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Green Island Cement (Holdings) Ltd.

ISO 14001: Concrete benefits?

Green Island Cement faces hard choices

"We really must do it. Everybody is. This ISO 14000 thing is here to stay, and we simply must get the 14001 certification." Emma Wong sounded totally convinced, announcing her views generally to everyone in the Green Island Cement staff lounge, but particularly to Connie Chiu. Everybody else continued their own conversations, but Connie picked up topic and quickly responded. Connie and Emma were good friends, but often saw things from differing perspectives, as the conversation made obvious.

Connie made her views clear: "Emma, these days you are sounding more and more like a wild environmentalist! Maybe adding environmental responsibilities to your job as public affairs director has turned you a bit too green for the real business world! Have you any idea of the costs involved? I mean not just the costs of 'doing good' which we already do here, but the costs of getting certified???"

"Stated like a typical cost accountant. Your profession teaches you to look at the cost of everything but not the value of anything. We really have no choice. This ISO 14000 process may cost us in the short run, but it is simply a cost of doing business in the 21st century. We simply must go for 14001 certification."

This case was prepared by John F. Hulpke, Hong Kong University of Science & Technology; Margaret A. Fidow, City University of Hong Kong; Thomas J. Dean, University of Colorado at Boulder, as the basis for class discussion, rather than to illustrate effective or ineffective handling of administrative situations. Copyright © 2001 Centre for Environmental Management Education and Development of The Hong Kong Polytechnic University.

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As they headed back to their respective offices, Connie with her coffee and Emma with her tea, it was clear that this conversation would go on. Probably for a long, long time. Similar debates would be going on in coffee shops, boardrooms, shop floors and offices of firms around the world. The debates would involve many similar sub-topics all over the world when the question arose. What is this ISO 14000 all about? What are the advantages? What are the costs? Green Island may feel unique but the cement industry faces many of the same challenges faced in other industries also. But while some aspects are universal, others truly are specific to the firm. Green Island was not just any old cement business: Green Island was part of Cheung Kong Holdings, which in turn was a part of the Li Ka Shing group of conglomerates which reportedly made up about one fourth of the total value of the Hong Kong Stock Exchange “Hang Seng Index”, which is like someone in the US saying one business group made up 25% of the Dow Jones Industrial Average! Green Island itself was not huge, but it was certainly a part of a huge family of organizations. And the bigger they are, the more sensitive they seem to be about getting environmental black eyes. Green Island could not make Cheung Kong or the rest of the empire look bad.

What factors should go into the decision to seek, or not to seek, ISO14001 certification? Conversations similar to those in the coffee shop at Green Island Cement were going on around the globe in the early 21st century, as mentioned above. And, plenty of people within Green Island were thinking about the issues. Below the surface question, whether or not to go for certification, one finds a bigger question: how environmentally friendly should we be? For every aspect of environmental improvement, costs would be involved. How would these costs be compared to the benefits?

The next few pages cover some of the many issues that Green Island Cement must consider. First, what is this ISO all about? In particular, what is the ISO 14001 Emma was pushing? After a discussion of the cement industry in general we look at a question relating back to the environment: what environmental issues face the cement industry? In an industry often thought of as a bit “dirty” can a firm be Green? Certainly a firm with the word “Green” in the company name would be off to a head start, but it requires more than a good name to meet environmental standards in the 21st century. A bit of history shows that Green Island Cement has a pretty strong environmental record, and a good “environmental heritage.” But, since nothing comes for free, ISO certification is not automatically the right thing to do now.

ISO: what’s all the fuss about? ISO 14000 and Environmental Management Systems

The International Organization for Standardization (ISO) is a worldwide federation founded in 1946 to promote the development of international manufacturing, trade, and communication standards. Originally, ISO formed out of a need for common measures and technical specifications to facilitate commerce and the use of products in multiple nations. Most nations have representation within ISO. Prior to the ISO 9000 quality management standards, all standards promulgated by ISO were technical in nature.

With the success of ISO 9000 and concern surrounding the 1992 Rio Earth Summit, ISO moved to develop a series of environmental management standards and guidelines in order to aid companies in dealing with environmental issues. This series of environmental standards was developed through an international consensus building process open to all interested

constituencies (although heavily represented by industry) and are known as the ISO 14000 series. The process was overseen by the Technical Committee #207 of the International Organization for Standardization. The series of documents broadly addresses such issues as environmental labeling, life cycle analysis, environmental management systems, and environmental performance evaluation. Importantly, the entirety of ISO 14000 is strictly voluntary; however, if ISO 9000 is any indication, it is likely that certain customers-- especially those in the European Community--will require registration as a requirement for doing business with them. Although the enthusiasm for ISO 14000 took a bit longer to develop in the rest of the world, signs were there. In the early 21st century automobile manufacturers in the US (both General Motors and Ford) announced that they would be pushing for ISO environmental certification for all their "tier one" (direct) suppliers.

Most important among the ISO 14000 series are those pertaining to environmental management systems (EMSs). Two related documents directly address EMSs. Of undoubtedly the most interest is "ISO 14001," which gives the registration standards (the requirements which the EMS must meet in order for an organization to become registered by an ISO registrar). For most companies, obtaining registration would be the main reason for their interest in ISO 14000. In addition, "ISO 14004" provides useful guidelines that an organization should consult when implementing an EMS (but, these are not required for registration).

An EMS is a formal system used by a company to manage the environmental aspects of its business. To some extent, all organizations with environmental issues have environmental management systems, but the nature and extent of an environmental management system as exemplified in an ISO 14001-certifiable system may be much different from a company's existing system. Most companies have procedures that address compliance but go little beyond that. The development of the ISO 14001 standard represents a change in philosophy in organizations throughout the world in the way they approach environmental issues.

Movement is away from a compliance orientation, where environmental issues are seen only through the eyes of government regulation, and toward a philosophy wherein an organization proactively minimizes environmental impacts of its products and processes.

The philosophy is exemplified in the five fundamental principles built into the EMS standard. These principles include commitment, planning, implementation, measurement and evaluation, and continual improvement. In short, these principles require a company to:

1. Develop an environmental policy;
2. Identify the organization's environmental aspects;
3. Decide on the organization's environmental goals and objectives;
4. Develop formal procedures and systems for achieving its objectives;
5. Control and document performance relative to those goals;
6. Continually review and improve the system.

The assumption that an effective and functioning EMS will lead to improvements in environmental performance is key to the success and acceptance of the standard. Evidence suggests that the fundamental change in philosophy toward the environment can help

organizations improve environmental performance, lower environmental management costs, and improve stakeholder relations. Furthermore, the standard requires organizations to set objectives and targets for their significant environmental aspects. It also requires a commitment to continual improvement and the prevention of pollution. As a result, it may be difficult to maintain registration to the standard without reductions in pollution levels.

However, some constituencies contend that the environmental benefits of the standard will not be as great as others claim. Their argument is supported by the fact that ISO 14001 is not an environmental performance standard. Indeed, nowhere in this standard are levels of pollution specified for any industry or business. Thus, it is conceivable that an organization could initially be registered to ISO 14001 with relatively high levels of emissions. Critics of the ISO system have a series of jokes to underscore this point, some of which feature the industry under discussion here, cement. An oft-repeated story reminds us that a factory that produces nothing except cement life preservers, which most certainly would not float, could get ISO certified, “as long as they all sank at the same rate.” ISO 14001 also permits considerable latitude in the selection of objectives and targets, so the company needs only focus on those priorities which are significant and to which it is willing to commit. Moreover, because the environmental improvement goals are self-imposed, one registered company’s environmental performance may not equal another’s. While this may not seem equitable, the standard was written to be applicable to a broad array of organizations. Indeed, the standard can be applied to companies that have varied environmental considerations, cultural and industry contexts, and access to technology, infrastructure, and resources. In addition, the ISO definition of "organization" is written so that it can be flexibly applied across various organizational levels. This means that an entire corporation could be registered, but it is more likely that in the beginning single plants or business units will seek registration to the standard. While most organizations will seek third-party registration (e.g. from an EMS auditing organization), ISO 14001 also permits second-party auditing (e.g., to determine if a supplier meets the standard) and even self-declaration.

Green Island Cement: a leader, but how green should it be?

Across America in the 1980s and 1990s, cement plants shut down after deciding the cost to clean up would be too high. Mammoth Cement, Tehachapi California is one example. Although Mammoth felt it was far enough away from “civilization” that the dust it produced should not be a problem, California laws dictated otherwise. The plant, about an hour and a half north of Los Angeles, shut its doors in the 1990s. Similar stories report closures in Europe as well. The cement industry included numerous old and dirty plants. It was not economically feasible to retrofit many of the oldest producers to make them environmentally “clean and green”. The dust was just too irritating.

Making cement is a complex, and dirty, process. Cement is produced by a series of steps, basically independent operations. Each step has the potential of polluting the environment. Raw materials are usually dug up from the earth, leaving big holes and creating dust as well as a huge mess. The particulates put in the air by a limestone quarry for example may not be as noxious as the chemicals we find in “smog” but they dirty the air nonetheless.

Getting the raw materials to the cement factory gives the industry another potential black eye, as dust enters the air from trucks, rail cars, and barges. Once arriving at the factory, it has to be

dumped into some kind of a mixing facility, adding more dust to that air. Some cities in Pennsylvania reportedly took on a permanent gray hue as dust from this stage of the process was always present. The various raw ingredients, including limestone, silica, iron slag, and sometimes other things such as fly ash are then completely dried, finely ground, and combined into a raw meal. This meal is then mixed thoroughly to insure consistency in the ingredients, and then fed into a pre heater kiln. Cooking this material to about 1450 degrees centigrade produces “Clinker.” By the way, heating tons and tons of rock-like materials to 1450 degrees takes a lot of energy, another sore spot with the environmental community. What used to be called “smokestacks” lets the heat vent to the atmosphere, and in too many cases, lets dirt into the air as well. These “smokestacks” are called by the industry “flues.” Smokestack is no longer a politically correct term it seems.

Next, the “Clinker” is dosed with gypsum, very finely ground, Cement is so finely ground that those neighboring plants swear the stuff can get through sealed doors and even through glass windows. This must obviously be an exaggeration, but cement dust is VERY fine, and the slightest breeze can send it far out of the plant into your neighborhood schoolyard.

Then we put the cement into bags, another good chance to get dust into the air, and send it to the buyer, possibly a concrete mixing facility. Concrete makers have problems too, but at least there is a lot of water used in the process of making concrete, so less environmental wrath seems to reach these folks. Concrete may have a few enemies, but cement has multitudes of detractors. Cement making is seen as one very dirty process.

As can be seen, the process was dirty and not a favorite of environmentalists, even back in the mid twentieth century. But, apparently there were other environmental bigger problems on the horizon. Global warming was getting increasing press, and cement started being linked to the issue. Everybody always knew cement production created ugly clouds of dust, giving some towns around the world a perennially gray hue, but in the closing years of the 20th century, this new worry came to light. An article in Engineering News Record (Solution for Pollution, ENR, v. 241, issue 23, New York; December 21, 1998; p. 192) puts it this way:

“As the world's largest industry, construction often runs afoul of the environment. But who would have thought that cement production contributes to global warming? This past year, several concrete experts have been telling the industry that cement production contributes 7% of humanity's carbon dioxide emissions. Half of that, they say, comes from the release of CO₂ during the process of calcining or converting limestone into lime. The other half results from the use of fossil fuels in a highly energy-intensive process to convert calcium oxide and silicates into cement clinker.”

“How should the industry respond and how quickly? With average global temperatures in the 1990s the hottest since the keeping of accurate records in the 1880s, global atmospheric CO₂ now totals 360 parts per billion, up from 280 ppb some 1,100 years ago, according to figures cited earlier this month in San Francisco at a forum on Concrete, Fly Ash and the environment.”

The pressure to clean up the industry would certainly be felt first in areas where environmentalists were active. It would not come as a surprise that the forum described above

was held in San Francisco. But, after the “globalization” of business in the 1980s and 1990s, the new century saw a “globalization” in the environmental movement. Hong Kong had its own branch of GreenPeace, and Friends of the Earth was active around Asia. Plato Yip, helping run the Friends of the Earth program in Hong Kong, seemed to be everywhere all of the time, raising concerns about this and that. Would industry in Hong Kong face the pressures to clean up already noted in the other parts of the world? In particular, what about the cement industry?

Hints of coming pressures were appearing. The Chief Executive of Hong Kong, a position similar to Mayor of other big cities, focused on cleaning the environment in his annual “policy address” in 1999. And for good reason. An article in the New York Times early 1999 described the scene:

For much of this winter, Hong Kong has been shrouded in a yellowish haze that has blotted out its legendary vistas. This is not brooding, rainy mist of the sort that supplies atmosphere in James Clavell novels. It is a dry, gritty smog that catches in the throat and gives the city an odd sepia-tinted glow.

"If this is allowed to deteriorate further, it's going to be a major problem for the economy," said Mr. (Barrie) Cook, who runs a cement and concrete company for Hong Kong's most famous tycoon, Li Ka-shing. "Companies are very concerned about employees working in a deteriorating environment. They won't want to invest here. They won't want to put people or facilities here."

“In Hong Kong, tackling pollution raises ticklish political issues. Much of the smog is generated across the border in mainland China, where a forest of smoke-belching factories has risen in Guangdong Province over the last two decades. In the winter, northerly winds blow the fumes into Hong Kong, where they mix with exhaust from buses and taxis to create what Kim Salkeld, the government's spokesman on the environment, calls a "horrendous cocktail." ” (“Choking on China's Air, but Loath to Cry Foul”, New York Times; New York; Feb 12, 1999, page 4; Mark Landler)

The fact that the New York Times quoted an executive from a cement factory about the need to clean the air might surprise many. But Hong Kong environmental activist Plato Yip expressed no surprise. “Friends of the Earth yells and screams when we see misconduct. But, we also recognize good citizenship when we see it. You ought to take a look at Green Island Cement! They are setting a remarkable example!”

The fact that Barrie Cook was seen as an advocate for a clean environment also did not surprise Green Island Public Affairs spokesperson Emma Wong. And, Emma used this as ammunition in her ongoing coffee-shop debates with Connie Chiu, her Green Island Cement cost accountant friend.

“Let’s face it, if our CEO is all over town giving environmental speeches, how would it look if we did NOT go for ISO 14000 certification?” Emma asked Connie. “We at Green Island are seen as environmental leaders. We have to lead in this also!”

Connie agreed, but only up to a point: “You are right, we are leaders on environmental issues. And we will continue to be. It’s part of the culture here. But ISO certification? It’s a joke! If you hire the “right” consultant, and pay him or her enough money, you can get it! And still be a dirty polluting plant! All the ISO 14001 certification means, for example, is that you have a PLAN, a SYSTEM to monitor what you do to the environment. You can have a great system, get certified, and still pollute! But what bothers me is the money you need to spend setting up the system, and to pay the consultant to help you get certified! Hey Emma, get real! Remember what our chief operating officer keeps saying! Spend whatever we need to in order to insure the very best environmentally friendly cement plant around.... But don’t waste money on paperwork and dubious attempts to make us LOOK good! Also, look at any business periodical from Business Week to Fortune. Who pays for the glossiest ads, saying how great they are doing for the environment? It’s often the same firms who are getting the big fines from the Environmental Protection Agencies around the world... the oil companies, the chemical companies. We at Green Island Cement are DOING something. But spending money on certification that may not mean a thing? A waste of money!”