidiaries in Morocco through the structure of the APC, I asked to attend one of their monthly meetings. However, this request was rejected due to the confidential nature of the information being discussed. This limited my ability to fully explore the third proposition about the role networking through the APC played in influencing subsidiaries adoption of EBP.

### **3-9 Conclusion**

This chapter described process tracing as the methodology used in examining why and how Moroccan cement companies adopted environmental best practices in the absence of environmental legislation. I argued that process tracing's focus on identifying the causal mechanisms involved in the coming about of specific phenomena enabled the uncovering of the drivers that induced and the nuances that surrounded the adoption of environmental best practices by cement companies in Morocco. This chapter also outlined the research protocol followed that consisted of semi-structured interviews with individuals from the European multinationals, Moroccan subsidiaries, and individual plants. The next chapter presents the first set of results, which relate to the creation of the CSI and adoption of sustainability as a business strategy by European cement multinationals.

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## Chapter 4: The Voluntary Development and Adoption of EBP in the Global Cement Industry

### 4-1 Introduction

While the previous chapter presented the methodology chosen for this research project and listed the questions asked and the various stops made, the next two chapters offer a discussion of the first proposition, which is as follows:

**Proposition 1:** Normative pressures stemming from membership in the Cement Sustainability Initiative (CSI) induced the adoption of environmental best practices by cement MNCs. These pressures were channeled through MNCs to subsidiaries operating in Morocco in the form of coercive pressures, and induced subsidiaries' adoption of Environmental Best Practices developed by the forum.

This chapter will focus on the first part of proposition 1, which is that “Normative pressures stemming from the CSI induced the adoption of environmental best practices by cement MNCs”. This chapter will do that by tracing the process through which leading cement companies and the World Business Council for Sustainable Development (WBCSD) orchestrated a voluntary collective action culminating in the creation of the Cement Sustainability Initiative (CSI) a global forum focused on developing environmental best practices for the industry. Chapter 5 will explore how the best practices developed at the European level are channeled to Moroccan subsidiaries.

Voluntary environmental initiatives are recognized for being efficacious measures leading to better corporate environmental performance than that induced by states' coercive pressures (Cashore, 2002; Fisher-Vanden & Thorburn, 2008; Rivera, 2004; Kennedy & Green, 1996; Paton, 2000). The importance of such voluntary initiatives is especially crucial in developing countries because institutional infrastructures are often found wanting in the rigor that is necessary to uphold a threshold environmental quality (Cashore, 2002).

Voluntary environmental initiatives are actions taken by global corporations, in the absence of the impetus of the state, to adopt specific performance standards for the purpose of improving corporate environmental performance. These voluntary actors utilize their market power to generate norms, which are then adopted by other firms for the purpose of increasing their legitimacy or capitalizing on a privileged market position. Normative pressures stemming from such voluntary initiatives improve compliance with coercive governmental pressures; they also raise environmental and ethical standards (Delmas & Toffel, 2004; Locke, Amengual, & Mangla, 2009). Firm legitimacy maybe defined as acceptance by its institutional environment and is determined by three factors, “(1) the environment's institutional characteristics, (2) the organization's characteristics, and (3) the legitimation process by which the environment builds its perceptions of the organization” (Kostova & Zaheer 1999, p. 64). These scholars further argue that, for MNCs, this means the acceptance of the firm by its global environment, which consists of both “home and host country institutional environments as well as supranational institutions, such as global media and global activists groups” (Kostova & Zaheer 1999, p. 65).

Further complexity is added to these requirements because a MNC needs to be accepted as a whole, in its home country as well as in the eyes of global actors in order to ensure that its subsidiaries are looked upon favorably in host countries. Through different forms of voluntary initiatives, MNCs strive to achieve legitimacy at all these scales.

Lyon and Maxwell (2001) differentiate between three types of voluntary initiatives. They are unilateral commitments, initiatives taken by businesses without prompting or partnership with the state; public voluntary schemes, the voluntary adoption of government issues standards; and negotiated agreements which result from a partnership between public and private actors. Paton (2000) adds private codes to Lyon and Maxwell (2001) typology, and defines them as initiatives resulting from the collaboration of “industrial associations, non-government organizations and standards organizations” (Paton, 2000 p. 2). Depending on the context, a given form of voluntary initiative would be created.

Against this theoretical backdrop, Chapter 4 will explore the first proposition, which presents normative pressures stemming from membership in the CSI as instrumental in the adoption of EBP by the cement firms under study. By exploring the formation of the CSI and the process through which environmental standards are developed, this chapter will offer an examination the extent and nature of the role the CSI played in the adoption of EBP by the four MNCs present in Morocco. This chapter will also shed light on the nuances that surround the process of environmental standards development by the CSI, a global forum, and their adoption by member companies.

#### **4-2 The Beginning of the Cement Sustainability Initiative (CSI)**

The four transnational corporations MNCs under study founded the CSI, together with six other leading cement companies and in collaboration with the WBCSD. The need to adjust to new external economic pressures, initially epitomized in higher energy prices, prompted these companies to organize for the purpose of creating, within the WBCSD, a sector-specific set of sustainable best practices, adapted to the idiosyncrasies of the cement industry. This was the first, and one of the few, sector-specific WBCSD initiatives, and it resulted from the commitment of founding cement companies to implement the values of sustainable development in their business practice, without compromising shareholder value (Holcim Sustainability Director, 2013; LAFARGE Communications Communications, 2013; Italcementi Industrial Ecology Manager, 2013; CimPor Sustainable Development Director, 2013; Battelle Memorial Institute, 2002).

Clinker production, necessitating a temperature of 1400 degrees, makes energy the costliest input in cement production. In fact, 60% of the price of a bag of cement goes to energy consumption (Holcim Sustainability Director, 2013). As a result, cement producers dedicate a big portion of their R&D budgets to the exploration of alternative fuels (APC Director Delegate, 2013; CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013; LAFARGE Communications Communications, 2013; Italcementi Industrial Ecology Manager, 2013). The CimPort representative explained that after his company saw heavy investments in testing various alternative fuels wither away and fail to deliver useful results, its CEO reached out to his Holcim counterpart and invited him to co-invest in R&D in the particular area of

alternative sources of energy. The latter saw the opportunity in his Portuguese colleague's suggestion and offered to bring the WBCSD and LAFARGE into the conversation (CimPor Sustainable Development Director, 2013). These three cement companies formed the Working Group Cement (WGC) and invited seven other companies, including Italcementi. Because cement corporations are profit-making and maximizing entities, they had the obligation to assess the economic opportunities and risks presented by sustainable development (Holcim Sustainability Director, 2013). Therefore, their goal expanded from researching sources of alternative fuels to identifying "how the cement industry as a whole can evolve over time to better meet the need for global sustainable development while enhancing shareholder value" (Battelle Memorial Institute, 2002, p.4). Two studies were commissioned to explore the full extent of the opportunities offered by the new market conditions of the 21<sup>st</sup> century, the elevated cost of raw materials, increased public scrutiny of corporate behavior, and the promise of increasingly stringent regulations. The WBCSD consultant Arthur D Little was charged with conducting a ten-week scoping study. This work set the stage for a "two-year research program, which aimed to assess the current practices of the industry and provide recommendations for cement companies and their stakeholders for the next 20 years" (Battelle Memorial Institute, 2002, p. 15).

Battelle Memorial Institute, an independent non-profit consultant group carried out the second study. Battelle conducted a baseline assessment of Cement production, developed (together with the WGC) a vision for a sustainable cement industry, and made recommendations on how to operationalize the suggested vision over a period of 20 years (Battelle Memorial Institute, 2002). Battelle's final report was addressed both to stakeholders outside the industry, providing them with a synopsis of the cement sector, and to cement companies, providing them with "an independent assessment of their current status and recommendations for improving their sustainability" (Battelle Memorial Institute, 2002, p. iv). In addition, and following Arthur D Little's recommendation to consider stakeholder engagement as "a key action for the industry as it moves toward sustainability" (WBCSD, World Business Council for Sustainable Development, 2002, p. 17), the WGC initiated interchange sessions in various parts of the world to identify "the expectations of key stakeholders and explore what those expectations mean for the future of the industry" (WBCSD, 2002, p. 17).

To grasp the varying perspectives of all stakeholders from diverse markets and economies, dialogue sessions were held in Brazil, Thailand, Portugal, and Egypt. These meetings involved "local and national government representatives, resident's groups employees, consumer organizations, suppliers and NGOs". Two meetings held in Washington DC and Brussels were aimed at global environmental interest groups, policy-making bodies, and multi-lateral financial and development organizations. The final session in China took the form of a workshop, which saw the participation of the Chinese cement industry, local governments, and several NGOs (Battelle Memorial Institute, 2002, P. 17). While it was not clear at this time which direction the WGC's initiative would take, this systematic analysis of market conditions and stakeholder preferences led to the uncovering of a host of drivers that make a strong case for the integration of sustainable development into cement business operations.

### **4-3 Battelle Study Results: Other External Pressures to Implementing Environmental Best Practices (EBP)**

Higher energy prices proved to be the most salient of a number of indicators describing a changing business environment. Battelle's in-depth analysis revealed the presence of structural as well as market-based drivers for a sustainable cement initiative. Several indicators showed that remaining competitive in the 21<sup>st</sup> century required the combination of "sound financial performance with a commitment to social responsibility, environmental stewardship, and economic prosperity" (Battelle Memorial Institute, 2002, p. 9). Environmental and social responsibility was no longer an action of good will or an expression of good business ethic; it was a business necessity. The following text provides a discussion of the drivers Battelle identified as making the business case for the implementation of sustainable best practices into the business strategies of cement companies.

Increased public awareness of the environmental impacts of business operation and the demand for the sound management of these require mindfulness of both the environmental health of the communities within which corporations operate and of the environmental consequences of the corporate growth strategies chosen (Battelle Memorial Institute, 2002). Governmental institutions and NGOs require firms to balance economic, environmental, and social aspects of firm operations; and employees seek employment in corporations that match their increasingly environmentally sensitive values. In addition, the international community monitors with an inquisitive eye the environmental and social welfare costs of economic growth, especially in developing countries (Battelle Memorial Institute, 2002). These pressures are portrayed in the notion of "license to operate" which goes beyond state documentation that allows the establishment of a cement plant within a specific community; it also includes community willingness to welcome a new firm or to allow existing firms to continue their operations (Holcim Sustainability Director, 2013). The cement industry being responsible for 5% of worldwide CO<sub>2</sub> emissions was, as a consequence of this increased awareness, heavily and continuously scrutinized (Holcim Sustainability Director, 2013). Stakeholders required greater quality, content, and frequency of corporate reporting, especially in an electronic form, to ensure greater transparency and accountability. Corporations then had to show evidence of continual improvement of both environmental and social performance in each report (Battelle Memorial Institute, 2002). In this way, community preference for continual improvement of environmental and social responsibility became central to successful business operation.

The corporations studied experienced these pressures, and were aware of the need for change. The LAFARGE representative explained:

First and foremost we are a heavy industry and we have an environmental impact. Cement plants are big and obvious and take up a lot of space. When quarrying you dig massive holes in the ground and so you can't hide it away ... We always say it is part of our license to operate as we have official licenses we receive from authorities, but as a philosophy of the company, we want communities to accept us, to accept our activities, we have got to be responsible, we have got to be very responsible in the way we manage our operations to limit any environmental impact we have (LAFARGE Communications, 2013).



The Holcim representative echoed this by saying:

...I much prefer freedom to operate rather over license to operate ... you do actually need a physical license to operate. You need a permit and you need regulations. But CSI best practices assists with obtaining the freedom to operate in the communities in which you are present... and the thing about cement manufacturing is it is there for 500 years, it is hugely capital intensive and when you go into a community you are there for a long time and you need the freedom to operate within that community because the last thing you want people picketing outside the gate constantly complaining or not getting people to work for you if they are not happy with you. So there is a lot of stuff... there is the freedom to operate, there is community relations... is it about securing and retaining good quality people (Holcim Sustainability Director, 2013).

He further explained:

... Guess what, you try to get a loan from any one of the lending institutions without having a good sustainable development or environmental record you're gonna struggle, because all the big lending institutions have restriction based on sustainable development criteria where they expect to see not just the economic side of your organization and your ability to repay, but also how you are going to impact the communities and around them. What will your environmental impacts going to be, how are you going to be managing those going forward so there are some very clearly emerging business drivers coming through (Holcim Sustainability Director, 2013).

The Italcementi representative corroborated the involvement of financial institutions in the sustainable practices of corporations by saying:

2013 reporting changed to better fit the French financial reporting law. Instead of publishing two separate reports, one for financial performance and one for sustainable development performance, in 2013 the company published one report with both kinds of data in it ... The Grennelle Agreements, which were brought back to life in 2012, required the revision of article 125 of the French Code of Commerce, which now requires that the financial document also contains non-financial data. The law has passed, but the decree explaining how it will be applied has not yet been published, but we went ahead and changed our reporting. The non-financial data in this case is environmental and social. There are 42 auditable indicators in the non-financial section of the reports that are audited by a third party. Even though French law is not applied in Italy, Italcementi decided to follow the same format for consistency's sake (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

Financial institutions started including principles of sustainable development in their criteria of financial responsibility, and required their customers to report their social and

environmental impacts, as well as to provide strategies for limiting nefarious impacts. The International Finance Corporation (IFC) for instance, put in place performance standards that “are directed towards clients, providing guidance on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities” (IFC, 2012, p. 1). Four out of the eight IFC standards relate to environmental stewardship. In addition, the World Bank Group’s environmental, health, and safety guidelines developed “performance levels and measures that are normally acceptable to IFC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology”. These measures often translate into “site-specific targets with an appropriate timetable” for their achievement, to be used “as a technical source of information during project appraisal activities” (Sustainability at IFC).

Also, in 2001, France passed a law requiring publically traded corporations of more than 500 employees to report on “their social, environmental and governance aspects” (France domestic CSR policy, 2015). As explained by the Italcementi representative, in 2009 and 2010 the French parliament passed the Grennelle Acts, which made reporting annually on CSR a legal mandate; these acts included a section explaining “how [corporations] take into account the social and environmental consequences of [their] activity and social commitments in favor of sustainable development” (France domestic CSR policy, 2015). Furthermore, article 225 of the French commercial code was reviewed in early 2013. It required a report on sustainable development performance to be included in the corporation’s annual report (Italcementi Industrial Ecology Manager, 2013; Preparatory Document for the French National Plan for the Development of Corporate Social Responsibility). Corporations are indeed required to report on 42 auditable indicators in the non-financial section of the report; however, they do have permission to omit an indicator deemed not relevant to the activity of a company, so long as a justification for the omission is provided. This comprehensive report is then required to be audited by a third party (Italcementi Industrial Ecology Manager, 2013; Preparatory Document for the French National Plan for the Development of Corporate Social Responsibility). In the 1990’s, financial soundness of corporations was increasingly being gauged based on the environmental performance of corporations, since the later influenced risk management and liability.

In addition, as cement companies consolidated and acquired new plants across the world, they increasingly felt the need for operational standardization, a uniform governance structure that respected the cultural differences of the communities within which they operate, that built collaborative and friendly relations with other firms within the industry and across sectors (CimPor Sustainable Development Director, 2013). Sustainable development offers a good framework for achieving this goal, given its emphasis on collaboration and social responsibility (CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013). More than a strategy to please stakeholders, sustainable development offered a competitive and a realistic framework for conducting global operations in a harmonious way.

By proactively seeking to interpret sustainability standards into their business practices, cement companies, as early adopters, stood to benefit from creating shareholder value, improving both “operating efficiency and market positioning” developing such new concepts as

“extended producer responsibility” which expands on the concept of corporate accountability, raising “public expectations regarding company behavior” and generating more “electronic communication creating global visibility for companies” (Battelle Memorial Institute, 2002, p. 3). A representative of Holcim explained:

The CSI was largely driven by the use of alternative fuels, as these reduce energy generation costs, but it also provided a framework for environmental legislation in Europe, which was lacking at the time ... what quickly followed for us was the need to look at all environmental impacts ... and let's us be honest, I mean let us not fool ourselves, there is some self-interest in doing that as well. CSI enabled us to create an even playing field. When the big cement players came on board and formed the CSI, the bar was raised and forced others to operate at a certain standard. Also, part of the work then and now is trying to inform regulation and recommend standards to regulators, setting protocols for measuring greenhouse gases, and managing other issues ... The point is, if we can raise the bar to such an extent and get the industry regulated, then we end up with an even playing field. The danger is of small players coming in. They don't have such a big base and without regulation, they don't have to operate with the same rules and parameters that you do (Holcim Sustainability Director, 2013).

In other words, by initiating the CSI, the WGC companies positioned themselves as first movers in sustainable cement and so acquired the legitimacy to set norms and be recognized as in the field. These companies also gave a lot of importance to ensuring that their practices became industry wide standards. When asked about the reasons for this, interviewees explained that this was necessary to improve the industry's public image and be recognized as “good” private-sector actors. The scrutiny under which cement companies were examined prior to this collective initiative inhibited the growth of these companies, and so it was necessary not only for leading companies to adopt best practices, but also to pull the entire industry upward (Italcementi Industrial Ecology Manager, 2013; CimPor Sustainable Development Director, 2013). The Holcim representative explains:

You just make sure that everybody operates to the minimum standard and that that standard is a good one! So I am not saying at all that was a prime driver but it is certainly a consideration. We are very proud of our own environmental performance and we believe we are the leading company. Certainly we got the lowest CO<sub>2</sub> emission of all cement, we led the way in a lot of the programs that were born out of the desire to do the right thing. We don't want to be the best of a bad industry, we would like to be the best of a good industry (Holcim Sustainability Director, 2013).

This statement highlights the leadership with which WGC approached the challenge of implementing EBP into the industry. Indeed, Each of the four company representatives interviewed in Europe stressed the essential role their CEO played in making the first step towards sustainability. These leaders were described as visionaries, were all mentioned by name and with a lot of reverence, and were lauded for having successfully steered their corporations towards a sustainability centered business model, while paving the road for others by developing

a plethora of tools and case studies (Holcim Sustainability Director, 2013; Italcementi Industrial Ecology Manager, 2013; LAFARGE Communications Communications, 2013; CimPor Sustainable Development Director, 2013).

This spirit of leadership and continual improvement continues today as can be seen in the following quote by the Holcim representative:

... we are now ramping up to the next step which is our new CEO who has just come in just about a year ago, is benchmarking each activity of the corporation against the best actors within the international business community at large, and not just within the cement industry. He says “I don't want to be the best in cement, I want to be the BEST generally, so in safety I would like to rank us against Dupont (Holcim Sustainability Director, 2013).

Cement companies are held accountable for their commitments. The reporting on sustainable development indicators at these companies started promptly after the conclusion of the Battelle study.

The drivers of change were perceived as linked to cement companies' bottom line directly, and so taking this WGC's initiative one step further was a responsibility of stakeholders in general and shareholders in particular. Participating companies saw the need for a viable growth strategy in the midst of a changing market environment, a growth strategy that was considered to be provided by adopting a sustainable development approach (Holcim Sustainability Director, 2013).

Based on this analysis and using Lyon and Maxwell's typology, CSI took the form of a unilateral agreement, in that cement companies organized into the CSI without the prompting of the state. Paton (2000) discussed three ways in which firms stood to benefit from voluntary sustainable development initiatives. These are “earning market-based payoffs from cost savings and positive consumer response, avoiding higher costs associated with future regulations and (potentially) receiving subsidies directly from the regulator” (Paton, 2000 P. 331). By taking the lead on developing the CSI, cement companies stood to benefit from all these. However, based on Battelle's study results, the real motivator was the external market pressures detailed above. Changing course required heavy investments in human capital, in equipment, and in facility upgrades and development. Business as usual changed only because the external environment in which firms operated changed.

#### **4-4 The Development of Environmental Standards--Battelle's Recommendations**

The initial process of standard development sheds light on the nature of the CSI and the extent of its influence on the environmental strategies adopted by member companies. At the end of its assessment, the Battelle institute developed a vision for a sustainable cement initiative and a set of environmental standards, which constituted a roadmap to addressing the industry's limitations and capitalized on the opportunities identified during the study phase. In presenting its recommendations, Battelle was challenged to frame these in the context of profit maximization, so the institute focused on translating sustainable development excellence into

enterprise value, thus reconciling sustainability and profitability (TSCI, p. 9). As best expressed by the Holcim representative, cement companies' attitude toward sustainability was not a philanthropic one because "in hard times, the first thing that goes is charity. For SD to work, it has to be linked to shareholder value". He further explained:

You know what, lets make one thing clear, we are not an NGO. Our driver is business. Our driver is to make money. If you want to put it in the most basic terms we are in the business of making money and cement is the vehicle through which we do it. We have shareholders to whom we have to clearly demonstrate the economic dimension of what we do. This is important and that is why any sustainable development activity or environmental activity, if it isn't going to add at least to the economic sustainability, isn't itself sustainable (Holcim Sustainability Director, 2013).

In fact, the idea of a sustainable cement industry seemed contradictory at first, and so there was an institutional tension between various stakeholders. The Holcim representative highlights this tension using the goal of CO<sub>2</sub> reduction. He explained:

CO<sub>2</sub> in the cement manufacturing process comes from two sources. The first one is from heating the kilns to 1400 degrees, generally by burning fuel. This constitutes 40% of emissions. The second is the limestone calcination process, which in addition to clinker, generates CO<sub>2</sub> gas. In terms of process efficiency you can perhaps lower the amount of fuels needed to heat the ovens to 1400 degrees, especially by substituting to biomass. But, in terms of the calcination process, quite obviously there is not much you can do about that. That is one of the conundrums that the cement industry is facing. The more cement you produce the more CO<sub>2</sub> you are going to produce. If you put a target to reduce absolute CO<sub>2</sub> emissions it means you can't grow any more. It means you can't make any more cement (Holcim Sustainability Director, 2013).

A sustainable cement industry meant finding creative solutions that would placate all stakeholders and still reach set goals. The Holcim representative continues,

... there are certain mineral components you can add to replace clinker so you can lower the amount of clinker in the cement. One can replace it for instance with fly ash, a byproduct from another industry. And so instead of using 95% of clinker in the cement we use 60% or 70%. That obviously lowers the footprint overall because you are not using so much clinker, which is where most of the emissions come from. It is good to bear that in mind (Holcim Sustainability Director, 2013).

Through this example, the interviewee brings out an important corporate perspective on sustainable development and further elucidates the conditions of voluntary environmental initiatives. He says:

... the really interesting question that helps with sustainable development in general is: is this being done to be green or is there a business driver for it? And in most cases there is a business driver for it because using alternative components is cheaper than manufacturing clinker. The same with using waste as fuel instead of fossil fuels. If you are burning tires and wastes ... not only are you providing a benefit to society by burning waste, particularly in a developing country, which often lack good regulatory frameworks, but you are also lowering your cost of fuel which is always great, and providing social opportunities such as micro-enterprise development. Sustainability initiatives really need to address all the elements of the triple bottom line. But you know if the driver does not add to the bottom line, is it really sustainable? That is the question for sustainable development (Holcim Sustainability Director, 2013).

A sustainable cement industry, then, required the adoption of a new business model, one which was independent of the presence of regulation, which made business sense. In other words, this initiative needed to be “voluntary, discretionary, and motivated by business logic” (Battelle Memorial Institute, 2002, p. 18). It needed to be centered on the link between sustainability and enterprise value considered to be essential to the successful adoption of sustainable development practices.

As discussed above, sustainability was growing in importance to various stakeholders, and financial institutions had started to recognize “that sustainable companies are generally better managed ... [and consequently] generate superior shareholder returns” (Battelle Memorial Institute, 2002b, p. 9). This efficiency resulted in the development of “pooled investment initiatives such as sustainability investment partners, and the emergence of [sustainability] indicators” (Battelle Memorial Institute, 2002b, p. 10). Battelle had to bring into the fore the financial implications of adopting a triple bottom-line perspective; and to show how “Open engagement with local communities and other stakeholders to support better quality of life can lead to improved company image and right to operate, which ultimately lead to strategic advantage” (Battelle Memorial Institute, 2002, p.10). The challenge facing the WGC was how to analyze stakeholder expectations and needs, and to determine how sustainability could be monetized and tied to economic profit. This, in Battelle’s opinion, required cement companies to be open for change, to promote innovation and creativity, and to explore potential cooperation opportunities with various institutions. Integrating sustainable development into business operation translated into shifting “the company operations from a traditional, resource-intensive and profit-maximizing business model to a more eco-efficient, socially responsible, and value-maximizing model” (Battelle Memorial Institute, 2002, p. 4), and this change concurs with the need to increase enterprise value. Sustainable development does that by reducing production cost, as a result of improved efficiency and effectiveness, increasing revenue through “product differentiation and enhanced market acceptance”, and reducing risk as a result of improved management processes (Battelle Memorial Institute, 2002b, p. 4).

Therefore, the vision Battelle developed centered on integrating sustainable development principles into cement companies global business models. It prioritized two areas that are likely to reduce operating costs: industrial ecology and CO<sub>2</sub> management. It took stakeholders into account and guaranteed continued freedom to operate. The text of the vision is as follows:

By 2020, cement companies have integrated sustainable development into their global operations, are known as innovators in industrial ecology and carbon dioxide management, are regarded as attractive employers, and have established relationships of trust with the communities in which they operate (Battelle Memorial Institute, 2002, p. 20).

Battelle offered seven recommendations to expand on and operationalize these focus areas, providing concrete steps likely to help cement corporations change course and reach the shared vision. Four of these recommendations pertain to environmental protection: resource productivity, climate protection, emissions reduction, and ecological stewardship. The other three relate to social responsibility: employee well-being, community well-being, and regional development.

Battelle's recommendations on resource productivity were centered on reducing raw material consumption and reusing wastes as resources. These recommendations called for the identification of synergies with, and the exploration of potential industrial symbiotic relationships, with various companies across sectors (Battelle Memorial Institute, 2002, p. x). The climate protection recommendation focused primarily on CO<sub>2</sub> emissions. Indeed, Battelle encouraged the development of a carbon management program, with industry-wide and company-specific medium and long-term goals. It recommended the development of a CO<sub>2</sub> emission baseline and the identification and development of tools including "emission trading and offset schemes" to achieve "cost-effective reductions" (Battelle Memorial Institute, 2002, p. xi). Battelle emphasized the importance of collaboration with various institutions in order to promote pertinent "government policies, product standards, and market practices that enable CO<sub>2</sub> reduction strategies" and encourage "pre-competitive research and development of low carbon products and processes" (Battelle Memorial Institute, 2002, p. xi). Without such orchestration of efforts across various institutions, Battelle feared a carbon management program would not be successful.

Regarding emissions reduction, Battelle recommended that in addition to continually improving emission control mechanisms, cement companies should strive to develop standardized corporate environmental processes to be applied in all subsidiaries, collaborate with relevant governmental agencies to ensure needed environmental regulations are developed and enforced, utilize the best available technology for energy efficiency and pollution prevention while developing new and improved solutions, and implement environmental management systems (Battelle Memorial Institute, 2002, p. xi). For ecological stewardship, cement companies were encouraged to develop, adopt, and disseminate "innovative siting, land use, and quarrying methods that consider cultural sensitivities and biodiversity" and find ways to rehabilitate quarries and retired plants in environmentally, economically, and socially sound and beneficial manners (Battelle Memorial Institute, 2002, p. xi).

Employee well-being recommendations highlighted the importance of enhancing "worker health, safety, and satisfaction" (Battelle Memorial Institute, 2002, p. xi). Baseline assessment showed a discrepancy between cement companies' health and safety management as compared with best industry practices, and so Battelle stressed the importance of focusing especially on

this item (Battelle Memorial Institute, 2002, p. xi). For community well-being, Battelle recommended quality “local stakeholder dialogue and community assistance programs” in addition to training “cement company personnel in appropriate skills,” instituting “sustainability reporting programs,” and providing “voluntary assistance to improve community well-being” (Battelle Memorial Institute, 2002, p. xi). Battelle also addressed regional development, recommending the promotion of “regional economic growth and stability, especially in developing countries” (Battelle Memorial Institute, 2002, p. xi).

With these recommendations, Battelle offered a comprehensive set of guidelines to be used as a starting point for the CSI. The WGC reviewed the proposed recommendations and then developed its Agenda for Action (AfA), which explicitly expressed commitment to what members believed to be “the foundations upon which human quality of life depends”: “respect for basic human needs, and local and global ecosystems” (Cement Sustainability Initiative, 2002, p. 6). This agenda for action was deemed necessary to prepare the industry for “a more sustainable future...to meet the expectations of stakeholders, and to individually identify and capitalize on new market opportunities” (CSI AFA, p. 6). In this agenda, the industry clearly positioned itself as a responsible actor, with a commitment to being an element of positive change in the societies where it is present. The WGC consolidated Battelle’s recommendations into six areas of activity, which are (Cement Sustainability Initiative, 2002, p. 18):

- Climate protection
- Fuels and raw materials
- Employee health and safety
- Emissions reduction
- Local impacts
- Internal business processes

For each of these areas, the WGC offered a list of joint projects and company specific action-items. In this way, the WGC was moving toward setting industry norms, while giving companies the ability to tailor sustainable development initiatives to their circumstances, and those of the countries within which they operate. This freedom for companies to set their own individual performance goals is especially essential in light of anti-trust laws. In the 2005 CSI report, the CEOs of member companies state explicitly:

We are competing companies, which places limits on our abilities to cooperate in some areas due to legal limits and commercial interests. Despite this, we have produced agreed approaches to complex issues such as CO<sub>2</sub> emissions measurement, and the assessment of impacts on local communities and our workforce (Cement sustainability initiative, 2005, p. 0).

This concern to make explicit the extent of firms’ collaboration in setting industry standards came up time and again during interviews, especially in Morocco. One interviewee even objected to using the word “network” because, according to him, the media often took that to indicate collusion.



By setting both joint and individual actions, CSI avoided negative attention, while giving companies a way to differentiate themselves from one another based on their sustainable development performance. After developing the list of initiatives, the WGC formed task forces led by the environmental specialists of member companies. These task forces or working groups were then required to delve into the joint initiatives and produce a report every five years with an interim report published in 2005 (Cement Sustainability Initiative, 2005; Italcementi Industrial Ecology Manager, 2013). Even though the commitments in the agenda for action concerned mainly the ten founding members of the CSI, they provided a framework to facilitate the participation for other companies in the initiative.

The CSI charter published in 2002 summarized the commitments made in the Agenda for Action. Companies wishing to join the CSI were asked to commit to implementing the charter and reporting on sustainability performance four years after their joining date. Also, CSI's task forces focused on developing industry-wide tools and protocols to help manage industry's high priority aspects such as the CO<sub>2</sub>. The Energy Protocol was first published in 2001 and then reviewed twice in 2012, and the Environmental and Social Impact Assessment guidelines were published in 2005. These guidelines were the outcome of CSI's collaboration with relevant NGOs, government representatives, and other third parties (Cement Sustainability Initiative, 2002). They aimed principally to provide a uniform methodology for assessing and measuring the extent of a given impact, and then for reporting on it. This helped companies track progress and compete based on their performance. Indeed, by uniformly using Key Performance Indicators, companies were able to gauge their performance against that of others using a similar calculation and reporting methodologies, and then to set future objectives and targets based on their leadership ambitions and investment capabilities.

The CO<sub>2</sub> protocol, for instance, is the fruit of collaboration between the World Resources Institute and the CSI (the first version was published in October 2011, before CSI was operational and so cement companies collaborated with the WRI through the WBCSD) (Vanderborgh & Brodmann, 2001). The CO<sub>2</sub> protocol provided a uniformly approved "methodology for monitoring and reporting CO<sub>2</sub> emissions from cement manufacturing" (Vanderborgh & Brodmann, 2001), "with a view to reporting these emissions for various purposes" (Cement Sustainability Initiative, 2011, p. 3). This protocol accounts for all CO<sub>2</sub> emissions along the entire value chain of cement production, and thus offers more opportunities for reducing CO<sub>2</sub> emissions (Cement Sustainability Initiative, 2011). Using the CO<sub>2</sub> protocol, it was determined that 50% of CO<sub>2</sub> emissions from cement production stems from the chemical process of clinker making, 40% from thermal energy needed for the chemical reaction to occur, and the remaining 10% from electricity use and transportation (Cement Sustainability Initiative, 2005).

The Environmental and Social Impact Assessment guidelines were the result of a rigorous process of research and assessment with the collaboration of various "government departments, external reviewers, financial institutions, local residents and communities, NGOs and interest groups" for the purpose of "evaluating and managing the impacts" of cement production on "land and communities" (Cement Sustainability Initiative, 2005, p. 6). It aimed to help cement companies and their neighboring communities "identify and address some of the critical issues during each phase of a cement facility's development, operation and eventual

closure” (Cement Sustainability Initiative, 2005, p. 2). These guidelines considered a variety of potential impacts on communities as well as on the natural and built environment. They offer a method to account both for positive impacts stemming from proximity to a cement plant such as employment opportunities for communities youth and built infrastructure) and for negative impacts such as loss of biodiversity and air, water, and soil emissions. When negative impacts are such that they can’t be remedied with specifically tailored action plans, the activity is taken to a different site, where operational consequences wouldn’t be so dire (Cement Sustainability Initiative, 2005).

The 2005 CSI report aimed to assess the progress of various taskforces. It described the various steps undertaken by each taskforce since 2002, and evaluated the progress made, the metrics used, the partners involved, and listed next steps (Cement Sustainable Initiative, 2005). The language used in the interim report is more confident and assertive than that used in the Agenda for Action. In the latter, such phrases as the one below suggest the kind of uncertainty that reflects the newness of the endeavor and the responsibility felt in adopting a new business strategy. In contrast, the language of the 2005 interim report is assertive and celebratory. The CEOs of member companies say in their forward of the Agenda for Action:

We spoke of the ‘fundamental challenge’ that the goal of sustainable human progress presents. The challenge remains, as large as it was three years ago. But we have identified several paths forward for our industry to reduce its footprints, better manage its impacts and be more eco-efficient (Cement Sustainability Initiative, 2002)

And then, in the interim report, they say:

... we are proud of this report, in a sense prouder of this than the Agenda, as that was a list of promises, but this report documents results on our first implementation steps (Cement Sustainable Initiative, 2005)

This difference perhaps reflects the complexity of the endeavor and the extent of leadership that was necessary to agree to a concept such as sustainable development, despite industry’s ostensible incongruence as recorded in its performance at the time.

Among the elements highlighted in the interim report is the establishment of a senior advisory board composed of such individuals as the leaders of WWF international and the Brundtland Commission. Up until this point, the CSI was led by CEOs of member companies and worked through its taskforces, each of which was presided by the environmental coordinators of member companies. The establishment of the senior advisory board ensured that relevant stakeholders were involved in the CSI’s inside workings, and projects such as goal setting and agenda development. These stakeholders raised the performance bar of cement companies and made sure important issues were addressed in a way that generated concrete results. This is especially important given the voluntary nature of the initiative because stakeholders’ pressures, instead of regulations, constituted safeguards against environmental abuse.

Following-up on its commitment to lowering CO<sub>2</sub> emissions, CSI members reviewed and updated the CO<sub>2</sub> protocol “based on feedback and comments” from various stakeholders. These revisions reflected the technological advancements achieved since the publication of the first version (Cement Sustainability Initiative, 2005, p. 10). It addressed the responsible use of fuels and materials by sharing the progress made in using kilns to process specific types of waste safely. Processing waste in such a way provides a service to society, as it reduces the amount of waste sent to landfills, and by extension, a company’s reliance on fossil fuels (which decreases CO<sub>2</sub> emission stemming from thermal energy generation) lowering their production cost because less fuel is purchased. During the three years leading to the revisions to the CO<sub>2</sub> protocol, the corresponding task force determined which wastes could be used in this process safely, and it developed guidelines for the purpose of using fuels and raw materials based on sustainable development principles. Development of these guidelines was informed by input from CSI stakeholders, which included WWF, The Natural Step, The Nature Conservancy, and UK environmental regulators (Cement Sustainability Initiative, 2005, p. 14).

In discussing emissions monitoring and reporting, CSI stakeholders contend that existing regulations had not been stringent enough. CSI then worked with these stakeholders and others to “develop a common protocol for monitoring emissions, and a standard format for reporting data”. The emissions protocol “identified NO<sub>x</sub>, SO<sub>x</sub>, and dust as the main polluting emissions in terms of volume” (Cement Sustainability Initiative, 2005, p. 16), and members committed to monitoring these pollutants according to accepted standards in use.

Currently, CSI’s governance structure consists of a steering committee, which meets four times a year and a monitoring team, which measures performance. The steering committee generally includes a person responsible for the technical center, a sustainable development person, external organizations via liaison delegates, representatives of various countries and regions, and other cement companies. This committee approves the director, and then moves on to the executive committee, which approves the steering committee’s decisions (CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013; LAFARGE Communications Communications, 2013).

Interviewees explained that CSI develops environmental criteria and sets industry objectives in a principle charter that is signed by CEOs and disseminated across groups. This CO<sub>2</sub> standard represents the threshold performance firms will commit to having. Each firm then develops its own program and sets its own objectives, based on CSI criteria, which they then disseminate across their groups. The four cement companies present in Morocco use CSI criteria as a baseline only, since they have developed programs that exceed by far the limits set.

The CSI evolved from being an exploratory study taken by ten leading cement corporations in order to identify the implications of sustainable development for the future of the industry to an organization developing, under the guidance of expert consultants, sector-specific environmental performance standards believed to improve the industry’s ability to adjust to a changing business environment. Three years from its creation, it was an established and a renowned organization collaborating with reputable environmental NGOs in developing performance standards, which improved the environmental performance of the sector.

By 2012, sustainable development had become more anchored in business operations. Competitiveness centered more on the ability to create value with small amounts of resources, so the new initiatives at the CSI centered on considering the entire value chain of building construction and included recycling of building materials, life-cycle assessments, protection of bio-diversity, and ecosystems management. As the next chapter will show, these focus areas are the same ones Moroccan cement subsidiaries were working on at the time of this research.

#### **4-5 Conclusion**

In conclusion, higher energy prices combined with costly R&D to identify alternative fuels prompted a desire for a collaborative effort between a select group of cement corporations to reduce production costs. This group of cement companies formed the working group cement (WGC), and after consultation with the WBCSD, agreed to explore the potential impact sustainable development could have on their industry. The assessment, which followed, documented concrete threats to the sustained growth of the industry had it continued business as usual. These threats included upcoming environmental legislation, stringent requirements from financial and banking institutions, and increasing scrutiny from cement plants' neighboring communities. These threats targeted the industry's bottom line and prompted the development of a business growth strategy that accounted for the industry's environmental and social impacts. Not having done so would have meant not being able to obtain loans and new investments to build new plants, facing resistance from local communities, and eventually having to comply with environmental legislation or incur fines, further tarnishing the industry's public image.

This restructuring was accomplished within the framework of the CSI, which was initiated by three of the four cement corporations under study, namely CimPor, Holcim, and Lafarge. Italcementi joined in a little later and was part of the ten firms forming the WGC. This initiative allowed cement corporations to adjust to the new business environment characterized by a demand for environmental responsibility as described above.

Given that the four companies studied were at the origin of the CSI, and were actively involved in the development of EBP, this research contends that in the case of the four corporations studied, it was the changing business environment that directly induced the development and adoption of EBP and not the CSI. Thus the first part of Proposition 1 that suggests CSI induced adoption of EBP by the companies under study is not supported. The CSI did become a global forum pressuring member cement companies to adopt EBP, but in the case of the four companies studied, it was the aforementioned pressures that led them to form the CSI and the best practices.

In addition, interviewees explained that the CSI standards provided a threshold performance that their companies often exceeded. Companies determined their level of conformance based on their competitive agendas and growth strategies. Firstly, they linked sustainability and enterprise value, which was created through the reduction of production costs given the reuse of various waste as raw materials and energy sources. They then assessed the improvement in their community relations, which led to an "improved license to operate" (Battelle Memorial Institute, 2002, p. xii). As a result, these companies saw a way to capitalize

on their green investments: doing better meant increasing chances of survival and preserving market shares longer in a dynamic business environment.

More research is needed to determine the role CSI plays in other firms' adoption of EBP, especially those firms which joined the CSI after its inception. As for the four companies under study, they continue to be actively involved in guidelines and standard development, and they strive to be at the forefront of the sustainable development agenda. Collaboration, alliance building, and strong leadership have all been central to the CSI since its inception. This resulted in the development of technological, managerial, and policy tools, which have efficaciously improved the environmental performance of member corporations in Europe and elsewhere. The next chapter will focus in on the impact these changes had on cement production in Morocco. It will examine the start of environmental stewardship in the Moroccan cement industry, and provide information on the role public and private players, and MNCs played in transferring knowledge and expertise to Morocco.

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## **Chapter 5: Cement Environmental Initiative in Morocco**

### **5-1 Introduction:**

While the previous chapter detailed the process through which the CSI was formed and environmental standards were developed, this chapter will explain how these standards were transferred to Moroccan subsidiaries. In doing so, it will discuss the second part of Proposition 1, which suggests that environmental best practices were channeled, in the form of coercive pressures through cement multinational corporations (MNCs), to subsidiaries operating in Morocco, thus inducing their adoption of EBP.

The discussion in this chapter will elucidate the process through which Moroccan cement companies adopted environmental responsibility as a strategy; including a description of the different alliances made with various institutional partners. The chapter will argue that the MNCs under study required their subsidiaries to adopt EBP developed by headquarters; this mandate then generated a collective action in Morocco similar in some aspects to and different in others from the CSI.

The discussion will be framed by the concepts of institutional theory as discussed in Chapter 2. It will rely specifically on the work of Kostova and Zaheer (1999) and Kostova and Roth (2002) both on the institutional implications of the subsidiary-headquarters relationship, and on the interaction between the institutional environments of MNCs and those of their host countries. These scholars explain that MNCs play an especially important role in disseminating their best practices across borders when they impose the adoption of these practices on their subsidiaries. The scholars explain that, while subsidiaries strive to utilize headquarters organizational expertise and knowledge, they have to “become isomorphic with the local institutional context” (p. 2). The institutional pressure stemming from the mandate to adopt best practices can be at odds with a host country’s institutional environment, thus engendering an institutional tension. Striving to resolve this tension creates the potential for the MNC to influence the institutional environment of host countries. In this chapter, I will explore how cement companies’ quest for increased legitimacy and lower energy costs led them to develop strategies aimed at attenuating this tension in Morocco. In doing so, they were able to capitalize on their organizational knowledge and expertise with their subsidiaries and in many ways drive the country’s environmental agenda forward.

### **5-2 Transfer of EBP from the CSI and Corporations’ Headquarters**

Cement companies’ potential to disseminate EBP, by virtue of their global presence as well as their access to the resources necessary to carry out environmental upgrades was recognized before the launch of the Cement Sustainable Initiative (CSI) (Battelle Memorial Institute, 2002, p. 6; Holcim Sustainability Director, 2013). Given this fact, Battelle recommended cement companies collaborate with host country governments in order to develop pre-emptive public policies conducive to the adoption of sustainable development practices. The necessity for such policies stemmed from the fact that SD initiatives were likely to be hindered by laws forbidding practices such as the use of alternative fuels as sources of energy or the use of additives in cement making. To help cement companies navigate the different politico-economic

environments they operate in, Battelle offered guiding principles such as “communication with stakeholders, goal-setting, application of knowledge and tools, initiation of actions, evaluation of performance results, and redefinition of strategy and goals over time” (Battelle Memorial Institute, 2002, p. 23); these together with stakeholder input were meant to provide a framework for the iterative, continually improving progression towards sustainable development (Battelle Memorial Institute, 2002). In doing so, cement companies would prevent the institutional tension mentioned above and create a welcoming environment to their innovative practices.

Commitment to local engagement in order to achieve social and environmental stewardship in host countries is made explicit in the Working Group Cement’s (WGC’s) Agenda for Action by such statements as: “Only by earning the trust and respect of our stakeholders will we maintain our ‘license to operate’ in communities across the world” (Cement Sustainability Initiative, 2002, p. 7), and “in emerging markets ... cement plants are seen as signs of economic development, and while people have the same rights to a clean and healthy environment, dealing with social issues ... through local community engagement is key to meeting local expectations” (Cement Sustainability Initiative, 2002, p. 17).

Further, The CSI mission shared in the 2012 report included a commitment to implement sustainability practices across subsidiaries. In all its initiatives, the CSI worked with the existing institutional infrastructure, collaborated with relevant organizations, and sought the input of relevant stakeholders. In this way, CSI remained close to its global community and remained informed, and at times influenced the direction the sustainable agenda was taking.

As CSI members, the four cement companies studied are heavily involved in host countries’ sustainable development initiatives, and worked closely with the administration to set in place programs aimed at improving environmental regulation in the country. This is important because, while the voluntary, non-regulatory nature of the CSI is necessary to ensure its activities are centered on the market needs of the cement industry, the furthering of its agenda required the acquiescence and the full participation of other societal actors, including governmental agencies, in order to reconcile the standards and practices companies impose on their subsidiaries and the institutional environments in which these companies operate. In this way, the potential for institutional tensions, as described by Kostova and Roth (2002) is reduced and subsidiaries’ conformity to the set norms is made easier.

In addition to lobbying for the development of environmental and sustainable development policies, cement companies transfer state-of-the-art technology in order to fulfill their role efficaciously (Cement Sustainability Initiative, 2002; CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013; LAFARGE Communications Director, 2013, Italcementi Industrial Ecology Manager, 2013). For instance, the Italcementi representative shared the following regarding a newly established plant in the arid part of a host country:

We have in place a mechanism to recapture heat from the kiln and transform it to energy. Also given water scarcity in the region, instead of using water injections in the cooling process of energy generation, we use thermal fluids. This generates 1MGW of electricity from an oven that generates 5 tons of cement per day. This



may seem insignificant in the grand scheme of things, but it was an initial trial that will certainly be improved on and replicated elsewhere (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

The LAFARGE contact explained:

... sustainable development and public affairs departments team up and work very closely with countries on a number of environmental programs... obviously CO<sub>2</sub> emissions, but also alternative fuels, waste, biomass, biodiversity preservation, quarry rehabilitation, water, various pollutants, dust emissions, visual impact, and others. We have a network of managers in different countries who collaborate to advance these agendas (LAFARGE-Maroc Environmental Coordinator, 2013, translated by Elouardighi, S.).

In other words, these companies transfer their leadership attitudes across frontiers and strive to disseminate their sustainability values and instill them in the countries they operate in. Personal observations showed these companies' willingness to go to great lengths to set in place a program or a policy that would advance the environmental agenda of Morocco.

The four MNCs' interviewed described their management style as resting on global standards and local management. While European headquarters develop new objectives and set challenges, subsidiaries (and by extension, the individual plants) develop strategies to implement these practices and meet these challenges based on their knowledge of local cultures and practices. As the CimPor representative explains:

... we work with the structure. We develop goals and objectives, but it is subsidiaries who develop implementation programs based on their business environment (CimPor Sustainable Development Director, 2013, translated by Elouardighi, S.).

The Holcim representative agrees by saying:

... our company's model is quite clearly local management that is why you have local companies and you let them manage those companies locally because they know. They have the relationships. They have the market. They know the people. They know how to treat the people and what the local work conditions are; so local management but with global standards (Holcim Sustainability Director, 2013).

Two types of mandates emanate from headquarters, non-negotiable directives, which all subsidiaries are expected to follow and which guarantee the company preserves its set performance; and recommendations, which subsidiaries are free to follow or reject. The Holcim representative explains:

... so we set in place very early a global policy landscape and the way we work is to allow subsidiaries the freedom to move. So anything that is policy or a directive is a non-negotiable, in that it has to be done no matter where in the world you are.

Other things, less important but that we would like to have done become recommendations or guidance. Quite often we will issue a directive, which will be accompanied with a recommendation and guidance on how to implement (Holcim Sustainability Director, 2013).

The LAFARGE representative corroborates by saying:

... obviously in many countries where we operate, you've got legislations, you've regulations, but our attitude is that we have our own internal standards as well, and we apply those across the board, whichever country we are in... We develop group wise standards, and we make sure they are adopted by subsidiaries... However, we don't tell them what to do... they develop their own programs that they roll out locally (LAFARGE Communications, 2013).

The Italcementi representative agrees by saying:

The group's priorities are very clear and are communicated very clearly. The subsidiaries develop their own objectives so long as these don't conflict with the ones set by the group. They can for instance decide when to start which program and at which plant, but this is the extent of their freedom of action regarding the group's priorities. There is some wiggle room in case there are budgetary concerns requiring the delay of implementation of environmental programs, but these instances are thoroughly examined by headquarters and are few and far in between (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

Recommendations are country specific and are signed off on and approved by host governments. One such recommendation was the marketing of a greener type of cement, which contains less clinker and more additives. After host government's approval, standardizing organizations were invited to consider the new quality norm and approve the product. National and local government together with the local trade associations then organized workshops to inform stakeholders of the advantages of this particular brand of cement. This ensured companies preserved their market share (CimPor Sustainable Development Director, 2013). Subsidiaries' environmental performances vary because they are based on their adoption of these recommendations, which for the most part are suggestions of how to implement various directives (CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013; Italcementi Industrial Ecology Manager, 2013; LAFARGE Communications Communications, 2013). When a directive is shared with subsidiaries, it is accompanied with implementation steps and a timeline. Then various mechanisms are developed to monitor its application. For instance, a member of headquarters will conduct site visits to individual plants in host countries, or monthly and yearly reporting will include a new indicator to reflect the degree of implementation. As will be seen in Chapter 6, audits are conducted regularly, and they represent an opportunity to identify additional opportunities for improvement, and to explore the accuracy and the integrity of data collected.

Contact with a host country government is made through the subsidiaries' structure and through individual plants. The subsidiary CEO, environmental coordinators, and plant managers develop necessary relationships with governmental and other stakeholders such as market partners and neighboring communities. In some instances, cement trade associations mediate corporation-government interaction. This is the case of Morocco, where the Cement Professional Association (Association professionnelle des Cimentiers or APC) is the main governmental interface of cement companies.

The following section describes the role the APC plays in facilitating cement industry's environmental agenda in Morocco. The section will first describe the events leading up to the cement industry's current environmental performance. It will provide general results relating to the sector and then share results specific to the four MNCs under study.

### **5-3 Environmental Responsibility at Moroccan Cement Companies**

This section will review the evolution of the Moroccan cement industry from a government owned and managed industry to a group of corporations that are privately owned, mainly by MNCs. In so doing, this section will elucidate the role MNCs and the CSI played in influencing the environmental initiatives taken by cement subsidiaries.

As explained in chapter one, the APC was established in 1982 in order to assist public authorities govern the sector efficiently, create harmony between the various players, and identify synergistic opportunities between various companies (APC Director Delegate, 2013, APC, 2009). Even though cement companies were government owned at the time, they were distinct from one another and did not interact. The APC provided a platform for interaction, served as the industry's official interface with various stakeholders, and strived to improve the industry's positioning in the market. One of its most critical contributions was pooling procurement, especially of coal, which was then the established raw material for energy generation (APC Director Delegate, 2013).

The privatization movement of the 1990s, prompted by the International Monetary Fund, and characterized by the entry of European MNCs, coincided with the establishment of a standalone ministry of the environment (MdE) (Ciment du Maroc Director of Human Resources, 2013; APC Director Delegate, History of APC and its Environmental Agenda, 2011; APC Director Delegate, 2013; Regulations Division Director MdE, 2013). At this time, the cement industry was under scrutiny from various stakeholders. As a result of urban sprawl, cement companies, which used to be isolated in the countryside miles away from inhabited regions, found themselves in the middle of villages and small towns. This was especially the case of the Agadir and the Meknes plants. Others were close to roads leading to major tourist destinations, like the Marrakech plant located just outside of the city on the way to Agadir, both big tourist destinations. Consequently, public interest groups, the ministry of health, cities' local governments, and the media all pointed the finger at the industry's polluting activities and pressured industry to act in favor of the populations' wellbeing (APC Director Delegate, History of APC and its Environmental Agenda, 2011; APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Monitoring Division Director MdE, 2013; Outreach

Division Director MdE, 2013; Ciment du Maroc GD, 2013; LAFARGE-Maroc Environmental Coordinator, 2013; Holcim Sustainable Development Director & CSR Coordinator, 2013).

After privatization, cement companies were bought by MNCs, which were signatories of the Rio 1992 Convention. These MNCs had a public image to preserve and had made a commitment to being good neighbors and to adopting good environmental practices; consequently, they could not remain deaf to the appeals of Moroccan subsidiaries' stakeholders. Several plants were relocated while others underwent thorough upgrades. These changes were not done in isolation, but in coordination with local authorities. In fact, and in an effort to develop a good working relationship with the newly formed MdE, the APC took the initiative of reaching out to the ministry and of suggesting that cement companies "reflect" on their activities and explore ways in which they could reduce their negative environmental impact. This reflection period resulted in the cement companies making a set of commitments to develop processes and procedures aimed at reducing the negative impact their activities have on the environment. These commitments took the form of a series of memoranda of understanding (MOU) signed with the MdE, and of the active involvement of the APC in the development of environmental regulation (APC Director Delegate, 2011; APC Director Delegate, 2013).

Through these MOUs, the APC members committed to integrating environmental components into plants' and quarries' management systems. They agreed to perform concrete actions towards regulatory monitoring, pollution and nuisance prevention, raising the awareness of the importance of environmental stewardship, and capacity building and conducting various environmental studies related to pollution reduction and promoting the preservation of natural resources. APC members also committed to assisting small and medium size enterprises through mentoring and capacity building in complying with regulatory texts and conforming with environmental quality standards, putting in place a structure for waste reuse and developing sub-sectors for the ecological elimination of various types of waste, and finally to disseminating their findings and results (Framework MOU 1997, PE).

The first MOU signed between the APC and the MdE dated back to 1995 and was centered on the reduction of air emissions through the optimization of production processes and the reduction of raw materials and energy consumption. In June 1997, the two parties signed a comprehensive and far-reaching framework MOU in which APC members committed to upgrading their facilities, putting in place engineering controls aimed at effectively reducing emissions, and adopting integrated managerial approaches to air, water, and soil protection with a six year timeframe to meet the limits agreed on. They also developed various programs to assist the MdE and other governmental agencies in developing public policies aimed at operationalizing the national strategy for environmental protection and sustainable development. For this later point, APC's contribution took the form of providing capacity building to governmental officials and sponsoring various studies. In the absence of Moroccan regulation, the APC and MdE used European emission limits as a reference (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Regulations Division Director MdE, 2013).

Independent audits performed in 2003 showed the cement sector had exceeded the mandates of the 1997 convention, and was well positioned to provide needed support in

advancing the sustainable development agenda (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; APC, 2009; Ciment du Maroc GD, 2013; Outreach Division Director MdE, 2013; SBA Sustainable Business Associates). This prompted the MdE to engage in additional agreements and conventions, which included an agreement allowing cement companies to reuse tires and other waste as alternative fuels, and a year later, this agreement also included used oils. In 2004 the Cement Industry Environmental Charter was signed, which consisted of a set of commitments made by the subsidiaries of the four multinationals in this study, and which included the:

- Integration of environmental protection in all levels of decision-making through the implementation of environmental management systems,
- Proactive participation in the development of environmental regulations and standards,
- Commitment to complying with set regulations and standards, utilization of the best available and economically feasible technologies allowing a better environmental performance,
- Reduction of the consumption of natural resources through reuse of waste,
- Collaboration with the MdE to develop the know-how and expertise necessary in the fields of waste reuse and recycling,
- Dissemination of best practices to other relevant companies and governmental officials.

Investments in necessary environmental upgrades made between 1997 and 2008 cost cement companies 1 billion DH/\$100,000,000. In addition 10-15% of routine plant upgrade investments after this period went to environmental controls (APC Director Delegate, History of APC and its Environmental Agenda, 2011; APC Director Delegate, Overview of the Environmental Activities of the APC, 2013). Following 2008, APC members focused on co-processing household waste, using wind-energy, quarry rehabilitation, and dust reduction (Overview of the Environmental Activities of the APC, 2013)

At the end of 2003, two independent consultants were hired to measure the impacts of the initiatives taken by cement companies. They updated their results in 2006, and then in 2009. These results confirmed the cement companies' success in reducing their environmental impacts while increasing production; these firms positioned themselves as suppliers of environmental services because they had to develop the expertise and know-how necessary for improving their own performance. Study results also showed the Moroccan cement sector processed more waste than it generated (APC, 2006). From 2006 cement companies processed more solid waste than they produced. In addition, this study evaluated the economic implications of environmental degradation in order to develop a tool to help decision-makers structure and orient a given sector's strategic choices regarding environmental opportunities and constraints at the socio-economic, national, and international levels (SBA Sustainable Business Associates).

In July 2008, the APC and MdE signed a new framework convention, in order to capitalize on and broaden the accomplishments of the agreements signed between 1997 and 2005. This new convention furthered the two parties' pledge to promote the adoption of

environmental best practices in the country. The two entities committed to orchestrating their efforts in the following areas:

- Reusing waste tires and used oils for energy generation,
- Rehabilitating quarries,
- Developing and implementing various environmental, protection programs sponsored by the APC,
- Upgrading rural schools, and
- Collecting and eliminating plastic bags.

The benefit to the cement industry from this later convention resided in the savings to be made through using waste tires and used oils to generate energy, while the benefit to public authorities resided in being rid of accumulated waste. In 2008, the APC also made a donation of 5 million MDH/\$500,000,000 to the MdE in order to help support the environmental protection and capacity building programs developed by the ministry.

When asked about the reason why cement companies went to such lengths to help establish an institutional infrastructure for their environmental initiatives, the APC chairman explained:

Cement companies wanted to have a better public image and to be a good neighbor, so the upgrades took place ... after the environmental challenges were under control, we had to tackle transport issues, and thus we moved on to upgrading roads, and enforcing maximum loads allowable by transporters. The norms developed were then adopted by the ministry of transportation and included in driving manuals, trainings, etc. In order to ensure drivers' compliance, cement companies had to reimburse drivers the difference between the allowable load and the amount they used to transport. This cost cement companies 60 million MDH/\$6 billion (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013, translated by Elouardighi, S.).

And so cement companies in Morocco accepted the expansion of their role from being profit making and maximizing entities to providers of public services traditionally offered by the government and financed by taxpayer money. While they benefited economically from these agreements, especially from co-processing, their commitment to acquire a better public image exceeded the direct economic benefits to be reaped from their activities, as discussed below.

Results from the partnership between cement companies and the MdE encouraged the latter to further suggest two conventions to the sector in 2008, thus bolstering the public private partnership. These additional conventions centered on waste reduction and reuse as an alternative fuel. Studies conducted by the APC revealed the presence of as much as 260,000 tons of dangerous industrial waste, the majority of which had no calorific value, and hence was of no energetic use in cement kilns. The cement companies accepted the challenge of exploring ways other than incineration, to process this waste (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; APC, 2006; Outreach Division Director MdE, 2013).

The relationship between the cement sector and the MdE was abruptly interrupted in 2011 when a new government and thus a new minister of the environment were elected. Just as the studies were completed, and the operationalization stage was about to commence, the new ministerial leadership decided to reduce the reach of the agreement and to focus only on reusing used tires, used oils, and waste water. Without governmental endorsement, and the setting of appropriate policies, the sector could not tackle the waste problem on its own. The sector then focused on developing the three subsectors mentioned above (APC Director Delegate, History of APC and its Environmental Agenda, 2011; APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Regulations Division Director MdE, 2013; Ciment du Maroc GD, 2013; LAFARGE-Maroc Environmental Coordinator, 2013; Outreach Division Director MdE, 2013).

During this process, the APC's environmental chair, who used to be secretary general at the ministry of the environment, negotiated the terms of these agreements with the government on behalf of members. The APC's environmental commission, which consisted of environmental coordinators of member companies, met monthly, and relayed progress and needs to their headquarters. The later responded as needed. Communication flowed in both directions, as Moroccan subsidiaries were preparing the institutional environment necessary for adopting the practices being developed in Europe.

Therefore, when government traditionally enacted laws based on public needs, forcing corporations to innovate in order to remain profitable while in compliance with relevant regulations, cement companies turned the table on the government: they developed norms and practices based on their market needs and then lobbied the government to enact the needed policies, suggesting a shift of the locus of power away from the ministry. During a recent conversation with an official of the department of cooperation at MdE, this experience was cited as being successful and as having influenced the process through which the ministry developed limits and performance standards. This official explained that representatives of various industries are invited to follow the same process of benchmark development in order to determine the possible limits, given their technological capabilities, and those limits are set according to the technological capabilities. She further explained this to be even more necessary since the presence of the environmental legislation presented in Chapter 1 does not imply enforcement (Outreach Division Director MdE, 2013). In fact, these laws are seldom enforced because finding a level of enforcement that would not halt economic activity has not been a straightforward process. The head of the monitoring division of the MdE explained:

... our current efforts to enforce environmental legislations ended up in social unrest and chaos. For instance, if we ask a polluting firm to pay a fine as a penalty for non-compliance, the firm closes down and lays off employees, who then protest in the public space. We find ourselves facing the more immediate problem of keeping the peace, and so the fine is withdrawn, and the company resumes its activities as usual (Monitoring Division Director MdE, 2013, translated by Elouardighi, S.).

Industrial actors, on the other hand, are concerned that laws passed are not appropriate for the technological and economic realities of the country. For this reason the cement subsidiaries through the APC, continue to be active participants in the development of these limits and standards (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Holcim Sustainable Development Director and CSR Coordinator, 2013; LAFARGE-Maroc Environmental Coordinator, 2013; Outreach Division Director MdE, 2013). In having this role, the APC is able to protect its members from unrealistic expectations. The APC chairman explains:

There is quite a bit of ambiguity regarding standards setting, and we do our best to protect companies who lack necessary equipment to have the same performance as others. Of course, if you come today and say you should cut your performance in half, companies will find themselves stuck. So this gave the MdE a bone to chew on. It had to learn, to do benchmarking studies, to speed up the regulation development process. We are in contact with the MdE and give input on laws in development. For instance we are reviewing a decree on co-incineration, to determine which products will be eliminated, since in the future, there will be other ways to eliminate waste than kilns. The sector is helping the MdE better determine what is possible and what isn't (APC Director Delegate, History of APC and its Environmental Agenda, 2011; APC Director Delegate, Overview of the Environmental Activities of the APC, 2013, translated by Elouardighi, S.).

The chair of the APC's environmental commission, who is also the environmental coordinator of Holcim-Morocco explains:

... the MdE is in the process of figuring out which process to follow in developing environmental standards, which stance to take in regards to environmental stewardship and industry, and where to start ... because we are part of world class MNCs, we are able to tap into a reservoir of knowledge and expertise. Thanks to experience sharing among subsidiaries, we learn the processes through which partnerships with public institutions are made in other parts of the world, and so we establish similarly collaborative relationships instead of power based ones (Holcim Sustainable Development Director and CSR Coordinator, 2013, translated by Elouardighi, S.).

Currently, the MdE takes input from representatives of various sectors when developing laws and regulations, especially when setting limits and standards, and takes into account their knowledge of the reality of the markets and technological capabilities. The APC chairman explains:

The government TODAY knows how to manage things, what needs to be put in place, etc. But we remain very close and remain proactive in the process of agenda setting ... For instance the polluter pays principle is something that we are demanding vehemently. We are polluters, it is true, but we need this regulation in order to be able to help the country forward with its environmental agenda, and perhaps reap unforeseen benefits in the future ... we have good relations with the



government, and we try to collaborate as much as possible with relevant entities (APC Director Delegate, History of APC and its Environmental Agenda, 2011, translated by Elouardighi, S.).

This collaborative relationship however does not preclude the MdE from performing its regulatory duties; indeed, it monitors closely cement companies' performance, reviews and comments on their quarterly and yearly reports, and addresses non-conformances appropriately (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Outreach Division Director MdE, 2013). Corporations organize and self-regulate under the auspices of the MdE. This not only benefited the cement industry greatly, but it also rendered a big service to the government and the public at large as described below.

#### **5-4 Cement Sector's Environmental Performance**

The cement sector is no longer linked to the environmental issues mentioned above. In fact, its reputation in the last two decades changed from that of a polluter to that of a de-polluter because companies process more waste than they generate. The APC chairman said: "we manage very well our operations now, and we control our emissions better" (APC 2011, translated by Elouardighi, S.). He also explained that cement companies' performance could exceed by far the expectations of the state, in the presence of even more favorable policies. He said:

... had we signed the 2011 agreement, we would now be processing 150,000 tons of dangerous industrial waste. It is sad that we did not go that far. Especially that today, no one is responsible for dangerous waste once it leaves the emitting firm. Contractors are paid to dispose of it a certain way, but because waste is not being traced, there are no guarantees ... there were many cases where some contractors were caught disposing of the waste in the middle of forests or simply in the ocean. We conducted a study in which we determined who does what and where and who emits what and where. The results are appalling. One can just follow trucks when they leave a property ... so we are at the heart of this problem and we are ready to contribute as much as possible, but we need the acquiescence and the support of the government (APC Director Delegate, History of APC and its Environmental Agenda, 2011).

The cement sector seems inhibited by governmental proceedings. If we examine the waste problematic as an example, we find cement companies willing to make the private investments necessary to set in place the infrastructure necessary for conditioning and processing various kinds of waste, thus reducing the magnitude of the problem. Supportive policy is required to determine the ownership of the industrial and household waste in question because once waste is picked up from the generating facility by municipal services, it becomes the property of the state, so its transformation requires proper permitting. Cement companies need the power and legitimacy to access and utilize this waste, while securing a return on investment. The Director General of CdM explains:

While cement companies are able to carry out some programs on their own, others require the collaboration of governmental agencies as the investments

required necessitate a return on investment that can only be guaranteed through supportive policy. Such is the case of wastes processing. The cement industry stands ready technologically and financially to reduce the sharpness of the waste problem in Morocco; however, without governmental commitment to co-developing waste management processes with the cement sector to facilitate its use, we would not be able to do so. This is unfortunate as reusing waste would resolve the waste problem in the country and reduce our reliance on fossil fuels (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

The energy intensive nature of cement manufacturing is such that companies dedicate a big part of their R&D budget to finding alternative fuels. Cement companies have indeed the capacity to explore and set up symbiotic relationships with other industries, and transform their wastes into raw materials. For instance, Holcim set-up Ecoval, a waste-processing platform considered the biggest in Africa. Ecoval buys waste directly from industrial actors and conditions it as needed to fit Holcim's needs. While this is a commercial relationship between private actors, the government still imposed on Ecoval to accept all requests for waste processing, even if this waste has no calorific value. Setting up such relationships with landfills is however hindered by the lack of supportive policy. When APC initiated an agreement with landfill managers to set-up industrial units capable of processing up to 75% of landfill waste, they were hindered by waste management policies, which only allow the processing of 20% of landfill waste (APC Director Delegate, Overview of the Environmental Activities of the APC, 2013; Ciment du Maroc GD, 2013; Outreach Division Director MdE, 2013). In response to this, CdM is experimenting with conditioned waste imported from Italy where its company is headquartered. Instead of capitalizing on the opportunity to utilize its knowledge and expertise in resolving one of the country's major environmental challenges i.e, to reduce the company's consumption of fossil fuels and to develop a new industrial subsector focused on waste processing while reducing its operation cost. This company was forced to explore importing processed waste from Europe. When an official of the MdE was asked about this, he explained that new policies take time to develop (Regulations Division Director MdE, 2013; Outreach Division Director MdE, 2013). This documents well access to European expertise, know-how, and financial resources and puts cement subsidiaries light years ahead of national government, and exasperates the institutional tension discussed by Kostova and Roth (2002). This also shows how cement companies, while pursuing strategies that advance their profit ambitions, are leading the way through the APC to environmental policy development in Morocco.

To further elucidate the mechanism through which EBP are transferred to Moroccan subsidiaries, the following section will offer an examination of individual plants.

### **5-5 Transfer of EBP from the Perspective of Ciment du Maroc**

As explained in Chapter 1, Ciment du Maroc is a subsidiary of Ciment Français, which is in turn owned and managed by Italcementi, a member of CSI's Working Group Cement (WGC), the OECD Development Assistance Committee or DAC, and a signatory to various UN conventions. By virtue of this relationship, CdM conforms to the same international environmental norms and standards to which Italcementi conforms. It implements various

environmental programs, undergoes regular performance audits in different areas, and reports on them regularly.

CdM has a board of directors, presided over by the CEO, and two director delegates, one responsible for cement and the other for materials. The board of directors consists of the directors of the main functions of the company. The technical directorate includes the Department for Environmental Protection, which oversees the performance of all plants. Relationships between the Environmental coordinator and individual plants are strong and friendly. There are regular meetings, interactions, reporting, etc. Quarries management and safety fall under the responsibility of the delegate responsible for cement. Plants also have a director and a manager responsible for security.

From the perspective of CdM, Moroccan cement companies spearheaded the corporate environmental stewardship initiative in the country because they are subsidiaries to conscientious MNC. The director of human resources explains:

One thing to keep in mind is the central role cement has played in introducing the initiative of corporate environmental responsibility in Morocco. We were aided by MNC. Environmental protection now is part of the sector's culture since we were the first to become aware of it ... and we are proud of our contribution! (Ciment du Maroc Director of Human Resources, 2013, translated by Elouardighi, S.).

The head of communications further explains:

The main contribution of cement companies to corporate environmental stewardship in Morocco is the fact that they didn't wait for regulations in order to do their part. They developed programs, upgraded their plants, etc. They followed European norms and respected their limits. Being part of a MNC, which puts in place a canvas that is applied in headquarters as well as in all other subsidiaries was key to our current performance. I am pretty sure it is the fact that we are part of a MNC with high expectations/requirements, which enabled us to be where we are now. The MdE recognizes this achievement, and we were in many ways the precursors of corporate environmental responsibility in Morocco (Ciment du Maroc Responsible for Communication, 2013, translated by Elouardighi, S.).

When asked about why and how cement companies took such an initiative with so much commitment and leadership, the director of purchasing explained:

Cement is a capitalistic industry needing the continued acquiescence of its stakeholders. In the case of the four MNCs present in Morocco, stakeholders regard the environmental question as paramount, which helps companies' environmental programs in a variety of ways. These companies pulled subsidiaries upward. And then there is the idea that increased productivity impacts people's health and so one starts thinking about how one can mitigate

negative impacts and transition toward a clean industry (Ciment du Maroc Director of Purchasing, 2013, translated by Elouardighi, S.).

The head of marketing concurred by saying:

The European cement companies in Morocco are leaders in the industry. They have state-of-the-art technologies, and have developed a know-how to be reckoned with. These companies invest heavily in Morocco and share their knowledge with subsidiaries ... The European headquarters are before anything else a source of knowledge. Also their governance style is participatory and conducive to continual improvements. We collaborate intimately with one another; and communicate on an as needed basis on all levels, technical, financial, or other. It is a case of daily collaboration, this in addition to official reporting and regularly held meetings. Contact is permanent (Ciment du Maroc Director of Marketing, 2013, translated by Elouardighi, S.).

The latter emphasizes his point by saying:

Commitment of higher management to environmental excellence is clear and non-negotiable. When the Moroccan government emphasizes a given environmental indicator, headquarters emphasizes it ten fold. So it is a matter of higher management commitment and attitude, the availability of know-how, access to investments for necessary up-grades, etc. (Ciment du Maroc Director of Marketing, 2013, translated by Elouardighi, S.).

The headquarters commitment to environmental responsibility, which manifests in Morocco in the form of non-negotiable directives, knowledge sharing, and investments in necessary upgrades, was then essential to entice subsidiaries to have a similar attitude towards environmental responsibility. This commitment also meant that cement companies became the driving force behind corporate environmental responsibility agenda in Morocco.

Various departments play key roles in sustaining CdM's environmental performance. Purchasing, for instance, which is centralized in Casablanca, reflects the parameters and policies set by its Italian counterpart. These parameters and policies are then integrated in the firm's overall strategy. The headquarters develop the grand lines of global purchasing and then shares these with CdM explaining how they are relevant to Morocco. CdM uses these to develop its purchasing policies that are then shared with suppliers and service providers (Ciment du Maroc Director of Purchasing, 2013; Ciment du Maroc Purchasing Manager, 2013). A staff member responsible for operational support follows up, analyzes, and reports on suppliers' performance indicators to the Italian counterparts (Ciment du Maroc Purchasing Manager, 2013). These policies clearly show how approval criteria include environmental and safety parameters (through purchasing policy).

To ensure all purchasing is done in a transparent way and to facilitate document management, Italcementi developed a purchasing software called Bravosolution-easy-supply, which is used in all subsidiaries. This software archives every purchasing activity of the

corporation, and limits operators' ability to interfere with the purchasing process. It separates technical and commercial files of suppliers. Operators with permission to access one type of file, do not have permission to access the other. The department making the purchasing request receives the technical specifications offered by each supplier and approves and ranks them based on their technical criteria. It is only when this is done that the purchasing operator is able to open the commercial profiles of approved suppliers. In selecting its suppliers, CdM sets up an electronic questionnaire that suppliers are invited to answer. The questionnaires assess various levels of environmental, social, technical, and commercial performance. Suppliers' inclusion in the CdM database is determined based on their answers. These suppliers are then evaluated after service provision based on these same criteria. If performance is deemed below the set threshold, then the supplier is erased from the database.

Environmental criteria rank very highly in this assessment. At a minimum, CdM requires suppliers to have an operationalized environmental policy, and while ISO 14001 is not required, it is considered a plus. Also, when suppliers are on the CdM premises, they are expected to respect the company's environmental standards. When a representative of the company visits a supplier to inspect the advancement of a project being carried out, he or she uses the opportunity to audit the supplier's environmental and safety measures. Finally, fraud is not tolerated at the company. When there is evidence of fraud, CdM terminates the contract and asks for compensation for the harm done. Monthly summaries of suppliers' performance indicators are reviewed and are used to identify the best companies on the market. These suppliers are given preferential treatment as CdM seeks to do business with the best ranking actors in all areas.

To ensure departmental buy-in, Italcementi included environmental criteria in managers' annual performance review, which determines the size of their annual bonus. Maximizing such a performance necessitates collaborating with individuals who supply the best product or service from an environmental perspective; this collaboration enhances the impact of purchasing policies. Constant contact with headquarters helps hone these principles and keeps contributors informed of state-of-the-art expertise and know-how (Ciment du Maroc Purchasing Manager, 2013). The purchasing procedures reflect these statements.

The Communications Department CdM is essential to disseminating general environmental communication to various departments and plants. General environmental communication includes changes to the environmental policy or the development of a new environmental standard. The technical environmental specifications are communicated directly to the Technical directorate, which hosts the department of environmental protection. The Communications Department collaborates with the Department of Environmental Protection in extrapolating the core elements of the headquarters' new policies or standards, and in developing a CdM equivalent document, which is validated by the headquarters before being sent out. Plants then communicate their needs in terms of equipment or expertise to be able to meet the new requirement to the Communications Department, which then compiles these in a letter that is addressed to Italcementi's president. Another way in which the Communication's Department supports environmental stewardship is through newsletters and other company wide announcements. The head of the Communication's Department explains:

For instance, the sustainable development policies were completely redone 2 years ago. So we had the general sustainable development policy, from which were extrapolated the daughter policies. These were disseminated to the individual plants gradually. So we have one on energy, one on quality, one on human rights... there were seven policies all together. However, we don't deal with technical directive such as for example reduce CO<sub>2</sub> emissions by X% ... when we deal with policies, we translate them, disseminate them to our entire workforce, we make sure they are displayed in key places so that employees can see them regularly ... We support the plants with all our communication tools (Ciment du Maroc Responsible for Communication, 2013, translated by Elouardighi, S.).

The Communications' Department interacts frequently with the headquarters, sometimes several times a day because the department is involved not only in the dissemination, but also in the implementation of various directives. This close collaboration allows the CdM departments to benefit from the tools and knowhow available at the headquarters. Communications campaigns and profiles are done in conjunction with the headquarters who provides necessary coaching, and validates the final communication plan. The Head of Communications corroborates this by saying: "We collaborate closely with the European headquarters as we have to duplicate all that is done at a central level here. The environmental coordinator at the subsidiary's headquarters' level is responsible for following up with the plants to ensure the yearly plan is followed" (Ciment du Maroc Responsible for Communications, 2013). Communication with the plants is done on an as needed basis. Still, the department supports environmental performance with posters, placards and flyers, and helps them prepare yearly reports, which are sent to headquarters to be included in Italcementi's yearly performance report. When completed, the report is shared across plants through the communications' department.

Other departments support environmental stewardship in various ways, though not as explicitly as purchasing and communications. The head of Human Resources explains: "The environmental question is so old in our culture that we don't think about it anymore. It is everywhere, present in all aspects. Cement industry is very heavy, with huge environmental aspect, and so we are very careful" (Ciment du Maroc Director of Human Resources, 2013). HR is responsible both for hiring and training employees. While individual plants determine training needs, HR is responsible for developing and implementing training plans. The shipping department enforces safe driving procedures and load limits, both of which were developed with environmental protection in mind. Neighboring villages are also taken into consideration for most activities and their prosperity is encouraged and supported. In the absence of a market of virtue<sup>2</sup> in Morocco, Marketing is not part of CdM's environmental program. Therefore, environmental concerns are embedded in all plant operations, and its consideration is ensured by various mechanisms such as the one described by the purchasing director.

This section of Chapter 5 focused on the actions of a subsidiary. The following section provides a perspective from the plant level. Even though each plant manager and environmental coordinator was interviewed, the information provided was similar. Therefore, in order to avoid

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<sup>2</sup> Market for virtue is one that promotes "the practice of corporate social responsibility or business virtue" (Vogel, 2005, p. 3).

redundancy, all of these results will be discussed together; with only the differences being highlighted.

## **5-6 Knowledge Transfer from the perspective of individual plants**

### **5-6-1 Environmental Stewardship within Ciment du Maroc Plants**

CdM has three cement plants, all located in the south of Morocco (in Marrakech, Safi, and Agadir). All plants are ISO 14001 certified by a directive of Italcementi. The Agadir plant was the first to seek certification, followed by the Safi plant, and finally the Marrakech plant. Implementation of the Environmental Management System (EMS) started with staff awareness campaigns and training, which included theoretical knowledge and practical applications. All plants have in place a designated staff member who is responsible for environmental management. This staff member collaborates with various departments to ensure implementation of procedures, monitors performance, and ensures continual improvement. This staff-member is also the point of contact of CdM's environmental coordinator and, together with the plant manager, is responsible for plant's environmental performance. While plants manage their environmental programs independently, CdM's environmental coordinator follows-up on plant performance, gives input when necessary, and participates in a plant's yearly managerial review.

Plant managers assert that ISO 14001 offers a good framework for operationalizing environmental policies, commitments, and ambitions. Plants' environmental policies are based on CdM's general environmental policy, which in turn is based on Italcementi's umbrella policy. The Manager of the Marrakech plant explains:

Headquarters is the leader of all these initiatives. It is their environmental policy that is applied at the plant level. We receive the main areas of action and the limits not to be exceeded, which are much more stringent than those set by Moroccan regulation (Ciment du Maroc D. O., 2013, translated by Elouardighi, S.).

Procedures are of two kinds; general ones common to all plants and developed by the CdM environmental coordinator (such as management review, internal audits, and documentation management) and others, which are operational in nature and specific to individual plants (such as equipment calibration). Staff members responsible for the task in question participate in the development of the procedures, which ensures employee buy-in and the rapid implementation of procedure in question and facilitates training. Plants have an environmental procedure for each activity; this procedure includes performance indicators and explicitly states the roles and responsibilities of each individual.

Plants' performance is framed by group-wide standards, such as compliance with regulation, APC conventions with the MdE, and Italcementi norms, which are more stringent than both regulation and APC conventions. The CdM environmental coordinator sends monthly, quarterly, or yearly notices to all plants. In general, all subsidiaries follow the group's standards unless local regulation is more stringent in which case plants follow this instead (Ciment du

Maroc Technical Director, 2013; Ciment du Maroc D. O., 2013; Ciment du Maroc A. P., 2013; Ciment du Maroc D. S., 2013).

When a new performance standard is adopted, plants are given a grace period during which they put in place the necessary operational and managerial processes to meet the new norm. The Marrakech plant's environmental manager explains:

We usually have a pre-standard adoption phase, and then standard adoption phase. We have a grace period during which we are required to make necessary investment to bring our performance on a given indicator to the desired norm. For instance, for dust, the limits of the pre-standards is of 60mg/m<sup>3</sup>, the limit of the standard is of 30mg/m<sup>3</sup>, and that of the convention is of a 100mg/m<sup>3</sup>. For CO<sub>2</sub>, the convention's limit is set at 500, and we are required in the pre-standard phase to be at 400, and at the standard phase, at less than 200. With our process, we are at 100. In fact we assume it is so ... our levels are lower than what the equipment is able to read (Ciment du Maroc M. P., 2013, translated by Elouardighi, S.).

When a new standard is adopted, plants are audited four times within a year to ensure that emissions remain much lower than the new limits set, after which point the frequency of audits is adjusted (Ciment du Maroc M. P., 2013).

While plants adopt similar management systems, their performance varies based on the aspects identified and the particular conditions of individual plants. Performance, however, always remains in compliance with regulation and in conformance with headquarters' standards. Plants lower emissions limits each year and put in place strategies allowing them to continually improve environmental performance. Data are collected throughout the year to ensure the impact is controlled and the limits are respected. When a performance gap is identified, corrective actions are put in place and relevant staff members follow up with its implementation and results. Procedures are adjusted based on performance and progress towards goals.

As part of ISO 14001 certification, plants perform an impact evaluation, which identifies, assesses, and ranks all potential impacts of plant activities along the entire value chain. This analysis serves as the basis for developing plants' goals and objectives and the action plans that correspond to them. These plans are developed for a period of three years and are updated every January. The action plan contains all relevant indicators, timeframes, related costs, and necessary investments. Throughout the year, internal audits, regular assessment meetings, and functional and environmental analyses take place in order to ensure attainment of the desired results. Trained staff-members conduct internal audits, which assess the extent to which developed procedures are applied, and the results of their implementation. Audits are performed according to a pre-established audit schedule and a pre-determined audit checklist. Non-conformances prompt corrective actions as well as targeted and general refresher trainings. Following these audits, relevant personnel meet to evaluate results, identify delays, determine root causes of non-conformance and develop next steps. The outcome of this process is included in the yearly management review, required by ISO 14001. In addition to the yearly review, plants also undergo a yearly ISO external audit.



Italcementi has a global environmental control system, in which emissions, especially to air, are recorded daily. Frequency of reporting depends on the entity being reported to. For instance, reporting on compliance with regulation is done monthly, while reporting on conformance with headquarters' norms is both monthly, quarterly via intranet, and yearly through a formal report destined to CdM's environmental coordinator. For the monthly monitoring, firms share numbers reflecting their performance using the limits / indicators set, and then determine the state of plant conformance. When emissions, especially of dust, CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> exceed the set limits, firms report on the amount by which the limits had been exceeded and the duration of this excess.

The quarterly report has two sections, a quantitative one summarizing plant numbers, and a qualitative one listing the plant's environmental actions and its relationship with stakeholders, among other things. Examples of the things reported on are as follows: a plant could have hosted 25 students; it could have incinerated 10 tons of plastic bags, or 20 staff-members could have collected trash from a public space. The numerical section of the quarterly report lists emissions levels per tones of clinker produced. In the event of a performance gap, plants are immediately asked to justify the gap.

The yearly reporting is, according to the Marrakech plant manager, destined to the WBCSD, and includes performance on all indicators such as energy consumption, CO<sub>2</sub> emissions, and production per sector, plant, and country. This information is also used to rank the performance of various plants (Ciment du Maroc D.O., 2013). Then all these details are re-submitted to headquarters yearly for global consolidation and inclusion in the global report.

Plants also develop relationships with local governments and NGOs, and they carry out, with these actors, various environmental or social actions. For instance the Agadir plant collaborated with the local government to plant 14,000 Argan trees. Also, while the Agadir plant was relocated to the province of Ait Baha, it acquired a surface of 410 hectares, 100 of which is occupied by the plant; the remaining surface constitutes a buffer zone separating the plant from potential villages. The trees removed from the area where the plant was installed, were then replanted in this buffer zone. Another example of plant involvement in community life is the "clean beaches program" which runs throughout summer months. The Ait Baha plant participates, especially in sensitization campaigns. Collaboration with local government is especially important in carrying out the goals and objectives of Italcementi as these relate to reducing reliance on fossil fuels and increasing waste reuse and wind energy. Indeed, the Agadir plant partnered with the ministry of interior to implement a plastic bag collection program. These bags, which constitute a major environmental and aesthetic problem in the country, were collected and incinerated in kilns (Ciment du Maroc A. P., 2013) (Regulations Division Director MdE, 2013). Used oils, and domestic and some industrial waste, have also been used as an alternative fuel. However, given the lack of helpful policy and of capacity necessary to condition this waste before incineration, it is being imported from Italy. The Marrakech plant manager explained:

Cement companies are committed to this work but are inhibited by the lack of commitment of governmental agencies or their inability to keep up. We need well

thought out regulation ... among other things ... there was a time when we wanted to incinerate olive waste, but we needed a framework ... we can't do everything from scratch. We also have re-forestation plans in process, especially in quarries at the end of their exploitation period (Ciment du Maroc M. P., 2013, translated by Elouardighi, S.).

Collecting waste directly from neighboring firms has proven easier to plan and organize. This is the case, for example, of flying ash, which used to be disposed of in the ocean, and which is currently used as an additive to clinker (Ciment du Maroc D. O., 2013). The Agadir plant director explained that all the waste of Maroc-Phosphore, a neighboring company, is re-used. Additives to cement reduce CO<sub>2</sub> resulting from cement production, as it reduces the amount of clinker used per ton of cement. Even though the CO<sub>2</sub> related convention signed by Italcementi is not applicable in Africa yet, plants anticipate its application, and are taking it under consideration. Wind energy generation is already in operation in the Ait Baha Plant, and in the Laayoun grinding site. In fact the yield of the latter's installation was satisfying to the point that another installation capable of yielding 10 megawatts is planned. It requires an investment of 140 Million MDH/14 million US dollars, and together with the first one, it would satisfy 40% of the energy needs of the site.

Although individual plants don't interact directly with the APC or with Italcementi's headquarters, they are informed of the activities of both organizations and are aware of the contingencies of each. For instance, reporting to the MdE as per the terms of the 1997 convention is of a frequency and of a nature that is different than reporting on conformance to Italcementi standards. The CdM environmental coordinator channels necessary information to the plants and pinpoints the activities likely to be impacted by it.

Official communication back to the headquarters is also done through the environmental coordinator however, Italcementi is aware of plants' environmental performance through continual monitoring reported via its intranet, and technology that remotely monitors plant activity. This is especially important at times when big actions need to be taken, because they often require heavy investments. Decisions about these are taken together with CdM and Italcementi headquarters and the company's technical bureau. The Environmental Manager of Marrakech plant explains:

We recently had to perform upgrades and so, big investments were made. We needed the support of headquarters. Sometimes we make those decisions on our own, but when the investments needed exceed a certain level, then we need the approval of headquarters. Italcementi is very observant of what happens in Europe and the US, and we are expected to act at the same level. The Moroccan government too has become more aware and expects more out of us. The law on impact studies is currently enforced and is the thorn in the side of industrialists (Ciment du Maroc M. P., 2013, translated by Elouardighi, S.).

When asked about the origin of environmental pressures, the Safi plant director explained:

In 2002 when I joined the company, environmental consciousness was already there. We had emission control programs, waste management procedures, and gas use procedures. We were aware of what we stoked and how we stoked it. The Safi plant is the first to be certified 14001. We also changed filters and installed the upgraded filters first. These filters exceed by far the emission goals set by headquarters. They have cost several million MDH. So there is a trinity: headquarters, Government, and the APC (Ciment du Maroc D. S., 2013, translated by Elouardighi, S.).

The Marrakech Plant manager explained:

We generally follow the most demanding law, whether it emanates from headquarters or local government. This generally means that we follow headquarters most of the time, since their directives are usually more demanding. Currently in Morocco, there is regulation on water, air, etc., and a commitment for the incineration of plastic bags, which we were leading, until recently when the ministry of the interior took that on (Ciment du Maroc D. O., 2013, translated by Elouardighi, S.).

Plants also interact with each other, and exchange tips, case studies, and relevant information in relation to plant performance in general and environmental performance in particular (Ciment du Maroc A. P., 2013; Ciment du Maroc A. P., 2013; Ciment du Maroc D. S., 2013; Ciment du Maroc D. o., 2013; Ciment du Maroc M. P., 2013; Ciment du Maroc S. P., 2013; Ciment du Maroc D. S., 2013). For instance, the Marrakech environmental manager explained that Agadir ISO 14001 implementation served as a pilot for the Safi plant. By the time Marrakech started the implementation process, the lessons learned from both plants served as a blueprint, so much so that the plant did not require outside support (Ciment du Maroc Environmental Coordinator, 2013).

CdM plants also have formal relationships with engineering schools, technical schools, and other institutions of higher education. The plants take in student interns, consultants in training, and others. Through these internships and trainings, cement companies are helping develop environmental competencies. The Italcementi headquarters supports this effort through capacity building camps and specialized training sessions for these interns.

When asked what would help other hesitating industries initiate their environmental transformation, plant directors offered higher management buy-in as an essential and a necessary condition. This in their opinion should be followed by a comprehensive global strategy that is embedded in all business aspects. They also noted the importance of reaching out to the relevant governmental agencies, and keeping them informed of intent and performance, while lobbying for appropriate laws to be passed. They believe this is essential to ensuring the creation of a market of virtue and guaranteeing some return on investment. The Director of the Agadir plant explains:

Environmental best practices are expensive, hence the importance of having coercive pressures forcing people to adopt a given practice. Incentives are helpful

too. Loans at low interests rates and other financial treats are definitely helpful and go a long way. This is because again the investments are very high but the conviction element is essential—it facilitates the entire initiative. Also, it is important to remember that environmental investments will have repercussions on price, which will impact demand for the product. But again, conviction is key ... it is just as important as laws because one can always cheat, but when one is convinced, one maintains machines, cleans filters, and sets up procedures and reminder. Several industrialists are doing the right thing outside of laws and they do a clean job along with other who don't pay the environment any heed. Conviction is key! (Ciment du Maroc A. P., 2013, translated by Elouardighi, S.).

In other words, the combination of a legal framework with company conviction to adopt the appropriate attitude is, according to the Agadir plant director, key to the adoption of environmental best practices. As is the case of CdM companies, laws are helpful, but voluntary action is possible and can be profitable. Plant managers also expressed their readiness to assist with capacity building and experience sharing as a form of mentorship to fledgling initiatives.

Ciment du Maroc, being a subsidiary of Italcementi upholds the same environmental policy and aims to achieve the same goals and objectives of its mother company. Interviews with CdM headquarters and with individual plants showed how upholding the same performance is achieved. The next section will look at LAFARGE Morocco.

#### **5-6-2 Transfer of EBP from the Perspective of LAFARGE**

LAFARGE-Maroc is a joint venture between LAFARGE and the Société National de l'Investissement (National Investment Organization) or SNI, with each owning 50% of the company. LAFARGE-Maroc industrial activity is varied and includes cement production, concrete, and gypsum. It has three cement plants, each in the cities of Tetouan, Meknes, and Bousekkoura.

LAFARGE's commitment to sustainable development started in the early 1990's when the CEO of LAFARGE group sent a letter to the Moroccan subsidiary, urging it to create the full-time position for an environmental manager and to be mindful of the repercussions of its activity on the environment and on neighboring communities. This letter also recommended that environmental management systems be developed, audited at least every four years, and based on the framework and standards developed by headquarters. By 1996, LAFARGE-Maroc had created the Geology and Environment Directorate. In 2001, the subsidiary created the Fuel and Alternative Raw Materials Directorate and then in 2004, the sustainable development directorate. Also, by 2005 all LAFARGE-Maroc plants were ISO 14001 certified. The Meknes plant, the first to comply, was certified in 2002. This plant had been initially built in the 1950s in the suburbs, away from the built environment, but it quickly found itself in the middle of the city. It was under a lot of pressure from local communities and received a number of complaints before its director had several meetings with community representatives. ISO certification helped set in place a system to help address these issues.

The LAFARGE environmental coordinator explains:

The genie is now out of the lamp ... At this point, we have an entire organization with managers at different levels, in headquarters and at the plant level ... we are ISO 14001 certified, which adds rigor to our management, we have a regulatory intelligence systems, which keeps an eye on new regulations in development, we perform environmental analyses, follow up on gaps to achieve specific goals (LAFARGE-Maroc Environmental Coordinator, 2013, translated by Elouardighi, S.).

A sizeable investment portfolio was dedicated to upgrading old plants and building state-of-the-art new plants. Environmental controls included bag filters, closed loop water systems, and alternative energy sources; managerial processes were determined, based on a benchmark conducted to determine the company's baseline performance, which represented the basis of various action plans.

When asked about corporate environmental stewardship in Morocco, the environmental coordinator and the communication's expert both agreed that cement companies brought in the concept in the 1990. Subsidiaries (aware of the impact their activities have on the environment thanks to headquarters' expertise) decided to initiate contact with the MdE in order to suggest the signature of a convention, in which they expressed their commitment to protecting the environment. They even agreed to conform to a dust and particulate matter emissions standard, which at the time was still not official. This was the first step to the development of environmental regulation in Morocco. LAFARGE-Maroc at the time included in its team individuals responsible for managing relations with the government. When the topic of environmental responsibility began to develop, the company quickly assigned a specific person to monitor each of the indicators set. These individuals acted mainly as conduits of information between the headquarters and the plants.

The interviewees explained that at the time when the initiative first started, environmental regulation in the country was nonexistent, and each subsidiary relied on the recommendations of its headquarters. LAFARGE-Maroc collaborated with the government on development of legislation and was used as a benchmark during the development of many governmental programs and regulations. Its procedures were replicated and generalized to other industries. Two of the laws in application, the impact studies and quarry rehabilitation, were, according to interviewees, inspired by LAFARGE's procedures. Even in the presence of these regulations, LAFARGE continues to develop best practices that are given as examples to other industries. Currently, Morocco has a complete body of legislation to which all companies are subjected. However, the cement subsidiary, given its ethical code and its commitment to continual improvement, continues to turn to its French headquarters or benchmarks against the performance of other subsidiaries, especially in the absence or the leniency of a Moroccan legal text. The environmental coordinator explains: "We consider headquarters' standards as legislation that we comply by and enforce across plants" (LAFARGE-Maroc Environmental Coordinator, 2013). The link to a MNC is in the mind of the interviewees the single most important reason why the Moroccan subsidiary has its current performance. The headquarters' commitment to environmental stewardship and responsibility, in addition to its wealth in know-

how and state-of-the art expertise, has been key to helping LAFARGE-Maroc achieve its current performance.

Through its environmental management system, LAFARGE-Maroc was able to establish continuity and maintain consistency between French headquarters and plants. The Moroccan subsidiary's environmental policy is inspired by that of its headquarters and informs those adopted by individual plants. All commit to complying with all relevant regulations, and to conforming to various norms and standards adopted by the group, or agreed to by the APC. The headquarters provides the human and financial resources necessary to operationalize the set policy and reach desired performance. The subsidiary's environmental coordinator reports to the industrial director, and coordinates various actions with plants and with headquarters. Each plant has an environmental manager (EM) who, together with the plant director, is responsible for plant environmental performance i.e. to maintain the plant in compliance with national regulation, and with various standards it is subject to.

Environmental management is at all levels of the company and all directorates contribute to a firm's environmental performance. At the plant level, each process has an environmental component. For instance, the purchasing procedure delineates the quality and the environmental safety parameters to be considered before acquiring raw materials or services. The purchasing department evaluates product and service providers based on their environmental policies, the presence of environmental clauses in contracts, and their waste procedures, among other criteria.

All communication between plants and headquarters is done through the head of communications. However, plants have established relationships with the LAFARGE's technical center and are free to reach out to it in the event of a clear and a direct question. If coordination is needed, then the head of communications is brought in. The technical center is the main interlocutor of the Moroccan subsidiary. It collaborated with the head of communications to organize audits and conduct studies.

Environmental training plays an essential role in developing the human capital necessary to carry out LAFARGE's environmental ambitions. This is especially the case because Morocco does not yet produce environmental specialists, so current environmental staff had to undergo specialized on-the-job training. At the plant level, environmental managers have other responsibilities such as quarry management or quality monitoring. New hires go through an integration course, which includes a period of time spent in each plant and in each directorate.

Reporting is done both daily and monthly to the appropriate directorate at the subsidiary's headquarters. The monthly reporting is used to analyze outstanding numbers and non-conformities. Plants also have a registration database which is shared with headquarters and which allows the continual monitoring of performance, the identification of non-conformances, and the recording of complaints. This information is recorded in real time and registered in the database. In addition, internal audits are carried out regularly, and the entire processes are audited every two years. This audit occurs in addition to the ISO audit, which takes place every four years. Each plant has an internal audit schedule, and the subsidiary's headquarters has its own as well. The top management yearly review examines the contributions of all departments

of LAFARGE-Maroc. Pilot processes are assessed in order to ensure cohesion and consistency across all aspects of environmental management at every operation of the company.

Interviewees explained that just as headquarters holds the Moroccan subsidiary accountable for its overall environmental performance, it has to answer to its own stakeholders. For instance, headquarters publishes the yearly sustainable development report, conforms to the agreements signed with the WBCSD, and must show progress towards its 2020 objectives. In order to reach these objectives, headquarters relies on the individual subsidiaries and their attached plants. Just as in the case of Cement du Maroc, plants extrapolate their policies and procedures from headquarters' through subsidiaries, and reporting is done in the opposite direction.

The WBCSD constitutes a source of best practices for LAFARGE-Maroc. Interviewees explained that partnership with the global forum manifests through a series of activities to be carried out as a result of membership. Interviewees gave the example of the biodiversity assessment in Moroccan cement production. They explained that regions renowned for their wealth in biodiversity were selected across the country and the impact of plant activity on the well-being of this wildlife was assessed. These studies resulted in various action plans, such as the one related to the level of persistent pollutants present in sensitive areas. The company's current level of CO<sub>2</sub> emissions also stems from membership in the WBCSD.

This robust organization allowed Lafarge-Maroc to accomplish a record-breaking achievement in wind energy, especially at the Tetouan plant, which satisfies 50-70% of its energy needs from its wind farm.

To conclude, LAFARGE-Maroc's commitment to environmental responsibility was prompted by that of its headquarters and translated into an organizational structure that enabled the desired level of performance. The following section reflects the perspectives of plants' environmental managers. (As a reminder, only two plants participated in this study: The Tetouan and Meknes plants.)

### **5-6-3 Knowledge transfer from the perspective of LAFARGE's plants**

Interviews with plants' environmental managers started with the statement of LAFARGE-Maroc's tie to the LAFARGE group, which was presented as a leading MNC committed to a number of international conventions, a member of different global fora, and an emitter of operational standards. Some of these standards relate to the environmental performance of the group itself, which exceed by far the requirements of the Moroccan legislation, and represent the minimum acceptable performance for Moroccan plants. The company's code of ethics explicitly states that subsidiaries and their attached plants must conform to the most stringent requirements, regardless of whether these are issued by the state or the headquarters. This is how, according to interviewees, environmental ethic, knowledge, and expertise is passed down to host countries.

The Tetouan plant was set up in 2003 and the Law on Environmental Impacts was adopted at that time. Consequently, several environmental impact studies were undertaken: the

first was before the inception of the plant, the second during the planning of the wind farm, the third when a used tires incineration platform was put in place, the fourth for an extension to the wind farm, and finally the fifth when establishing oil and fuel storage and risk zones. The outcome of these studies served as input for the development of the plant's surveillance plan, which focused on the four pillars of environmental stewardship: water, air, soil, and sound. The surveillance plan listed the environmental indicators the plant intended to monitor, which included such parameters as the continual assessment of the health and quality of the numerous springs surrounding the plant and the regular monitoring of sound pollution and dust. Some elements in the surveillance plan were included in the Moroccan regulation, but most came from headquarters' standards. For example, the impact studies were mindful of bird migration paths, an aspect that is not regulated by Moroccan legislation. Smoke stacks are not regulated either. However, since an MOU initiated by the APC with the MdE is underway, plants chose to voluntarily adopt measures to be in conformance by the time it is signed. This surveillance plan was the backdrop against which action plans were developed.

Since the Meknes plant was established in 1948, it underwent an environmental transformation process focused on putting environmental upgrades in place. It started with the baseline assessment and then developed an action plan, and acquired upgraded equipment. This was followed by implementation of ISO 14001 in 2001. A year later, it was integrated to ISO 9001. The Meknes interviewee, however, did mention that the plant benefited from the financial assistance of the Fond de Depollution (FODEP). As mentioned in Chapter 1, FODEP is a governmental program funded by the Deutsche Gesellschaft für Internationale to help small and medium size enterprise acquire newer and more environmentally performing equipment.

Plants communicate mainly with the Moroccan headquarters, which interprets new standards, norms, and regulations and explains how they affect production. Also, the LAFARGE group shares a database containing all indicators, relevant parameters, and various tools with all plants. Communication with headquarters is coordinated by the environmental coordinator. The latter is involved in plants' processes, attends the bi-monthly committee meetings, and follows up on performance through the management system in place. Plants also interact with one another and share ideas and best practices. The subsidiary's headquarters approve all documentation, and conducts yearly audits based on a three-year audit schedule (LAFARGE-Maroc Environmental Coordinator, 2013).

Plant directors are considered as the guarantors of plant performance in the eyes of headquarters, but the environmental manager is responsible for the day-to-day activities. Various committees meet twice a month, and address dysfunctionalities, non-conformities, and product quality, among other parameters. A committee composed of the plant director, the environmental manager, and the heads of other departments conducts the yearly management review, as required by ISO, and submits reports to the headquarters. Each non-conformity is analyzed, the root cause identified, appropriate corrective action determined, and a continual improvement action plan put in place. Although ISO requires only one management review a year, the Tetouan plant conducts one twice a month to keep its focus on environmental issues (LAFARGE-Maroc Environmental Coordinator, 2013; Tetouan Plant Environmental Manager, 2013).



Plants also have daily activities where they review dysfunctionalities of the previous day as recorded in the daily report; analysis takes place and appropriate corrective actions are issued. When the root cause of an incident is not identified, an investigation is initiated. This managerial focus on daily and by-monthly monitoring was inspired by a 2001 visit to a French plant by members of the managerial team of the Tetouan plant. This visit occurred during a tour organized shortly after the plant opened. Participants in this tour picked up valuable practices and applied them in Tetouan; then, through interaction with other plants, this practice spread to other plants as well (Tetouan Plant Environmental Manager, 2013).

The interviewee from the Tetouan plant explained that his plant didn't interact directly with the WBCSD, yet it was aware of the influential role the global forum played in their daily activities. The environmental manager said that the conventions signed by the group were the origin of the standards conformed to, after they had been processed by the headquarters. A major contribution of these conventions, according to the Tetouan environmental manager is the wind farm, which provides 70% of energy needs, and earns the plant carbon credits. The Tetouan wind farm was part of the headquarters' strategy to reduce both the cost of energy consumption and CO<sub>2</sub> emissions per ton of clinker. In fact, the location for the plant was chosen based on wind speed, which exceeds 8 meters per second. Several studies were conducted to assess environmental impact and ensure that harm is avoided, including harm to visual aesthetics of the region. (The Tetouan plant is nested in the middle of the mountains, surrounded by lush greenery and numerous springs.) LAFARGE dedicated 20% of its original investment to putting in place the measures that were necessary to ensure maximum environmental performance.

The Meknes environmental manager, however, explained that his plant has received delegations from both the WBCSD and the WWF. These delegations collected samples, conducted analyses, and audited some processes. These visits did not, according to him, occur on a regular or pre-established schedule, yet a few took place in recent years. Although all plants were asked if they interacted with the WBCSD or another entity outside of their headquarters, the Meknes plant is the only one to have responded with the affirmative.

Although plants have complete freedom in managing daily activities, the MNC remains present and aware of plants' performance. Compliance with local regulation at all times is paramount, so monitoring is continual. The headquarters also helps firms conduct studies and upgrade performance through knowledge sharing and investment in equipment. Emissions data are collected daily and monthly at the plant level. Reporting is daily, monthly, quarterly, and yearly. Reporting to the group is done through the database, while reporting to the MdE is done through submission of a yearly report. For the purpose of the latter reporting, plants regularly contract a government-approved laboratory to perform measurement of impact regularly and produce reports, which are compiled into the yearly report submitted to the MdE.

#### **5-6-4 Transfer of EBP from Holcim's Perspective**

Holcim Maroc is active both in cement production and in co-processing. Holcim, the owner of Ecoval, which is the biggest waste processing platform in Africa, is taking the lead in transforming waste into energy. Being a subsidiary to a leading MNCs, the company has access to sustainable development fora, courses, conference calls, and international conferences

organized by the headquarters. It conforms to international norms, which exceed the requirements of the Moroccan government and the requirements of APC's multiple conventions in terms of employee safety, environmental stewardship, and product quality. Also, by 2001 all plants and sites were ISO 14001 certified. Among Holcim Maroc's achievements are air emissions, which are lower than mandated by European norms, the establishment of a waste processing platform, which conditions various forms of waste before these are sent to kilns, quarry rehabilitation, and the use of bag filters to remedy the dust problem, which is a major challenge to cement plants in Morocco (Holcim Sustainable Development Director and CSR Coordinator, 2013).

Holcim is also active in developing sub-sectors of used oils and used tires. In fact, cement companies in general strive to professionalize sporadic, archaic, and informal waste collection activities, mainly carried out by disadvantaged communities. Holcim undergoes headquarters audits, ISO 14001 audits, regulatory audits, and self-assessment audits, which are conducted twice a year to verify performance. The subsidiary produces three reports a year addressed to the MdE, in addition to another report on co-incineration, and a yearly plan that is reviewed by the MdE (Holcim Sustainable Development Director and CSR Coordinator, 2013).

When asked about the source of pressures regarding environmental performance, the environmental coordinator offered the mandates of the Dow Jones Sustainability Index, which sets the limits for each pollutant and provides a specific format for measuring and reporting emission levels. He also cited the CSI and company ethics as providing the impetus for Holcim Maroc to seek and acquire state-of-the-art expertise and knowledge. This often results in the company being called upon by the MdE to assist in the development of laws and standards, and by other industries to share case-studies, learning experiences, and best practices (Holcim Sustainable Development Director and CSR Coordinator, 2013). While company ethic was stressed as being essential to inducing the desired environmental performance, it alone is not enough. Indeed, in the interviewee's mind, the MdE should be more proactive in inducing corporate environmental responsibility. He explains "the MdE at the moment takes what comes its way. It is being pulled upward by cement companies. Most regulations emanated from their best practices, and other industries benchmark on the cement sector performance" (Holcim Sustainable Development Director and CSR Coordinator, 2013).

The headquarters, who sends various performance directives to the subsidiary, sets Holcim Maroc's environmental action plan. The subsidiary then analyzes these directives and dispatches the information to the plants. Reporting is done regularly in the opposite direction. When the headquarters receives performance information from the subsidiary, relevant staff members compile it and include it in various reports to the Dow Jones and the CSI (Holcim Sustainable Development Director and CSR Coordinator, 2013).

The subsidiary's environmental performance is governed by a surveillance committee, which is populated by political and economic actors. This committee approves the company's strategic decisions. The board of directors manages the corporation. It also develops and operationalizes strategies once approved by the surveillance committee. A series of audits ensures that plants continually improve their performance. There is for instance, the yearly self-assessment evaluation, which is done via intranet, then a yearly ISO 14001 external audit. In

addition, the subsidiary's headquarters monitors plants' performance through their monthly report and adjusts procedures as deemed necessary (Holcim Sustainable Development Director and CSR Coordinator, 2013).

Only the environmental manager of one of three Holcim plants was interviewed. The information shared did not differ from what has already been shared by the other plants. The environmental manager of the Settat plant also bemoaned the latency of the MdE, especially in terms of co-processing, and he said the firm should be able to achieve more in the presence of a better institutional environment (Settat Plant Environmental Manager, 2013).

To conclude, the environmental strategy and organizational structure of Holcim-Maroc mirrors in many ways that of Ciment du Maroc and that of LAFARGE. It too relies heavily on the support of its headquarters to maintain and improve its environmental performance and is actively engaged locally to ensure the standards set by headquarters are upheld. The next section will present the views of the last subsidiary interviewed, Asment Temara. This company used to be part of CimPor, but it is now part of the Brazilian cement company, Votorantim.

### **5-6-5 Transfer of EBP from the Perspective of Asment Temara**

As explained in the Chapter 1, Asment Temara was founded by a Moroccan industrialist and was later acquired by CimPor. The restructuring CimPor underwent in 2011 and 2012 resulted in CimPor being acquired by Votorantim. The current company CEO and the interviewee in this study was the son of its founder. He explained that his company's environmental journey is unique and different from that of other cement companies in the country. Indeed, given its geographical proximity to a royal palace, the plant was required from its inception to adopt state-of-the-art environmental technology and utilize equipment that guarantees the best performance technologically possible. For example, bag filters were installed from the first day of the plant's operation (Asment Temara Director General, 2013, translated by Elouardighi, S.).

Unlike conversations with representatives of other cement companies, this one company lacked the tone of commitment and forward-lookingness to a better environmental performance. Indeed, the interviewee shared his doubt as to the sincerity of various corporate environmental initiatives and of the government's commitment to environmental excellence. During the interview, this person seemed confused and distracted. He refused to share more information as to how the firm functions or what influences the development of its environmental program. The interview was interrupted by various phone calls and was eventually cut short by another appointment of the interviewee. Attempts for rescheduling, meeting other individuals from the company, or obtaining any form of documentation on the company's environmental program failed, and so it was not possible to investigate the claims made further.

### **5-7 Conclusion**

The role MNCs played in channeling EBP to Morocco is undeniable. These companies developed global policies, and followed up on them with an organizational structure that ensured their adoption in host countries. This has worked especially well in Morocco, where a similar

structure, the APC, was already in place and supported the work of its members by lobbying the government to adopt supportive policies. Interestingly, the CSI and the APC differ from one another in an important way. As an industry-driven initiative aiming to improve the sustainability practices of the cement industry in the world, CSI works closely with major preservation NGOs in order to develop its agendas and action plans. In contrast, while the APC is also industry driven with the same purpose as the CSI, it works closely with the Moroccan government in order to advance the agendas and action plans developed by headquarters of subsidiaries and by extension the CSI. It is essential for the APC to work with the Moroccan government, while there is no pressure on the CSI to collaborate with a governmental entity. This is probably due to the absence of an overarching polity governing international commerce, so companies self-organize in order to achieve their goals.

CSI members are MNCs, which are headquartered in a number of countries, so giving legitimacy to one government over another would probably harm the initiative and alienate members. Instead, the CSI works with global NGOs. This probably sheds light on the essential role civil society in general and NGOs in particular will play in the future. The description of the process of environmental regulation development as described above further supports this. The MdE's inability to enforce environmental regulation out of fear of creating chaos in the public sphere results in the empowerment of corporations, which now participate in limit-setting and standard development. These companies, in turn, answer to their stakeholders and draw their legitimacy from public support. Consequently, civil society can organize and claim the power of enforcing its needs for a healthy environment. While this is still not the case in Morocco, especially in the absence of a market of virtue, elements of this process emerged, especially during the Arab spring manifestations, where several cement plants had to stop production after being invaded by angry protestors. Following this, cement companies are more involved in improving the livelihood of their neighboring communities, and they engage in various projects aimed at improving economic prosperity in the areas where they are present.

From a business perspective, cement companies gave great importance to their stakeholders' demands. Following the Battelle's study that built the business case for the adoption of sustainable development principles, the companies in this study teamed up with others and with the WBCSD to create the CSI. In addition, they each morphed into a well-designed and complex organizational machine, whose job it was to be financially prosperous while being a responsible neighbor and a good citizen addressing the demands of a myriad of stakeholders. The engagement of cement companies in environmental responsibility is not matched, at least in Morocco, by any other institution, whether private or public. Visions and commitments abound, but a well-designed and targeted program yielding tangible results has yet to be implemented in other sectors. This is certainly a reflection of the responsiveness of the private sector to its market base and the lack of responsiveness of administrators to their constituents. While the loss stemming from ignoring the demands of stakeholders is tangible for private companies, it is not so for public agencies. Also, public agencies seem to have their hands tied, either by the lack of resources or lack of power. It is often mentioned that constituents prefer jobs to a clean environment; however, based on the experience of cement companies, these constituents don't have a problem asking companies for jobs without compromising the quality of their natural environment.

In the end, cement companies in Europe made a commitment to self-regulate and develop environmental standards that they would then adopt across subsidiaries. They showed intent with a series of organizational structures, which yielded desired results. They included in this process environmental NGOs with a global presence. The presence of these insured that the issues tackled by the industry were relevant and pertinent. It also created an embedded tie between cement companies and the organizations they committed to being accountable to. In Morocco, subsidiaries had recourse to a similar process, except that in this case the accountability organization was the MdE.

This chapter focused on the first proposition that traces environmental pressures from the source to the individual plants where they have an impact. The chapter also provides an overview of how various firms govern their operations and manage their global affairs. The next chapter will analyze these results in light of the propositions advanced in the methods chapter and will elucidate the process that allowed cement firms in Morocco to achieve their current level of environmental performance.

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## Chapter 6: The Role of Governance in the Transfer and the Adoption of EBP

### 6-1 Introduction

The previous two chapters described the process through which the Cement Sustainability Initiative (CSI) was formed, and traced the transfer of environmental best practices (EBP) developed by European headquarters to Moroccan subsidiaries. This chapter will focus on the process and context within which this transfer took place. This discussion is framed in the knowledge view of the firm (KVF), which conceives of a corporation as being a social institution pursuing knowledge generation, its transformation into marketable products and services, and then its transfer to various firm units (Gooderham, Minbaeva, & Pedersen, 2011; Kogut & Zander, 1993).

This chapter will evaluate the second and third propositions, which are as follows:

- **Proposition 2:** The headquarter-subsidiary relationship among cement companies promotes a commitment-based approach to governance, facilitating the transfer of institutional pressures from the Cement Sustainability Initiative to Moroccan firms and promoting the adoption of environmental best practices.
- **Proposition 3:** Networking through the structure of the Association Professionnelle des Cimentiers further enhanced the adoption of environmental best practices.

Through the exploration of the conditions favoring knowledge transfer within the MNCs studied, and the process of isomorphism, which took place following the privatization of cement companies. Analysis in this chapter is also based on relational-based governance, which is seen as being central to harmonizing inter-firm collaboration among its units (Lee & Cavusgil, 2006). Knowledge generation within a firm, under the lens of relational-based governance, is the outcome of a collaborative process involving different units, each bringing a unique contribution and perspective. In the process of creating new expertise, and by virtue of this co-creative process, the firm also solidifies its social capital in that the process fortifies the ties linking various actors, and enhances the establishment of trust. As discussed in Chapter 2, trust is the cornerstone to relational-based governance as it makes continual contact possible among the actors involved, facilitating the tracking down of key information and thus enabling the flow of intellectual and organizational expertise (Lee & Cavusgil, 2006).

MNCs are special kinds of organizations in that their units are geographically dispersed, so the MNC's stock of soft capital, in the form of expertise and know-how, extends across borders (Kogut & Zander, 1993). MNCs as seen by the KVF, provides "rich social contexts that support the leveraging of knowledge" (Gooderham, Minbaeva, & Pedersen, 2011, p. 124), capitalizing on the intellectual capabilities of their employees as well as their personal experiences, and establishing collaboration patterns within their various components in order to develop a set of transferable organizational processes (Gooderham, Minbaeva, & Pedersen, 2011).



Scholars assert that organizational knowledge transferability within a MNC rests on the establishment of interpersonal relationships between MNC employees in different geographical locations. This geographical dispersion dictates the adoption of “integrative mechanisms for collaboration ... such as teams and norms” by the MNC (Gooderham, Minbaeva, & Pedersen, 2011, p. 125). These collaborative mechanisms have a bridging role, in that they tie various individuals to one another and to the focal actor, and they have a bonding role, in that they enhance the group cohesiveness necessary for the development of a common vision and goals.

Inherent in the KVF is the Knowledge Governance Approach (KGA), which lends attention to “the intersection of knowledge and organization” (Gooderham, Minbaeva, & Pedersen, 2011, p. 128), focusing on the identification of the governance mechanisms that enhance knowledge transfer, integration, use, and creation. The KVF pays particular attention to the micro-level interactions within the firm (between various actors, instead of between units) and looks at how these lead to “organization-level utilization, sharing, and creation” of knowledge (Gooderham, Minbaeva, & Pedersen, 2011, p. 128).

Generating wealth from the knowledge developed requires the transformation of the latter into organizational practices (Kostova and Roth, 2002). These can have “a social meaning shaped by the institutional context,” as they are “deeply ingrained in, and reflect widespread understanding of social reality [that is] enforced by public opinion, by the views of important constituents, by knowledge legitimated through the educational system, by social prestige, by the laws” (Meyer & Rowan, 1977, p. 343). Coercive, mimetic, and normative pressures spread these practices across MNC’s units (Tolbert & Zucker, 1996).

## **6-2 The Mechanism Transferring Environmental Best Practices**

In analyzing the governance approach adopted by cement companies, I will examine how roles and responsibilities are allocated, while discussing the process through which coercive and normative pressures stemming from headquarters are exerted on subsidiaries. These pressures take the form of directives, management procedures, trainings, reporting, and auditing. Then, I will highlight excerpts from the interviews, which provide insight on the quality of exchange between a headquarters and its subsidiary members. This chapter will show that the transfer of EBP occurs through the following steps: procedure generation, development of a context conducive for knowledge transfer, capital investments and training, monitoring, and auditing.

### **6-2-1 Generation of Procedures**

#### **6-2-1-1 At the Level of the MNC**

As discussed in previous chapters, cement companies work with one another and with representatives of pertinent stakeholders, within the structure of the CSI to develop the areas of focus for the industry and to set new standards. Within this context, individual companies develop their own norms and standards in consultation with their own stakeholders. The teams responsible for the development of these procedures are composed of various members, each bringing a unique perspective to the exercise. For the four MNCs studied, these teams include regional representatives, whose job it is to understand the technological, economic, legal, and

political conditions of subsidiaries in their region. With this knowledge, they are able to develop procedures adapted to the abilities of subsidiaries.

The CimPor representative describes the way in which his company takes account of host country conditions in its norm-development process:

The sustainability steering committee meets four times a year to monitor progress towards goals. This committee includes the head of the technical center, the head of the Sustainable Development department, external organizations (through liaison delegates), country and region representatives, and other cement companies. This committee approves the general direction for the company, and passes it on to the executive commission, which signs it and makes it the official direction for the company. The participation of country and region representatives is essential because, if nothing else, they provide the steering committee with a clear idea of the technological capabilities of the subsidiaries they are responsible for, and thus inform the budgetary allocation needed for the implementation of the said procedure. This is, of course, taken under consideration (CimPor Sustainable Development Director, 2013, translated by Elouardighi, S.).

The Italcementi representative describes a similar involvement of host country representatives in the process of goal development in the following translation:

Structuring our intentions, we have a sustainable development overarching policy and six or seven branch policies. We have two central committees responsible for the development of these: the ManCom [management committee] and the SDSC [SD steering committee]. These two committees include the CEO, the Director General, and the directors of the various departments, in addition to regional directors of the various regions they represent. The ManCom sets the objectives and targets of the Italcementi group, while the SDSC focuses specifically on SD objectives and targets (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

The process at LAFARGE is similar as is explained by the company's representative:

The SD and Public Affairs [teams] work very closely with countries on a number of environmental programs, which are then coordinated by the SD/environment teams. These teams have a network of managers across countries, responsible for developing various performance indicators. So there is a coordination effort between country units and discussions at the group level, and with stakeholders, especially the stakeholder panel, which is made up of representatives of a number of associations, such as WWF, CARE, and others. We meet with the stakeholder panel three times a year, review our sustainability report, and are provided with comments, which are then incorporated in the report. The panel challenges us on different development programs including environmental ones. Also, before the launch of any program, informal conversations take place between subsidiaries and central offices, through the SD team. So basically, the SD team takes the

pulse of what is going on in different places, and determines what the next phase should be, with input from the stakeholder panel. From then on, they make a decision for next steps, share it with everybody, and decide on how to do it (LAFARGE Communications, 2013).

Host-country representative involvement in vision and goal setting is slightly different at Holcim, as only subsidiaries producing beyond a set threshold are invited to participate in the process. However, the company remains aware of the specific circumstances of each of their host countries. This is explained fully in the following quote:

Both the ExCo [executive committee] and the board are responsible for developing company vision and setting targets. The ExCo includes high-level people working on developing the next goal for the company, and they are helped by the CEOs of our biggest operating companies, responsible for 55% of our production, such as India and some American subsidiaries. This group determines the next vision for the companies, and delineates it in a road map ... So the process would be to know where we are as a group, where the industry is, where the sector is headed, and what our peers are doing ... Then we determine how we can get there and who needs to deliver what. For instance, when planning to cap CO<sub>2</sub>, we have to be aware that in the US there is a regulation requiring Ordinary Portland Cement to contain 95% clinker, which limits the amount of additives that can be mixed in it, so there is only so much growth we can achieve there. Therefore, in thinking about companywide CO<sub>2</sub>, we have to look at other countries with a higher tolerance for less clinker and more additives in its cement, such as Germany. Especially, that we have plants there running at 80 or 90% alternative fuels. So we get an aggregate look and determine where the performance is going to come from (Holcim Sustainability Director, 2013).

Individuals involved in this process use an extensive set of documentation, including subsidiary reporting summaries, audit reports, and comments from in-site visits as a resource for target-setting (CimPor Sustainable Development Director, 2013; Holcim Sustainability Director, 2013; Italcementi Industrial Ecology Manager, 2013; LAFARGE Communications Communications, 2013). Vision development and target-setting are then intricate and multifaceted exercises, and involve the active participation of various members. Each member brings a unique and essential perspective. By including representatives of subsidiaries, MNCs' headquarters ensure that they are aware of the circumstances of each subsidiary and the size of investment necessary for each target, and consequently, that they have the ability to set realistic targets.

### **6-2-1-2 At the Subsidiary Level**

These targets constitute the main form of coercive pressure exerted by a MNC headquarters on subsidiaries, as they tend to take the form of non-negotiable directives, such as "CO<sub>2</sub> emissions should be reduced by x% by year y" (Holcim Sustainability Director, 2013). With these objectives come normative pressures in the form of suggested managerial procedures,

offered as a road map to reaching the set goals. For instance, shortly after the 1997 MOU with the MdE, Italcementi and LAFARGE headquarters encouraged their subsidiaries to establish a stand-alone department for environmental protection and sustainable development, which would be responsible for putting various standards in place (Ciment du Maroc GD, 2013; LAFARGE-Maroc Environmental Coordinator, 2013).

Environmental performance in subsidiaries is managed through written, documented procedures detailing the roles and responsibilities of each and every contributor. The European headquarters determine their overall performance goals and objectives and let subsidiaries operationalize these as they see fit, while making various implementation tools available (Ciment du Maroc Director of Administration and Finance, 2013; Ciment du Maroc Director of Human Resources, 2013; Ciment du Maroc Director of Marketing, 2013; Ciment du Maroc Environmental Coordinator, 2013; Ciment du Maroc GD, 2013), as is explained by the CdM Moroccan director general in the following translation:

Italcementi takes decisions regarding its overall performance to improve its positioning among worldwide players, through its CO<sub>2</sub> emissions levels, the amount of alternative fuels to be used, etc., and we integrate these directives in our general management, and operationalize them based on the idiosyncrasies of the subsidiary and the politico-economic environment we operate in (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

Holcim organizes its targets and associated action plans in operational road maps. The Holcim representative explains:

We develop a series of operational road map targets, because if there is a new directive and something is being implemented we will have to include it in the target, and assign a completion date to it. This operational map also includes all our long-term targets, such as our target for CO<sub>2</sub>, which is to reduce its emission by 25% against the 1990 benchmark by 2015. So that is an operational road map target for each subsidiary. The latter have to report progress every year, and of course at the senior executive level, bonuses are dependent on meeting that target. So if you want something really driven you put it in as an operational road map target and it gets done (Holcim Sustainability Director, 2013).

As discussed above, performance expectations are communicated to Moroccan subsidiaries in the form of directives, which are then translated and disseminated to various departments and plants. For instance, if we use the example directive requiring the reduction of CO<sub>2</sub> emissions by x% over y number of years, subsidiaries would, following its reception, review their performances and the state of their technology, and then develop detailed plans to reach the new goal. If needed, a subsidiary would call on technical experts for help in a particular area or request the purchasing of specialized equipment, which also needs headquarters approval (Ciment du Maroc Director of Administration and Finance, 2013; Ciment du Maroc Director of Human Resources, 2013; Ciment du Maroc Director of Marketing, 2013; Ciment du Maroc Responsible for Communication, 2013; Holcim Sustainability Director, 2013; Holcim Sustainable Development Director and CSR Coordinator, 2013; LAFARGE-Maroc

Environmental Coordinator, 2013). Beyond the general directives, most of the other decisions are made at the plant level in collaboration with a subsidiary's headquarters. Plant directors are responsible for the daily management of various aspects within their facilities, such as emissions monitoring and equipment calibration.

Directives, implementation suggestions, and managerial procedures constitute the means by which an headquarters induce the desired behavior, or isomorphism in subsidiaries. There are also noteworthy competing explanations describing the relationship between headquarters and subsidiaries. One explanation is that the presence of coercive and normative pressures exerted by headquarters indicates the presence of hierarchy. The other explanation is that since these pressures are developed with subsidiary input, and with the participation of regional representatives, this relationship is horizontal and free from hierarchy. While the former indicates the presence of a power differential between the various units of a MNC, the latter suggests specialization of the MNC's units.

### **6-2-2 Context Preparedness**

Battelle (2002) argued that the governance style adopted both by corporations and host governments is key to bringing sustainability principles to developing countries, and carrying various initiatives to fruition. Corporate responsibility and transparency, enhanced by developed countries' laws and regulations targeting the private sector are essential to keeping stakeholder trust and attracting new investments. In emerging economies, public monitoring of corporate practices is not always transparent, leading, at times, to shady corporate governance, thus inhibiting economic and social development. Furthermore, and as discussed previously, host countries have, at times, developed laws and policies which inhibit industrial innovation and knowledge transfer. Cement companies that are present in both developed and developing countries are challenged to maintain the same governance style and performance levels across all subsidiaries (Battelle Memorial Institute, 2002).

The cement companies studied rely on their subsidiaries to develop a friendly context for knowledge transfer. Subsidiaries strive to keep good working relationships with local governments and act on behalf of their headquarters within host countries. They are held accountable to their local communities and governments for the norms and standards they commit to, and bear the responsibility of preserving headquarters' public image and uphold its level of performance. This is especially important given the fact that the subsidiaries of the MNCs studied delineate the norms and procedures developed at the headquarter, and adapt them to their circumstances; therefore, in developing their organizational network, they have in mind the procedures and processes that need to be implemented. The CimPor representative explains this point in the following translation:

Subsidiaries are responsible for establishing contact with the host governments. We develop and share ideas, concepts, and challenges and the subsidiary does the rest. The Subsidiary's CEO, plant directors, and environmental coordinators strive to preserve good working relationships with the government and relevant stakeholder groups. We at headquarters are responsible for corporate relations,

and subsidiaries and attached plants are responsible for local ones (CimPor Sustainable Development Director, 2013, translated by Elouardighi, S.).

The Holcim Representative concurs with his Portuguese counterpart. In the following statement, he especially stresses the importance of local management to the implementation of the global standards set by headquarters:

Our model is quite clearly local management, that is why you have local companies and you let them manage those companies locally. They know, they have the relationships, they have the market, they know the people, they know how to treat the people, and what the local work conditions are. So we choose local management, but with global standards. One thing we did was set in place very early on a global policy landscape. The way we work is to allow group companies freedom to move. But anything that is policy or directive is a non-negotiable. It has to be done no matter where in the world you are (Holcim Sustainability Director, 2013).

The Italcementi representative stresses the role of local administration to the process of knowledge transfer, as is expressed in the following translation:

We strive to have good relationships with host countries, and more specifically with the administration of host countries. We rely heavily on trade associations when these are present. ... What works in our favor is that the form and functionality of organizational structures are almost identical in France and Morocco, and so collaboration is easy and fruitful. ... The group's priorities are very clear and are communicated very clearly. Subsidiaries develop their own objectives, so long as these don't conflict with the ones set by the group (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

While the LAFARGE representative did not comment on relationships with host countries, she did provide insight on the responsibility of subsidiaries to carry out the vision set. She explains:

Once standards are set, they are translated into operating procedures at the host country level. It is up to each country to basically rollout the plan locally. We give them the principle, and they come up with the execution plan (LAFARGE Communications, 2013).

Cement companies' performance within host countries is then the outcome of a collaborative process between headquarters and individual subsidiaries. While the language in these interview excerpts still suggests the presence of hierarchy between headquarters and subsidiary, evidence of interdependence between MNC units is substantiated in the preceding quotes. The headquarters generates norms and standards and thus institutional pressures, and subsidiaries develop the context-specific actions to realize these objectives. The latter produce and sell cement, generating desired wealth for the headquarters by capitalizing on the organizational knowledge developed by, and at times, together with headquarters. With the

headquarters' input, subsidiaries operate within the bounds of the norms and standards developed to make and sell cement. Corporations then uphold the performance normatively committed to, only if all their units follow suit.

### **6-2-3 Capital Investments and Training**

Cement MNCs support their strict non-negotiable expectations to subsidiaries with the necessary resources for their plants to succeed. These resources for environmental upgrades take the form of finance, which is quite considerable, especially for a heavy industry like cement. The APC chairman explained that “environmental upgrades have cost 2.5 billion MDH [USD 250,000,000] to this day” (APC Director Delegate, 2011). Upgrades can take the form of state-of-the-art filters, as they can consist of a more efficacious reporting software, or a managerial process, as best expressed by Ciment du Maroc’s CEO: “headquarters support takes the form of capacity building, software development, development of innovative strategies, new product design, among others” (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

Ciment du Maroc’s Human Resources director, who has worked with the company since it was government owned, explained that the environmental upgrades came at the same time as the companies were privatized. He explains, “shortly following the acquisition of the plant by Ciment Francais, environmental upgrades started, structurally as well as managerially” (Ciment du Maroc Director of Human Resources, 2013, translated by Elouardighi, S.).

For subsidiaries’ employees, the headquarters constitutes a repository of know-how and expertise, both necessary to meet the directives issued. One contributor explains:

European headquarters is, before anything else, a source of knowledge. Also their governance style is conducive to improvements. We collaborate intimately with one another; communicate on an as needed basis on all levels. It is a case of daily collaboration in addition to official reporting and regularly held meetings. Contact is permanent (Ciment du Maroc Director of Marketing, 2013, translated by Elouardighi, S.).

Another interviewee concurs in the following translation:

The European cement companies in Morocco are leaders in the industry. They have state-of-the-art technologies, and have developed and respected know-how. These companies invest heavily in Morocco and share their knowledge with subsidiaries. ... The European headquarters are, before anything else, a source of knowledge (Ciment du Maroc Responsible for Communication, 2013, translated by Elouardighi, S.)

Knowledge sharing often takes the form of training. Different MNCs handle training needs differently, but all have country-based training programs, developed on an as needed basis. The LAFARGE representative explains:

There is a mix of informal and formal training sessions planned. In general, there is a close liaison between people in the head office and people on the ground. Training is on an as needed basis. It is not casual, but it is not formalized either. We will listen to local business and plan at the central level. Of course we rely heavily on country managers and country teams. We set the general direction for the group, but the countries have the responsibility and the means to set up particular trainings programs. That is generally the way the company works, because [the company] is so spread out and our business is very very local. ... Knowledge sharing utilizes such tools as the internet, with information pushed specifically to certain populations, but there has been more of a push to getting experts from one plant to come and teach people in other plants ... there is a strong will to build a network and reinforce relationships. These are only small examples. I know there are other things being done, though I don't know what they are (LAFARGE Communications, 2013).

Training at Italcementi is also sporadic and responds to specific needs. Trainings are planned in a manner that is most conducive to instilling the expertise sought, as is explained in the following translation:

Along with the procedures, the policies, the programs, we have a training program to help boost the competencies of our subsidiaries. Training programs are based on audit findings, and are prepared by country. These trainings can last a few days or an entire week depending on the topic. Sometimes they take place in France and others in the host country itself. For instance, we once centered an entire week of training on visits to French firms. Moroccan counterparts had specific questions about how some technical questions were handled; and to better answer their questions, we preferred they see it first hand. There is a good network effect between firms and it shows at times of need (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

The CimPor representative also stresses the importance of being attentive to subsidiary needs in terms of training. He explains in the following translation:

We tend to be very close to subsidiaries, and remain close to their needs in terms of investments as well as in terms of training. We are now in the process of developing an e-learning platform. This is not well developed yet, but we are working on it. This clearly will enable more training to be offered to a wider audience, as it cuts on the financial costs and the time commitment necessary to conduct such trainings (CimPor Sustainable Development Director, 2013, translated by Elouardighi, S.).

The MNCs' commitment to ensuring subsidiaries have the tools necessary to meet the requirements imposed on them is clear. Whether in terms of investments to install upgrades or in terms of sharing know-how and expertise, the MNCs studied are willing to go to great lengths to ensure that subsidiaries are well equipped to reach the performances envisioned. To ensure responsiveness and reactivity to individual subsidiary needs, trainings are organized on an as



needed basis, and with great flexibility, allowing a high level of efficiency and efficaciousness. The headquarters are positioning themselves as allies and coaches of subsidiaries fulfilling their needs as they arise.

#### **6-2-4 Monitoring and Auditing**

MNCs have various monitoring and reporting mechanisms in place to ensure procedures are implemented appropriately, and schedule regular audits to measure the level and impact of conformance. Interviewees assert that this is not for the purpose of catching non-conformances, but to identify opportunities for improvements. Indeed, the Holcim representative explains:

One way we ensure new directives are fully implemented are visits. ... Every year, through the normal reporting process, we do a series of questionnaires about our environmental profiles where every plant in every country has to fill in their performance data and that would include things like emissions monitoring and SO<sub>2</sub> [sulfur dioxide], dust, mercury, volatile organic compounds, how you treat your quarry, how is it rehabilitated, how you handle new materials, etc., and all that data is gathered and aggregated and that is what we use for our external reporting. What we then do is send a team from headquarters to make an assessment. Three to four plants are assessed a year, and we examine the report. This exercise is not to catch them, but to help them identify opportunities for improvement. Then there is the external assurance, especially regarding CO<sub>2</sub> emissions. This external assurance takes the form of site visits to verify the integrity of data collected by checking collection and consolidation methods (Holcim Sustainability Director, 2013).

The ItalCementi representative also explains how visits and audits are used to identify opportunities for improvement, and ensure conformance with the standards set:

We also have a number of audits that are conducted regularly to monitor performance and identify opportunities for improvement before they escalate to non-conformances. We have a yearly certification audit, and those results go into the non-financial segment of our yearly report. Auditors look at procedures, and then verify that the numbers and the information shared in the reports are accurate. There is a quantitative and a qualitative assessment of the content of this report. There are also audits at the business unit level, which are conducted in different sites every year. We periodically audit every plant. This constitutes a big pressure on the group and a costly endeavor. We also have a regulatory audit to ensure continual compliance with host country regulations. We audit about 3-4 subsidiaries a year. We choose specific topics and the data from the audit are used to compute a grade. Then an action plan with corrective actions is developed along with the subsidiary. ... We have another kind of auditing that we do, which is a more general audit examining the entire performance of the subsidiary. It covers logistics, purchasing, management, human resources, environment, health and safety, finance, etc. Each time there is an audit, four themes are selected which typically include some aspect of environmental performance. This allows

us, at the end of the year, to have a clear vision of how audited subsidiaries are doing (Italcementi Industrial Ecology Manager, 2013, translated by Elouardighi, S.).

Through monitoring and auditing, MNCs close the loop on procedure development and target setting, as audit reports feed into the initial process of vision setting. Therefore, the process of knowledge generation and transfer is an intricate affair involving various actors and following a carefully designed algorithm of information sharing, assessment, projections, training, and verification. This design has, so far, been successful in ensuring that Moroccan cement subsidiaries acquired the necessary knowledge to preserve their performance. This is not to say that subsidiaries are passive receivers of the goodwill of their headquarters. In fact, during the interview with the CEO of Ciment du Maroc, I was admonished for suggesting the headquarters dictated the subsidiary's every move. The CEO said:

We don't sit around waiting for someone to come and tell us what to do. We have engineers and various specialists who are knowledgeable and capable of problem solving and developing new and competitive environmental processes. It is true that we benefit greatly from the tie to a MNC, but we do a lot ourselves (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

This statement is a good reflection of the true nature of the relationship between headquarters and their subsidiaries. The use of directives and audits suggests a power relationship based on hierarchy. The above statement and details about the process in its entirety show that, in fact, the development and issuing of non-negotiable directives, the continual monitoring plus the scheduling and conduction of audits fulfill the headquarters role in the social structure or the network of the MNC. The aforementioned excerpts and others obtained during interviews provide evidence of friendly relationships and a collaborative and co-creative mindset. The CdM director general, for instance, says, “[headquarters] provides more support than decision-making for the subsidiaries, yet they still manage all subsidiaries” (Ciment du Maroc GD, 2013, translated by Elouardighi, S.). Another example of collaboration between a European headquarters and Subsidiary headquarters is in regard to the use of wind energy. The director general explains in the following translation:

For wind energy we are working within a group-wide strategy of reaching 33% of energy consumption from wind. So we are working with the strategic directorate to reach this level of consumption. For equipment purchasing, the plant manager makes a suggestion, which is then validated by the technical director and the environmental coordinator, and submitted with an investment budgetary framework for review to the Italcementi technical center in headquarters. It then goes to acquisition (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

Finally, the CdM head of marketing summarizes headquarters' role in enforcing environmental performance in the following translated statement:

... commitment of higher management to environmental excellence is clear and non-negotiable. When the Moroccan government emphasizes a given

environmental indicator, headquarters emphasize it ten fold. So it is a matter of higher-management commitment and attitude, the availability of know-how, access to investments for necessary up-grades, etc. (Ciment du Maroc Director of Marketing, 2013, translated by Elouardighi, S.).

Therefore in order for the corporation to succeed in its mission, while preserving both its public image and the natural world to the best of its abilities, it is necessary for a headquarters to fulfill its role as a source of best practices. Similarly, subsidiaries need to adopt these best practices and give feedback on results. Each unit of the MNC has a specialized role that enables the entire corporation to maintain its leading position.

### **6-3 Governance in Subsidiary-plant**

Plants call on the Moroccan Headquarter for all matters related to environmental management. But the plant is independent in its daily decisions. For instance, if a request comes in from a neighboring institution to collaborate on a particular environmental issue, plant managers have the freedom to explore the potential and the feasibility of this collaboration, and agree or decline to participate. For instance, the director of the Agadir plant received a request from the city's water distribution coordinator to explore the reuse of mud, an abundant by-product resulting from water processing and threatening the equilibrium of the forest ecosystem where it was accumulated. The plant took samples of the mud, analyzed it and found it to be good quality clay. The Agadir plant then signed an MOU giving it the right to use this clay. This is an example of local management and decision-making. Plants have great autonomy on how they manage their affairs, as long as they meet headquarters standards and comply with local laws. In general headquarters standards are much more stringent than Moroccan laws. The CdM technical director gives an example with the limits on dust and particulate matter, which are set at 50 ppm. The headquarters challenged its subsidiaries to bringing their emissions down to 20ppm. While CdM was still not at this level at the time of the interview, it was developing programs aimed at helping it reach this goal. Until this goal is achieved, plants are required to report to headquarters on their progress, while keeping emissions below 50ppm. The subsidiary's headquarters develops a general environmental management system with general procedures applicable in all plants and sites; however, plants are free to customize these as they see fit and to develop specific procedures and management tools, which are applicable to themselves (Ciment du Maroc GD, 2013; Ciment du Maroc A. P., 2013). The Cement companies model can be characterized as one in which the headquarters set the performance bar, provide the tools necessary to reach it, and allow individual units the freedom to determine the means by which to achieve it. They do this while favoring the development and the nurturing of close relationships between various actors.

### **6-4 Discussion of Proposition 3**

Inter-subsidiary networking through the structure of the APC enhances the adoption of EBP.

The impetus for this proposition came from the knowledge that the environmental coordinators of the four subsidiaries meet monthly at the APC to discuss various matters. This suggested an opportunity to create peer pressure or inspire some subsidiaries to do more.

However, there was no support for this proposition. When subsidiaries were posed the question of whether the performance of some influenced that of others, the response was consistently negative. Interviewees explained that the headquarters set subsidiaries' performance following the process described above. The purpose of the APC monthly meetings was to determine how the initiatives of each subsidiary would coalesce in one strategy for the sector.

## **6-5 Conclusion**

Proposition 2 stated that Cement companies' headquarter-subsidary relationship promotes a relational-based approach to governance, thus facilitating the transfer of institutional pressures from CSI to Moroccan firms, and promoting the adoption of EBP. Empirical evidence shows that for the four studied companies, headquarter-subsidary relations are collegial and collaborative. They favor innovation, co-creation, and joint problem solving. While the headquarters sets performance standards and pushes them onto subsidiaries, in reality, the process is one that is complex and intricate, involving various actors and using diverse inputs, including those of subsidiaries. Intra-MNC collaboration characterizes every step of knowledge generation and transfer.

Evidence also demonstrates the deep embeddedness of each unit in the MNC's network. Communication between various unit members is open and favors informal exchange of expertise and the strengthening of ties among various actors. Finally, headquarters don't stop at developing and "imposing" best practices on subsidiaries; they follow these up with a strong commitment to resource provision in order to ensure different units have the necessary means to meet new performance standards. This chapter goes beyond showing that a relational-based approach to MNCs governance promotes better transfer of EBP. It shows how this is done. Indeed, through regular contact, the headquarters are informed of the capabilities of subsidiaries and are better able to allocate resources to help them improve.

Chapters X started by describing the process through which the Cement Sustainability Initiative was established, the reasons behind its establishment, and the process through which it developed norms and standards. Chapter 4 showed that while the CSI does have a normative authority over member companies, the four MNCs under study, being founders and contributors to the development of these norms and standards, took environmental responsibility on their own volition without the normative pressure potentially stemming from the CSI. Chapter 5 followed these norms and standards as they were transmitted to Moroccan subsidiaries and down to individual plants. Finally, this chapter examined the process through which MNCs governed the transfer of expertise and know-how, thus uncovering the governance model adopted by these companies, which turned out to be horizontal, with specialized roles for each unit of a given corporation. The conclusion will provide a succinct review of this research, and provide other insights gained during the research and writing process.

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## **Chapter 7: Conclusion**

### **7-1 General Overview**

This research was prompted by a desire to understand why Moroccan cement companies have adopted advanced environmental responsibility practices far beyond those used by companies in the other sectors of the national economy. While corporate environmental stewardship in Morocco is generally lacking, cement producers have adopted best practices. This observation prompted two questions: why did the cement sector adopt, of its own volition, advanced environmental performance in the absence of the impetus of the state (i.e., stringent and enforced regulation), and how was the industry able to change course, develop, and adopt these best practices? Answering these questions meant identifying the power structures capable of inducing behavioral change within Moroccan companies, as well as the mechanics through which new knowledge is generated within the same context.

Using process tracing as a research methodology, and with the guidance of the precepts of institutional and network theories as well as the literature on relation-based governance, this research analyzed the external business environment of cement subsidiaries in Morocco, and uncovered the mechanism through which the adoption of environmental best practices (EBP) by Moroccan cement subsidiaries was enabled. Figure 6 presents this mechanism that will be expanded on throughout this chapter.

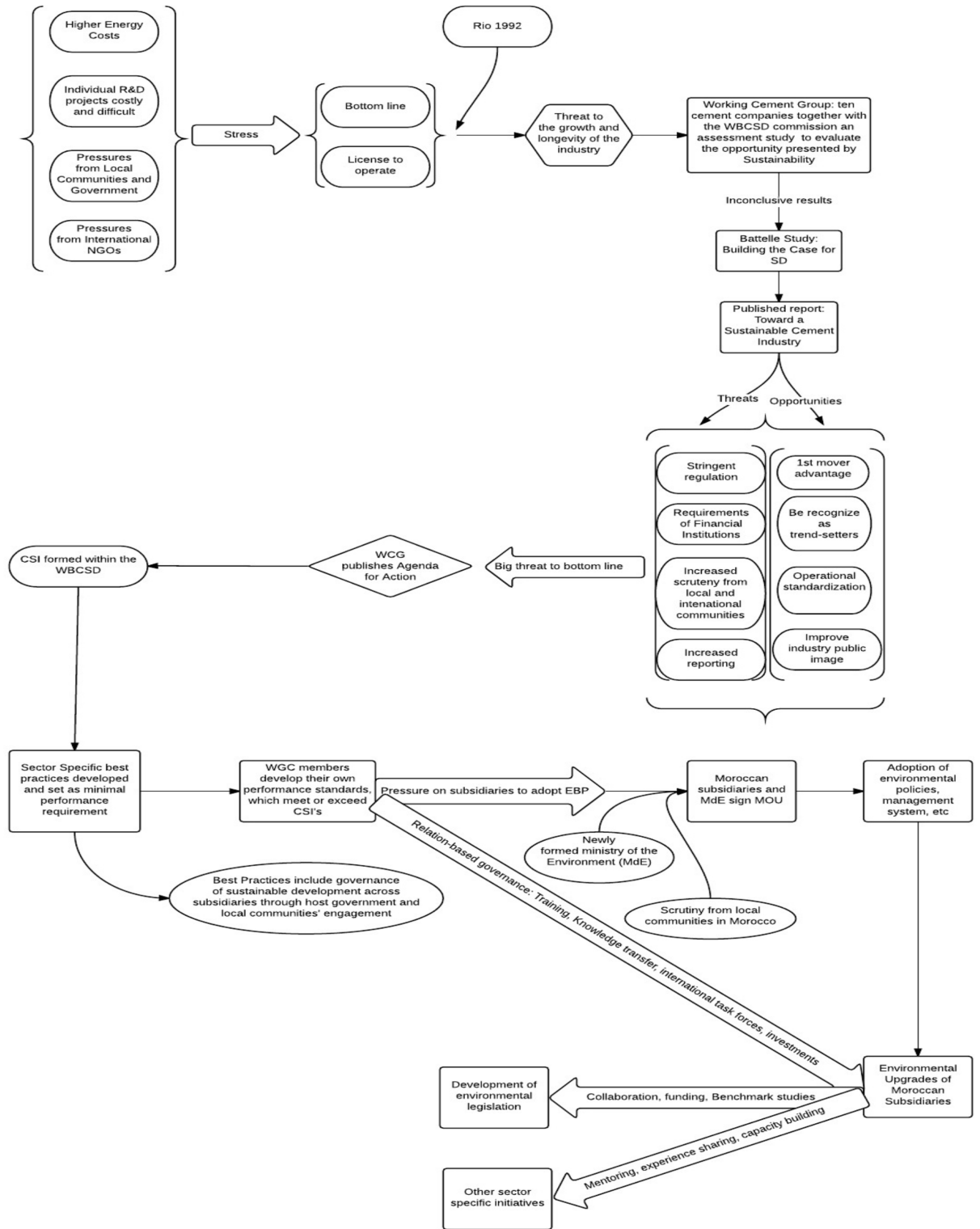


Figure 6: The “process of change” through which adoption of EBP by Moroccan cement subsidiaries was enabled



## 7-2 Who Prompted the Adoption of Environmental Best Practices by Moroccan Cement Corporations?

This research revealed that several elements contributed to Moroccan cement corporations adopting environmental best practices (EBP). While the external environment in Morocco was favorable to this change – especially with the increasing number of complaints about pollution-related issues and the establishment of a stand-alone ministry of the environment – it was neither a necessary nor a sufficient condition for an entire industry to change course. The Moroccan civil society and the then fledgling ministry of the environment did not have sufficient power to induce a behavioral change among multinational corporations. Community concerns at the time had not yet translated into regulation, and individuals were not organized and structured in a way that could exert the pressure needed for change. The Ministry of the Environment also lacked the necessary know-how to develop legislation and was not able to regulate business activity.

The main factor shaping the adoption of EBP in Morocco was the European headquarters of the subsidiaries present in the country. These companies having committed, through the Cement Sustainability Initiative (CSI) to improve the public image of the industry worldwide, expected all subsidiaries to perform at the same level set. The pressure exerted by the headquarters on subsidiaries was transmitted through non-negotiable directives that set the performance threshold for subsidiaries. These directives were supplemented with on-the-job trainings and investments for equipment upgrades, and were followed by a structured and a rigorous reporting and an auditing schedule. Cement headquarters had the power to institute the change in subsidiary business performance, and thus dictated their business processes. Headquarters also had the means and the knowhow to help subsidiaries perform at the desired level.

This research also revealed that the formation of the CSI was prompted by changes in the external environment of cement groups in Europe, but these were of a different kind and intensity to the ones felt in Morocco. As stated in Chapter 4, the energy-intensive nature of cement production is such that companies are very susceptible to fluctuating energy prices and invest heavily in researching and developing new and inexpensive forms of energy. It was the desire of a few cement MNCs to create synergy between the different companies' research initiatives that prompted conversations about collective action. Stakeholders' scrutiny caused concern, but it was energy's elevated cost that induced action.

When describing the early days of CSI, interviewees talked about the charisma and level of leadership CEOs showed at the time. Interviewees attributed their leaders' strong commitment to environmental stewardship to having attended the Rio 1992 convention. One can imagine that participation in the UN convention gave these leaders the desire to explore the possibilities of a collective action beyond researching alternative and cheaper energy sources. This would explain why these companies opted to commission the Duddly and then the Battelle studies. It was not possible to confirm this fact due to the difficulty of contacting and interviewing the CEOs from that time.

The two exploratory studies revealed several tangible threats to the industry's future growth. These threats included the following:

- Anticipated difficulty in obtaining licenses to operate, resulting from increasing scrutiny from neighboring communities as well as from global NGOs, especially in relation to the industry's elevated CO<sub>2</sub> emissions.
- Anticipated inability to obtain loans from financial institutions, which considered environmental responsibility as indicative of decreased risk and sound financial health.
- Anticipated stringent environmental legislation, which was being developed by various European and other states.
- Changes in public reporting requirements, which expected companies to share specifics about their environmental performance in each report, thus enticing companies to show continual improvement.

These elements were expected to underline the bottom line of cement companies, which constituted a necessary condition for the industry to change course. However, this pressure alone could not have induced change without the affluence of the industry and the availability of necessary human resources. It was the combination of all these elements that enhanced the industry's ability to generate necessary knowledge, such as the various tools aiming to reduce the amount of CO<sub>2</sub> emitted per ton of cement produced.

In addition to threats, the Battelle study also identified opportunities associated with adopting environmental responsibility as a preemptive strategy. The study revealed that doing so would guarantee cement companies a first mover's advantage, which would give them the opportunity to set the industry's performance norm. Also, through collective action, cement MNCs would constitute a potentate, which would then be able to provide input to regulating organizations and help set various emissions limits. Ultimately, voluntary collective action was a first step towards improving the industry's reputation. While threats put pressure on the industry's bottom line and induced change in order to avoid an undesirable outcome, opportunities made change attractive and desirable.

It is important to note that the threats described above also signal a change in the legitimation process of business activity. In addition to the shift in stakeholders' position with regard to old production processes – resulting in difficulty in obtaining loans and in preserving companies' licenses to operate – the linear business model based on excessive raw material consumption and on the generation and disposal of massive amounts of wastes costed too much and so no longer made business sense. This realization supported the need for a more circular production model, based on improved efficiency and closed loop production systems in order to reduce production costs. This change in perspective explains why the cement industry in Morocco is heavily invested in building the value chains for recycling various waste streams.

In summary, high-energy prices within an increasingly hostile environment to polluting industries encouraged cement companies to reflect on their performance and explore what sustainable development had to offer the industry. To do this, they commissioned two studies, with each making recommendations to help the industry transition towards a cleaner production

model. In response, cement companies developed an agenda for action, guided by Battelle's recommendations. In the agenda for action, cement companies pledged to continually reduce their negative environmental impact and required all subsidiaries to uphold the same level of performance that headquarters committed to. This action, in turn, induced Moroccan subsidiaries to adopt environmental best practices. In other words, normative pressures, stemming from CSI and caused by a changing business environment, mainstreamed the adoption of EBP among CSI members, contradicting Delmas and Montes-Sancho (2010) assertion that normative pressures seldom propagate EBP across a given organizational field. Coercive pressures emanating from multinational headquarters spread these best practices across subsidiaries, as asserted by Delmas and Montes-Sancho (2010). The combination of these two types of pressures slowly shifted the rules, norms, and beliefs of the international cement organizational field, which concurs with Hoffman (2002).

### **7-3 Who Developed the Norms to Be Respected?**

This research shows that norms were developed in Europe by the technical centers in a MNC's headquarters. However, this was not done in isolation, and without awareness of the abilities and potential of subsidiaries. Indeed, the four cement companies studied put in place an intricate structure to ensure proximity with subsidiaries. Not only did the companies have regional representatives who were informed of the laws and regulations applicable in each country within their region, but these companies also ensured that communications between the headquarters and subsidiaries was continual and open, through email communication, trainings, audits, etc. In this way, the four headquarters were fully aware of the capabilities and weaknesses of each subsidiary, and consequently set appropriate and realistic performance targets and implementation strategies. Subsidiaries, in turn, actively participated in developing context-appropriate solutions allowing them to conform to the norms set, and at times, to exceed them. And so, while headquarters developed the norms to be implemented, subsidiaries informed this process and participated in developing expertise necessary for their conformity. This finding concurs with Lee and Cavusgil's (2006) argument that each firm unit plays an important role in the generation of new knowledge, which is then consolidated and capitalized on. This also brings to light a successful network mechanism where different actors have different functions, which are then integrated and tied together by the focal actor, as was argued by Gooderham, Minbaeva, and Pederson (2011) and Tolber and Zucker (1996).

### **7-4 What Systems Were Put in Place to Ensure All Cement Manufacturers Conformed to these Norms?**

As discussed above, when setting performance levels, cement companies also developed trainings and investment packages aimed at giving subsidiaries the possibility to conform to the new standards set, and in some instances, exceed them. Cement companies also put in place a reporting framework, which enabled the close monitoring of subsidiaries' performance. Indeed, performance levels were reported daily through intranets, and monthly and yearly through official written reports. Interestingly, the daily reports in the four companies studied were submitted to the companies' servers and not to a specific person, in this way, and outside of audits, communication with an headquarters was focused on collaboration and joint problem solving and was not a relationship of a superior to a subordinate. This approach concurs with the principles of a relation-based governance approach (Gooderham, Minbaeva, & Pedersen, 2011)

and is conducive to not only achieving better conformity on the part of subsidiaries, but also gives them the impetus to innovate. Gooderham, Minbaeva, and Pedersen (2011) assert that the transfer of and capitalization on generated knowledge, especially in the case of a geographically dispersed corporation as in the case of a MNC, requires both the establishment of trust and the development of interpersonal relationships between employees of various subsidiaries. These scholars go so far as to argue that these micro-level relationships between firm employees are more important to knowledge transfer than unit-level ties. The relationships tying Moroccan subsidiaries' employees with their counterparts in headquarters, as described above, reflects such a closeness.

### **7-5 Who Guided the Industry Toward Sustainability?**

CEOs played a central role in ensuring cement companies change course. For instance, the position of environmental coordinators within Moroccan subsidiaries was created on the behest of companies' CEOs. These individuals, together with the subsidiaries' CEOs led the adoption of EBP. The environmental coordinators collaborated with technical managers to translate the directives emitted by headquarters into specific and easy to implement procedures, which were then distributed by the communications department to all other departments as well as plants' directors and environmental managers. The heads of relevant departments were then responsible for implementing the necessary changes to meet the new performance standard. Plant directors supported the leading role environmental managers played within their facilities. Environmental managers also ensured the new performance level was met by the plants and reported both to the subsidiary's headquarters and the intranet of the MNC's headquarters.

### **7-6 Who Punished Non-Conformity?**

In keeping with the relation-based governance approach, the MNC's headquarters, through the reporting and auditing structure they have in place, did not purport to "catch" non-conformity for the purpose of punishing perpetrators. Instead, they aimed to measure performance in order to determine training and investment needs, and to identify new opportunities for optimizing, improving, and streamlining production processes.

### **7-7 Organizational Learning**

The environmental imperative imposed by cement headquarters led to the development of indigenous expertise and knowhow. While Moroccan cement subsidiaries relied initially on the transfer of knowledge from their headquarters, they eventually acquired enough experience and needed human resources to generate their own solutions. Knowledge transfer from an headquarters eventually enabled Moroccan cement subsidiaries to generate knowhow by developing relationships with engineering and science schools. The feedback obtained from group technical centers helped inform procedures, refine processes, and spark innovation. As illustrated by the Ciment du Maroc interviews, environmental best practices were no longer an add-on, but were fully embedded in the way cement was being produced. This proves that Scott's (1987) contention that a country's cultural values and technical abilities define its industry can be reversed in special cases, such as in the case of the Moroccan cement industry. The Moroccan cement industry developed its own technical knowledge and instilled corporate environmental responsibility values within the industrial fabric of its value chain.

## **7-8 Ethics**

The discussion of environmental responsibility as a matter of ethics does not occur in CSI's documentation. The initiative was based on studies measuring the real impact of the environmental imperative on the industry's bottom line, which served to build the case for sustainability. This supports the realist lens under which the question of environmental responsibility of Moroccan cement subsidiaries was examined (Geuss 2008; Rossi 2012). The development of sound, bottom-line oriented evidence supports the fact that sustainability was not only a profitable business model, but was also a model that secured the sustained growth of the industry in a fluctuating and volatile environment.

This research demonstrates that adoption of EBP by industrial actors is not induced by the desire to do "the right thing" but requires the assessment of the impact of sustainable practices, and the impact of their absence on business bottom line. This exemplifies Geuss's (2008, p. 31) claim that political action aims to do "what is good in a particular concrete case by agents with limited powers and resources, where choice of one thing to pursue means failure to choose and pursue another." Cement multinationals analyzed their operations based on social, economic, and financial indicators, and strategized based on the results obtained.

## **7-9 Research Contributions**

The first contribution of this research is that it identified the conditions that lead an industry, in this case the Moroccan cement industry, to change course and adopt EBP uncovering the mechanisms through which the industry achieved this change. This finding is limited to the context of Morocco, an emerging economy lacking environmental regulation, but within a global context, as it is focused on the role multinational companies played in instituting this change.

This research also elucidated a new framework of governance, which bypasses governments, to directly involve market actors, including financial institutions and global NGOs. In this framework, market actors had more power than governments to induce change within the global cement industry, as it was pressure from financial institutions and global NGOs that led to the formation of CSI, and not country governments. The role of Moroccan governmental institutions was to facilitate and coordinate the activities of cement subsidiaries.

The second contribution is the methodology used. As far as I know, this is the first time process tracing was used to uncover the process through which the environmental transformation of an industry took place. The inductive approach inherent in special case process tracing allowed the identification of a constellation of power capable of inducing organizational change for the better. It also enabled the uncovering of the mechanism through which this change occurred. I believe this is a promising area of research, especially as we move into the redefinition and a restructuring of social roles and responsibilities.

Thirdly, this research explored the nexus of institutional theory, network theory, and the literature on governance. It argues that the phenomenon observed, which is the adoption of EBP by cement subsidiaries in Morocco in the absence of regulation, can be explained successfully through the conjoining of these three literatures.

While the concept of isomorphism provides the mechanics through which organizations influence one another (Jennings and Zandbergen 1995; Hoffman 2002; Delmas 2002; Delmas & Toffel, 2004; and Delmas & Montes Sancho 2010), network theory explains how this influence is enhanced by increased interaction between organizations, as is the case when these are members of global fora or when they have a headquarter-subsiary relationship (Granovetter, 1983; Uzzi, 1997; Tsai, 2001; Andrew & Delahaye, 2000; Bras et al., 2004). This research elucidates the mechanism through which membership in CSI generates normative pressures, which foster isomorphism horizontally across cement multinationals; and the mechanism through which a headquarters-subsiary relationship generates coercive pressures triggering vertical isomorphism within each MNC. Finally, this research embodies the important role a relation-based governance approach plays, especially in creating harmony between the various MNC units and also in knowledge creation and transfer, as discussed by Gooderham, Minbaeva, and Pedersen (2011), Lee and Cavusgil (2006), and Kogut and Zander (1993).

### **7-10 Limitations**

The focus of this research was not to measure the extent of cement companies' environmental performance, but to understand the constellation of power that induced collective action among cement subsidiaries in Morocco. Therefore, this research cannot comment on the actual amelioration of Moroccan cement subsidiaries' environmental performance.

Also, this research focused on cement subsidiaries of MNC that created the CSI. These companies already have a high sense of environmental responsibility, but they are not representative of the entire industry. A necessary condition to subsidiaries adopting environmental best practices is their headquarters telling them to do so. Thus, it is not clear what subsidiaries' performance would have been had their headquarters not been CSI members. Consequently, these results cannot be generalized to all cement subsidiaries in the world.

Finally, while this research provides the conditions that enabled organizational change through the adoption of EBP, its results are not easily transferable to other industries, since they were shaped by the idiosyncrasies and the business context of the cement industry. These idiosyncrasies include the fact that the cement industry is highly technical in nature, and employs a highly educated workforce, which enhances the innovation and creativity process. Also, the industry is consolidated as a few companies control a big portion of the world cement production. This facilitated their ability to unite and reach consensus. Lastly, the founders of the CSI were European companies used to higher environmental expectations, and so these companies, which had a public imagine to uphold at home, examined thoroughly their social and environmental impacts across all subsidiaries. The industry's action plan accounted for the results of this entire process and operationalized the principles agreed to in a financially profitable way. This context is an important factor in the way cement companies responded to the pressures felt, and so the process identified here might not apply to other industries in a different context.

## 7-11 Future Work

The Ciment du Maroc CEO explains:

A Moroccan group [not part of a MNC] can be as efficacious if its leadership shares similar values. So it is a matter of higher management commitment and attitude, the availability of know-how, access to investments for necessary upgrades, etc. A local industry, which is in compliance with regulations is not enticed to do more. To advance this environmental question, it is important to have several things moving in different directions at the same time. At the level of legislation, standard setting, know-how, capacity building, etc. It requires the collaboration of various actors; that is the only way to help advance the agenda. The role of public authorities is not to be discounted. ... Cement companies succeeded so well because ... [they were a part of a] MNCs who consider environmental responsibility as a cornerstone to quality and good citizenship. There is a strong and real harmony between us, the various Moroccan plants, and European headquarters. We are all committed to reaching a common goal (Ciment du Maroc GD, 2013, translated by Elouardighi, S.).

This quote summarizes the findings of this research and sets the stage for future work that will explore the new environmental governance frameworks that are emerging as a result of globalization. As exemplified in this research, globalization extends the reach of norms and regulations beyond a given country's frontiers, so that they directly influence the organizational fields of other potentates. This research shows how European norms and regulations, stemming from pressures emanating from European communities and institutions, directly influence the way business is done in Morocco, through the trade relations existing between organizations in both geographical areas.

Future research will examine the spread of corporate environmental responsibility among Moroccan firms, and the extent to which this research approach can inform the potential adoption of EBP by other industrial sectors in the country. In other words, I will determine whether and how the conditions identified in this research as central to the cement industry's environmental program, can be applied to other industries. Adjustments will then be made to the approach with the objective of trying to develop a generalizable mechanism.

Future work will also examine the extent to which market instruments can be mobilized to induce environmental responsibility in Morocco, and by extension in developing countries, where environmental legislation is not enforced. The respective roles of the public sector, the private sector, and civil society will be examined, especially as transnational corporations and global NGOs become more influential than country governments.

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## **Chapter 8: Epilogue**

### **8-1 Introduction**

This epilogue explains how I used the results of this research to develop an initiative to promote the greening of industry in Moroccan. This initiative consists of the creation of the Cluster Industriel pour les Services Environnementaux (CISE)-Maroc, or the Industrial Cluster for Environmental services-Morocco. In this chapter I chronicle the evolution of CISE-Maroc to a uniquely positioned actor to support the greening of environmentally unfriendly sectors and guide investment into greener sectors.

In the spring of 2014, I reached out to several companies, universities, research centers, and business schools and convinced them to voluntarily unite around the idea of promoting environmental services needed by existing firms to advance their environmental transformation. In May 2014, CISE-Maroc was created in the form of a Non-Governmental Organization. Its founding members included 13 small and medium size enterprises, five big corporations, two universities, a business school, one trade association, and a local government. CISE-Maroc provides a platform for exchange and communication between its members to collectively pave the path for cleaner production and corporate environmental responsibility. It aims to promote research to bring economic and technological solutions appropriate to the conditions of the country, and is in the process of establishing an incubator for green enterprise to help create an environmental services industrial sector.

### **8-2 Link with the Cement Industry**

The analysis of the Moroccan cement industry showed that its performance is the outcome of extended research and development in collaboration with a plethora of stakeholders, including global environmental NGOs. Shortly following the Rio convention, cement multinationals took the initiative, within the structure of the World Business Council for Sustainable Development (WBCSD), to develop a set of environmental best practices (EBP) that effectively and systematically reduced the environmental impact of cement production worldwide. This research also showed that in this process, the cement industry developed an extended list of side activities outside the traditional cement value chain such as waste processing and developing capacity to transform solar and wind power into potent energy sources. Cement multinationals benefited from the strong commitment of their headquarters to environmental stewardship, which translated into heavy investments in generating knowledge and expertise to find ways to reduce the environmental impact of cement production. This process was prompted by a set of changes in the external environment of the industry worldwide.

Small and medium size enterprises (SMEs) in general and Moroccan ones in particular, have limited financial and intellectual resources and lack access to similar resources as those enjoyed by the cement industry. Hence, they could only commit to environmental responsibility ceremoniously. A meaningful shift to greener production required the development of linkages between companies and research centers, and the concerted effort of these actors in finding solutions to environmental challenges. These linkages often took place within the structure of voluntary environmental initiatives.

### 8-3 The Potential for Voluntary Environmental Initiatives

As discussed in Chapter 5, voluntary environmental initiatives are environmentally minded measures taken by public or private agents of their own volition, and without coercive institutional pressure (Paton, 2000). These initiatives are characterized by the collaboration of various actors in dealing with the environmental challenges encountered. They are “increasingly considered among academics, governments, and business leaders as a relevant policy alternative” (Blanco, 2010, p. 36), as they have proven efficacious in addressing acute environmental challenges through the mobilization of corporate participation (Blanco, 2010; Abdekhodace & Nagarajah, 2014; and Kennedy & Green, 1996).

This form of collaboration is the result of a successful dynamic where stakeholders impact and shape companies’ systems of operations (Abdekhodace & Nagarajah, 2014, p. 135). Inter-sector collaboration translating into frequent interaction between stakeholders both within and outside a given organization, result in the development of strategic partnerships. Through these collaborations, stakeholders’ needs in terms of environmental quality are channeled to participating organizations. Companies are then able to adopt corresponding environmental behaviors, and achieve the stakeholders’ expected level of performance (Abdekhodace & Nagarajah, 2014).

Active corporate involvement in resolving environmental challenges is enhanced by the gradual adoption of “sustainable industrial systems” based business models (Paton, 2000, p. 328). According to Warhurst (2004) and Loranzo (2012) the duties of the private sector in the 21<sup>st</sup> century progressively tend toward being a ‘positive force’ in bringing much desired social change. Contemporary society sees the private sector’s role as including active collaboration and engagement with other societal actors in resolving environmental, humanitarian, or health related ills. Warhurst (2004) further explains that for this corporate involvement to bear the desired fruit, it needs to go beyond mere philanthropy and take the form of active participation. Various corporations, and especially multinationals, have adopted this logic. Several have developed “principles, policies strategies and reporting procedures that define a completely different way of working – and not simply a nice to have ‘add on’” (Warhurst, 2004, p. 154). This shift is so well ingrained in the psyche of business practice that 7,700 corporations from 130 nations have committed to the principles of the UN Global Compact (Loranzo, 2012, p. 15) and thousands of voluntary initiatives have been negotiated by industry in recent years in the European Union, the United States, and Japan, as well as in some developing countries to develop and adopt cleaner production processes (Blanco, 2010, Paton, 2000, Loranzo, 2012).

This change in the societal function of business is driven, in the opinion of Warhurst (2014), by stakeholders expecting businesses to do more than prevent harm. Multinational Corporations (MNCs) especially are expected to play an active role in improving life conditions within their host countries. As a result, companies “review their risks more strategically – such that they encompass wider areas of ethical, social and political risk that might affect future business strategy, performance, license to operate and liabilities as well as shareholder value” (Warhurst, 2004, p. 153). Loranzo (2012) argues this is due to the fact that companies do not comply with environmental regulations, which are ill-adapted to business practices.

Planning for sustainable development is then likely to involve “a broad spectrum of partnerships between governments, development agencies, businesses, civil society and local communities” (Warhurst, 2004, p. 154), as each actor fulfils its societal duty in co-creating a healthy and a just community for all (Warhurst 2004). Such partnerships are needed since the problems societies are currently grappling with exceed the problem-solving capacity of one institution (Warhurst, 2004).

While corporation-government partnerships can yield positive results, supply chain partnerships represent a potent medium for corporate change. This is because such collaborations enable the co-conceptualization of “production processes and products” (Abdekhodace & Nagarajah, 2014, p. 136).

#### **8-4 An Industrial Eco-Cluster as a Voluntary Environmental Initiative Focused on the Creation of the Sector of Environmental Services**

I combined all these elements to create a voluntary environmental initiative in Morocco in the form of an industrial eco-cluster, giving it the mission of supporting the development of the environmental services sector.

An industrial cluster is a network where organizations liaise with one another in order to improve the competitiveness of a specific industrial sector, facilitate knowledge transfer, and minimize risk (Slaper & Ortuzar, 2015; Porter M. E., 2000). Industrial clusters have been shown to herald creativity, innovation, and high efficiency (Barsoumian, Severin, & van der Spek, 2011; Dervojeda, et al, 2013; Porter, 2000). Not only do they cross the chasm between corporations and academic or research institutions, but they also enable collaboration, co-creation, learning, and the exchange of higher value and tacit information (Dimitrova, Lagiola, & Galluci, 2007; Chapple, 2008; Keeble & Nachum, 2001). Porter (2001) argued that a cluster’s ability to lay the ground for an innovation-driven economy is due to the comingling of industrial actors and associated institutions participating in knowledge creation and experimentation, which brings to light innovative opportunities.

Eco-clusters aim to reduce the environmental footprint of industry. The term was first introduced at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. Eco-clusters are rooted in the concepts of industrial ecology and are believed to increase the competitiveness of the zones where they are formed (Dimitrova, Lagiolia, & Gallucci, 2007). These clusters have been recognized as drivers of green growth since they offer “the best framework conditions, infrastructures and networks for [the] promotion” of eco-innovation (Pohl, 2015, p. 3) through “the streamlining of supply chains” and bring to close proximity eco-innovators with other actors, facilitating the spread of green technologies and processes (Barsoumian, Severin, & van der Spek, 2011, p. 12). In addition to this increased interaction within and across value chains between green and traditional industries, eco-clusters also offer pertinent information on markets, available technologies, and availability of green skills. They also enable the capitalization on synergies between firms and R&D institutions, which is essential to promoting eco-innovation for SMEs (Barsoumian, Severin, & van der Spek, 2011; Dervojeda, et al, 2013).

There exists a strong parallel between voluntary environmental initiatives and eco-clusters. The impetus of both is to tackle environmental challenges too big for one actor to tackle alone, and both result from the voluntary establishment of relationships between member organizations for the purpose of improving competitiveness through reduction of environmental impact. For both, inter-firm linkages must make economic sense, and increase firm competitiveness (Dimitrova, Lagioia, & Gallucci, 2007). Eco-clusters go an extra step in that they provide a framework for green industrial and economic growth (Pohl, 2015). It is following this rationale that the Cluster Industriel pour les Services Environnementaux-Maroc (CISE-Maroc) or the Industrial Cluster for Environmental Services-Morocco came into existence.

### 8-5 Cluster Industriel pour les Services Environnementaux-Maroc

CISE-Maroc founding members agreed to orchestrate their initiatives for the purpose of promoting green industry in the country. Most of the founding companies are polluters who desire to go green, but lack the necessary infrastructure. CISE-Maroc aims to establish such an infrastructure, by providing the space for experience sharing, capitalizing on already created knowledge, exploiting operational synergies, and more importantly creating linkages between various actors and building on existing initiatives to bring about new, innovative, and environmentally responsible ways to conduct business. In this way, the CISE-Maroc offers an effective form for promoting, bolstering, and embedding clean industries in the country's economic development planning. Table 6 presents CISE-Maroc current members.

*Table 6: CISE-Maroc's Current Members*

Large Corporations	Small and Medium Enterprise	Consultants	Higher Education & Research	Governmental Agencies & Associations
Pizzorno	Ynna Steel	Hydroportec-Consult	HEM	City of Rabat
LAFARGE	Ecoval	Envidepp	University Hassan II	Cement Trade Association
Ciments du Maroc	LMN	Phenixia	University Bnou Toufail	
Holcim	Kilimanjaro Environnement	Planet H2O	Greentic	
	Generizon	Seau Globe	MASCIR	
	Polluclean			

Several characteristics make CISE-Maroc a promising endeavor. Indeed, not only does CISE-Maroc include prominent Moroccan universities, but it is also partnered with leading

American and European universities and research facilities, such as Virginia Tech's Centre for Leadership in Global Sustainability, the School of the Earth, Ocean, and Environment at the University of South Carolina, and Aalborg University's Department of Development and Planning. In this way, CISE-Maroc acts as a conduit for state-of-the-art environmental knowledge and expertise, and brings to close proximity researchers in environmentally related fields. This international partnership also facilitates the exchange of ideas between students and researchers globally, and enables collaboration on various projects.

CISE-Maroc has already been recognized by the ministry of the environment (MdE) and has been invited to collaborate and provide input on various matters. For instance, the MdE recently developed a grant program to support environmentally oriented scientific research, and invited CISE-Maroc to help orient some research projects to serve industry needs and bring economic and technological solutions appropriate to the conditions of the country. Also, CISE-Maroc has recently been awarded together with Virginia Tech's Centre for Leadership in Global Sustainability, a grant from the U.S. Department of State to promote green entrepreneurship and green jobs in the country. This grant will be used to help establish a permanent green incubator. At first, the incubator's focus will be on developing the value chains of waste reuse and recycling, but it will eventually extend to other activities such as green chemistry. CISE-Maroc industrial members will be heavily involved in this incubation process given that they will be the customers of the future start-ups. As a result, not only are they rendering salient the potential profit to be gained from exploring this economic activity, but most importantly, they will mentor and provide guidance and assistance to the start-ups most aligned with their needs, thus increasing their chances of success. While CISE-Maroc is a relatively young organization, it is already playing an important role in bridging various institutions and driving forward corporate environmental responsibility in the country.

## **8-6 Conclusion**

CISE-Maroc is a voluntary environmental initiative undertaken in the form of an industrial cluster in order to help populate the sparse environmental services sector and facilitate existing companies' environmental transformation. Currently environmentally responsible corporations develop green programs in isolation, relying solely on their intellectual, human, and financial resources; or hire the help and guidance of a consultant or service provider. While this process allows the immediate resolution of individual challenges, it forestalls paradigmatic shifts in industrial production processes. The development of green processes relies heavily on the creative process, which in turn is enhanced by the coming together of various actors brainstorming and exchanging ideas.

The establishment of CISE-Maroc is both timely and crucial. Indeed, the cluster reinforces the institutional changes that have taken place in the last decade, and complements already existing programs. It works alongside institutions and corporations to identify new and innovative alternatives to traditional industrial production. It also strives to build capacity in environmentally related fields, providing a communication platform for collaboration and ideas-sharing between various experts in Morocco and globally, and offers a space for transforming these ideas and solutions into entrepreneurial ventures likely to further support Moroccan firms' adoption of EBP.

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