

Chapter 2

Best Practices Among Corporate Social Responsibility Leaders in China

2.1 Criteria 1: Green Management Vision and Structure

2.1.1 *Wang Shi: How One Man's Vision Has "Elevated" Corporate Responsibility in China*

As my influence and my company's influence increases, we are now able to contribute more to social service and charities. I would like to influence more people with my own efforts.

Wang Shi, former Chief Executive, Vanke¹ (Fig. 2.1)

When one looks at the scope of corporate responsibility work in the private sector, it is very common to see a push towards volunteerism and environmentalism. While we should not discount this work as trivial, it tends to take similar forms: companies will gather a group of interested staff and volunteer time to a local charity; they will work towards more sustainable corporate practices; or, sometimes they will present best practices to industry peers. Occasionally, there is a company that works to shake up the status quo with inventive approaches to corporate responsibility activities.

Vanke, China's largest residential real estate developer, is one such company. Founded in 1984, Vanke develops and manages properties in more than 60 large cities in the Chinese regions of the Pearl River Delta, Yangtze River Delta and Bohai. Its 2012 sales exceeded US\$22.6 billion (RMB140 billion), with more than 12.9 million square meters of property sold.² At the helm of the company for many years is Mr. Wang Shi. A noted entrepreneur and mountaineer, Wang Shi has spent the past three decades developing a unique green management vision for Vanke. This vision thinks outside of the proverbial box, gaining exposure for his company

¹ China Daily, *Wang Shi: Life is an Adventure*. http://www.chinadaily.com.cn/china/2009-01/09/content_7381707.htm (accessed April 2013).

² Lei Liu of Vanke, interview by InnoCSR, e-mail interview, April 2013.

Fig. 2.1 Wang Shi, former Chief Executive of Vanke



under the mantra of continuing as a leader in the Chinese real estate industry while becoming a remarkable green enterprise. In 2011 alone, Vanke built more than half of all three-star certified green residential developments in China.³ This is equivalent to a Leadership in Energy and Environmental Design (LEED) Gold or Platinum Certification.

2.1.1.1 From Dream to Reality: Wang Shi's Vision for Vanke

It is difficult to separate Wang Shi, the man, from Wang Shi, the entrepreneur. Vanke's success in the field of corporate responsibility is due in large part to Wang's creative personal style, vision and passion for the environment. An avid mountaineer, Wang is a member of the "7+2" club: he has climbed the seven highest peaks in the world as well as led expeditions to both Poles. He is quoted as saying that, to him, slow-paced stability is depressing,⁴ a notion that shows in the many professional ventures he has led over the past 30 years.

Wang's background has formed the basis for Vanke's unique sustainability program, which places social responsibility front-and-center, instead of in the periphery, of the organization. Vanke is one of the few China-based private sector companies to have started its own foundation, registered in 2008 with the Ministry of Civil Affairs. The goals of the Vanke Foundation are to promote garbage classification, recycling and reuse of products. The ultimate hope is that "...garbage classification and recycling can be carried out in every community in China [creating] a flexible and sustainable solution for serious environmental and social problems caused by increasing garbage (Fig. 2.2)."⁵

³ ECB, *Vanke and Bayer Material Science join hands to develop sustainable buildings*. <http://china.ecocommercial-building-network.com/2012/03/29/vanke-and-bayer-materialscience-join-hands-to-develop-sustainable-buildings/> (accessed April 2013).

⁴ Ibid., China Daily.

⁵ Vanke, *Vanke Foundation*. <http://www.vanke.com/en/newstext.aspx?id=187&u=CitizenshipNav> (accessed April 2013).



Fig. 2.2 Wang Shi on top of Mount Everest

One of the Vanke Foundation's most extensive undertakings in waste clean up is its "Zero KM Action" Program.⁶ Collaborating with Tencent Charity, the aim of the Program is to encourage community waste classification. A 2010 expedition, led by Wang Shi, even brought the Zero KM Action Program to Mount Everest. The group went on 3 cleaning sweeps in Everest's high elevation camps above 7,700 m. The expeditions cleaned nearly 3.5 t of garbage, a haul that included 346 gas cans, 770 m of climbing rope, 62 square meters of tent cloth and 167 oxygen tanks (Fig. 2.3).

Going beyond waste, the Vanke Foundation has participated in global Earth Hour events, disaster relief projects and community development. Vanke also funds graduate courses in sustainable architecture, including a 2006 MIT course that explored the development of sustainable communities in Shanghai.⁷ To date, the Foundation has worked with more than 50 Chinese organizations and has donated over \$9 million (RMB 55.6 million) to charitable causes.⁸

⁶ Vanke, *Zero Kilometer Action of Waste Classification Introduction*. Interview by InnoCSR, e-mail interview, April 2013.

⁷ Massachusetts Institute of Technology, *Vanke Vision: Sustainable Residential Development Shanghai*. <http://dusp.mit.edu/cdd/project/vanke-vision-sustainable-residential-development-shanghai-2006> (accessed April 2013).

⁸ Forbes, *Heroes of Philanthropy*. <http://www.forbes.com/pictures/mgm45ejd/wang-shi/> (accessed April 2013).



Fig. 2.3 Promoting Vanke's community cleanup efforts

On an industry-wide level, Vanke is promoting the idea of sustainability in the Chinese real-estate sector through example.

- The company's Shenzhen headquarters, designed by Steven Holl Architects, has been dubbed the "horizontal skyscraper". This Platinum Certified LEED design includes mixed-use space and public gardens, hovering architecture that creates its own microclimate and windows that reduce the need for mechanical ventilation.⁹
- Working with the Beijing Municipal Government, Vanke founded the Green Technology Alliance to promote sustainable building in China and develop Beijing's zero-emissions Green Building Park.¹⁰ The Alliance includes domestic and international architecture firms specializing in green construction.
- Vanke also sees itself as a repository of information on sustainability, free of use to the real-estate sector. The head of U.S. expansion for Vanke has said "...other companies are invited to use Vanke's technologies that address sustainability."¹¹ This shows Vanke understands sustainability to be far from a zero-sum game.

⁹ Green Source, Vanke Center. http://greensource.construction.com/green_building_projects/2011/1104_Vanke_Center.asp (accessed April 2013).

¹⁰ Ibid., ECB.

¹¹ Yale from Dongguan to Delhi, China's Largest Developer Addresses Air Pollution. <http://sites.environment.yale.edu/chinaindia/2013/03/15/chinas-largest-developer-addresses-air-pollution/> (accessed April 2013).

2.1.1.2 Vanke's Waste Management Program: Promoting Recycling One Community at a Time

This promotion of sustainability in property management also impacts Vanke's individual communities. China produces 254 million tons of garbage, or one-third of the global total, every year.¹² Urban residents create a large part of this total, creating approximately one half ton of garbage annually.¹³ Although the idea of separating household waste into recyclable and non-recyclable materials has been required in some countries since the early 1990s, Chinese property owners have only recently begun this practice. Part of the issue, according to Vanke, is a lack of funds able to implement large-scale recycling efforts. That is why the company, through its Community Foundation, is helping start recycling programs in some of its properties.

Originally implemented by Vanke Taipei in 2009, the company's waste management program is now underway in 135 Vanke communities across 29 Chinese cities. The premise is the separation of household waste into recyclables, kitchen waste and trash. While this may not seem like much of a program, consider that some property communities can produce over 3 t of waste in one day. Over the course of a year, this means that Vanke's China program is potentially sorting through nearly 140,000 t of waste that would otherwise go to fill China's already overflowing dumps.

Through this program, Wang Shi stresses his belief that "...the key to waste reduction does not depend on the number of kilometers outside the landfill or incineration plant, but rather the beginning of front-end waste classification."¹⁴ Traditionally, sorting trash in China would fall to community garbage collectors or scavengers looking for recyclable goods. Focusing on front-end waste classification, the individual households themselves, is thus a break from convention. Because of this, Vanke has had to find creative ways to promote the program.¹⁵

- At one Beijing property, Vanke has found that more than 50 % of community waste is produced in the kitchen. Using an off-site processor, every 300 kg of kitchen waste is converted into 40 kg of organic fertilizer. This is then used exclusively to fertilize property greenery and also given as a reward to residents for their recycling efforts.
- On the fourth Saturday of each month, Vanke holds a "Day of Taking Action" with property owners at a community in Beijing. This day includes training activities in recycling, as well as other community events. Residents are also able to exchange waste plastic for 90 new garbage bags. With labels for

¹² China Facts and Details, *Garbage in China*. <http://factsanddetails.com/china.php?itemid=1111> (accessed April 2013).

¹³ Ibid.

¹⁴ August 6, 2012. *First Financial Weekly*. "Waste Separation Should Always Pay the Cost." Translated text by InnoCSR.

¹⁵ Ibid., *First Financial Weekly*.

recyclables, kitchen waste and garbage these bags help further promote the recycling program.

- Vanke also partners with other companies to co-promote recycling efforts. A major partner is the Tetra Pak group, one of the world's largest producers of packaging materials. At the monthly "Day of Taking Action" in Beijing, for example, residents are able to exchange 30 Tetra Pak-branded containers for labeled garbage bags. Open Source Technology and Trade, a recycling company, also partners with Vanke to further classify recyclable materials based on the item's resin identification code.¹⁶

Because of these promotional efforts, as well as training and educating individuals, recycling is seeing an uptick at Vanke properties. Vanke notes that its Beijing Xishan Garden community now has an average 60 % compliance rate with recycling efforts, up from only 30 % a few years ago.¹⁷ In August 2012, Vanke launched its "Golden Home" initiative at properties in Guangzhou to explore new ways to measure and understand waste. The pilot program, which measures success based on the use of specially designed garbage bags, had an 84 % participation rate by the end of 2012.¹⁸

These examples, though, represent highly successful pilots. Vanke is still coming up against property owners that are set in their ways, particularly with waste disposal, and are not receptive to changing. Only about 20 % of property owners at the Beijing Vanke Star Park correctly sort waste. This is primarily due to confusion about how to recycle and the lack of appropriate bins for all waste.

This then returns to the ultimate issue for the program: a lack of funding. Although Vanke is willing to subsidize part of the cost through its Community Foundation, it also notes that recycling should be an integral part of designing a property from the start. The company notes that "...questions such as how to configure trash, how kitchen waste disposal equipment capacity matches the number of households and which plants can save both labor and water in long-term maintenance..."¹⁹ are critical to keep front-of-mind. Bai Jinlong, property service manager for Vanke Xishan Garden, says that "...if [these ideas] are put first, [ultimately] management costs will be lower overall."²⁰

2.1.1.3 Praise for Vanke

Wang Shi's innovative approach and vision has placed him in the same category as celebrity entrepreneurs like Virgin's Richard Branson. In 2011, *Fast Company*

¹⁶ A resin identification code is used to identify the predominant recyclable material of a product.

¹⁷ Vanke, *Vanke Foundation*. <http://www.vanke.com/en/newstext.aspx?id=187&u=CitizenshipNav> (accessed April 2013).

¹⁸ Ibid., Lei Liu of Vanke.

¹⁹ Ibid., *First Financial Weekly*.

²⁰ Ibid., *First Financial Weekly*.

Magazine named Wang one of the year's most creative people in business, citing his work using "...his prowess for good."²¹ The World Wildlife Fund calls him a leader in sustainability, setting the "...benchmark for Chinese real estate..." and pioneer[ing] green home construction."²²

Moreover, his vision for Vanke is earning the company distinction, particularly in green building. Nine of Vanke's properties have been awarded the National Urban Property Management Excellent Demonstration Community citation by the Chinese Ministry of Construction. A further 5 have been given the Excellent Demonstration Building citation.²³ The company has been named one of China's most respected enterprises for over 8 consecutive years by Peking University's Economic Observer and Management Case Center.²⁴ In addition, Fortune China named Vanke one of China's most admired companies.²⁵

2.1.1.4 Looking to the Future

Even with Wang Shi's recent departure from the helm of Vanke, the company is still working to keep his vision of a corporately responsible organization alive. The company's November 2012 audit by Dutch ECOFYS²⁶ gave several recommendations on how Vanke could reduce its carbon footprint, further engage stakeholders and solidify itself as a leader in real estate energy conservation. Vanke also continues its close partnership with the World Wildlife Fund, piloting a project in late-2013 to promote the protection of the Everest Snow Leopard's native habitat.

Although Wang's innovative and flamboyant style towards corporate responsibility may be difficult to emulate by his successor, it might not be as important as one might think. Wang's vision for Vanke is now well established, employees are on-board with initiatives and there is a clear short-term roadmap showing the company where it needs to improve. All that is left to do is simply execute. A cautionary 2009 quote from Wang could serve his successor well. "Leader and pacesetter are different concepts. A leader must be number one, while a pacesetter pioneers for others and may lose its leading position."²⁷ He would rather see Vanke as the latter.

²¹ Fast Company, *The 100 Most Creative People in Business 2011*. <http://www.fastcompany.com/most-creative-people/2011/wang-shi-vanke> (accessed April 2013).

²² World Wildlife Fund. *Wang Shi*. <http://worldwildlife.org/leaders/wang-shi> (accessed April 2013).

²³ Vanke, *Awards*. <http://www.vanke.com/en/newstext.aspx?id=1102&u=AboutVankeNav> (accessed April 2013).

²⁴ Vanke, *Most Respectable Enterprise of China*. <http://vanke.com/en/newstext.aspx?id=309&u=NewsNav> (accessed April 2013).

²⁵ Vanke, *Honors and Prizes*. <http://www.vanke.com/en/newstext.aspx?id=1816&u=CitizenshipNav> (accessed April 2013).

²⁶ Dutch ECOFYS is a Netherlands-based consultancy offering corporate clients expertise on energy, carbon efficiency, energy systems and markets, and climate policy.

²⁷ *Ibid.*, China Daily.

Thinking Points—Green Management Vision and Structure

Examples of dynamic and visionary leaders are showing the way forward for responsible corporate citizenship. Their vision and passion for corporate responsibility is infectious. Sometimes referred to as “Key Opinion Leaders (KOLs)” these entrepreneurs are also pushing the boundaries of what sustainable practices look like.

- Internalizing sustainable practices across a company, versus among individuals or units, is a primary objective of corporate responsibility. How can companies take the vision of one person and adapt it so all employees develop the same passion?
- Given the grassroots nature of corporate responsibility, how does a top-down approach change the traditional thinking around engagement and buy-in?
- It is sometimes difficult to create lasting change in an organization all at once. These changes are often incremental and slow. Does the presence of a dynamic leader within an organization, championing social responsibility, create the necessary catalyst for dynamic, fast change?

2.2 Criteria 2: Green Management System and Reporting

2.2.1 Baosteel's CSR Reporting System: A Catalyst for Better CSR Performance

...we'll keep to our belief that the ultimate value of an enterprise lies in its contributions to people's well-being and the fulfillment of its social responsibility.

Xu Lejiang, Chairman, Baosteel²⁸

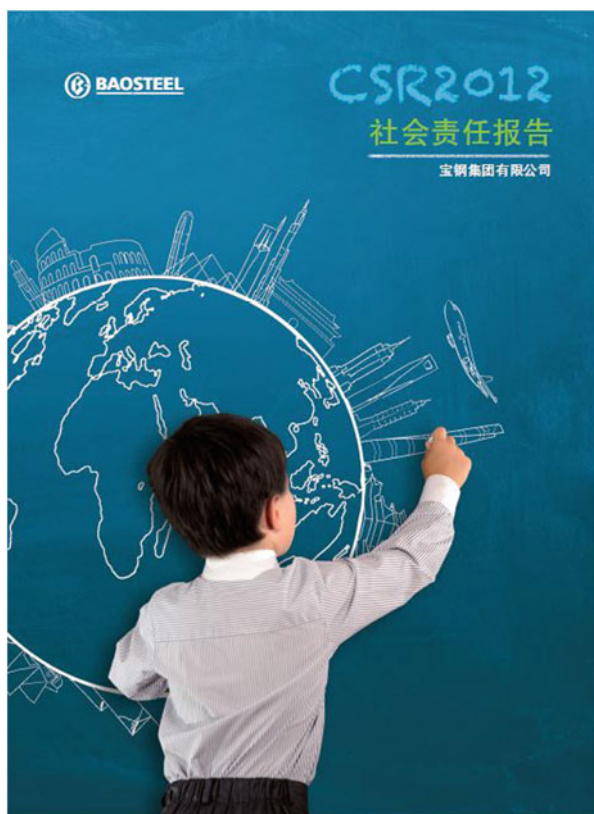
Among China's first enterprises following the country's economic liberalization in the 1970s, the Shanghai Baosteel Group Corporation (Baosteel) is now the world's fourth-largest steel producer (Fig. 2.4).²⁹ According to the 2012 Fortune Global 500,³⁰ Baosteel's annual revenues exceeded US\$48 billion (RMB 299 billion) in 2011. Baosteel has grown through merger and acquisition to reach its current global scope. It has also benefited from China's massive economic and social

²⁸ Baosteel, *2011 Social Responsibility Report*. (2011). http://tv.baosteel.com/web/plc/csr/2011CSR_E.pdf (accessed May 2013).

²⁹ World Steel Association, *Top Steel-Producing Companies 2012*. <http://www.worldsteel.org/statistics/top-producers.html> (accessed October 2013).

³⁰ *Fortune Magazine*, “2012 Fortune China CSR Ranking Report.” http://www.fortunechina.com/rankings/c/2012-03/13/content_92223.htm (accessed May 2013).

Fig. 2.4 Baosteel group's social responsibility report cover



development over the past 30 years, market-oriented operation and access to top talent and research capabilities.

In 2013, *Fortune Magazine* considered Baosteel one of the world's most admired companies. It is also one of the world's largest companies. "Baosteel runs with the big dogs in China's sizeable pack of steel makers...in a country that is both the world's leading steel producer and steel consumer."³¹ Its global operations employ over 130,401 people across 13 subsidiary groups. These groups produce steel, iron and tin products for use in the appliance, auto, construction, oil and shipbuilding industries to name only a few.

2.2.1.1 Implementing Corporately Responsible Practices

Given its size, which includes a 2012 steel output of 43.8 million tons,³² implementing corporately responsible management practices into operations are

³¹ Yahoo Business, *Baosteel*. <http://biz.yahoo.com/ic/57/57074.html> (accessed June 2013).

³² Baosteel, *2011 Social Responsibility Report*. (2012). http://tv.baosteel.com/web/plc/csr/2012CSR_E.pdf (accessed May 2013).

no small feat. Further complicating this is the complexity of managing corporate responsibility across a diverse range of business units while ensuring cooperation towards mitigating the social and environmental footprint of an otherwise notoriously dirty and exploitative industry. Baosteel counters these obstacles through a strategic, step-by-step methodology that focuses on gradually improving environmental operations. These are then presented in the company's annual *Social Responsibility Report*. Using this set of standardized steps, Baosteel is able to better manage the incorporation of sustainable practices into an organization the size of many cities.

2.2.1.2 Baosteel's Methodology³³

Baosteel began reporting on sustainability in 2004, making it one of the pioneers in Chinese CSR reporting. The company's first report discloses data from 1999–2003 as well as identifies system capacity to undertake more sustainable operations. Subsequent reports expand on this basic information. In 2005, the Report added employee welfare to its metrics; in 2009 it incorporated all of Baosteel's business segments; and, in 2010 the Report began to report on thematic topics.

An iterative process, reporting begins by taking the opinions of internal and external stakeholders. Driving this process is the Social Responsibility Committee, part of the company's top management structure. Subject-matter experts, made up of mid- and senior-level management working on CSR issues directly, make up the Committee dealing directly with the Report. This Committee sits independently within the overall structure of the organization and deals with economic, environmental, social and employee welfare issues.

Figure 2.5 below shows the path towards Baosteel's reporting.

At the methodology's core is the idea of "...incorporating the performance of social responsibility into daily corporate business activities."³⁴ Instead of being a task handled by the marketing or sales department, Baosteel views corporate responsibility as part of the make-up of the organization. President and Director of the Social Responsibility Committee, He Wenbo, said that "...environment [a] management is a sacred mission challenging our sense of responsibility."³⁵ The methodology serves as one way to go about encouraging this responsibility. It enables management to better understand and measure gaps, identify best practices and promote sustainability throughout the organization.

³³ Ibid., *Social Responsibility Report*.

³⁴ Ibid., *Social Responsibility Report*.

³⁵ Ibid., *Social Responsibility Report*.

Process of CSR Report Preparation



Fig. 2.5 Baosteel’s report preparation process

Understanding Stakeholder Needs

At the outset, the reporting Committee aims to understand critical and contemporary needs relating to sustainable operations. To do so, it gathers views from a wide range of people: board members, clients, local government, non-governmental organizations, suppliers, employees, media and the general public. These opinions form the topical basis of each report and add a level of transparency in reporting. In 2011, for example, the Committee solicited the opinions of communities around their Shanghai production base. The company asked these residents, being the most directly impacted by Baosteel operations, about their most pressing environmental concerns, as well as critiques towards Baosteel and its local operations.

Finding a Way to Address Concerns

After reporting Committee members receive feedback from stakeholders and refine reporting topics, internal subject-matter experts discuss and devise the best method for addressing concerns. These “material issues” form the key focus areas for reporting. Members of the Social Responsibility Committee, company leaders and middle management then receive training that includes CSR principles and concepts, leadership’s new thinking on Baosteel corporate responsibility, reports on existing programs, reviews of the company’s CSR vision, best practices and lessons learned.³⁶ Up-front training on these areas ensures consistency in reporting from year to year and form institutional knowledge around the sustainable development of operations.

³⁶ Ibid., *Social Responsibility Report*.

Gauging Progress

The reporting Committee then uses a standard set of methodologies to gauge progress in ethical business, environmental sustainability, employee relations and social performance. These progress-measuring methodologies align with international methodologies and measurements, including the sustainability reporting guidelines of the Global Reporting Initiative (GRI) and 10 principles of the United Nations Global Compact. As part of the training for its 2012 Report, Baosteel hosted Yin Gefei, Vice President of the China WTO Tribune and Director of the Development Centre for Chinese CSR. He spoke to management on the methodologies of ISO26000, the international standard for social responsibility management and reporting.

Once the report draft is ready, the Committee solicits final comments and opinions from external stakeholders and subject-matter experts. In 2012, the Committee asked for feedback from nearly 200 clients, suppliers and CSR experts. As a result of this external feedback, the final report increased the disclosure of quantifiable data, which many stakeholders saw as lacking.

2.2.1.3 The Impact of Baosteel's Methodology

The continuous improvement of operations, implementation of new practices and measureable developments in sustainable processes all serve as testament to the impact of Baosteel's reporting methodology. Broadly, the company is expanding its interaction with local communities with various volunteer services and opportunities, allowing clients to voice concerns through user satisfaction surveys and giving employees better career planning with tailored program, such as the Green Apple for high-potential talents, the Golden Apple for high-end engineers, etc. . These efforts come directly out of comments from stakeholders during the reporting process.

More specifically, reporting is helping Baosteel monitor and improve the individual component parts of its steel-producing system. These include raw material production, coking, sintering, iron making, rolling and production. Each stage uses a SWOT-type analysis³⁷ to examine what to change or streamline to result in more environmentally friendly operations. Some major improvements as a result of this systematization include:³⁸

- The renovation of Baosteel's Chemical Benzene Hydrogenation Facilities, which consume large amounts of energy. Within the first year following renovation, the Facilities are producing half as much wastewater, 69 % less carbon dioxide and 38 % less nitrogenous substances. This improvement in

³⁷ SWOT (Strength, Weakness, Opportunity, Threat) is a commonly used strategic methodology for assessing change management.

³⁸ Ibid., *Social Responsibility Report*.

environmental sustainability and safety received the Shanghai Shen'an Cup for Engineering Construction excellence.

- The installation of special atmosphere ovens, hardening equipment, furnaces and cooling systems at heat treatment factories, resulting in an annual reduction of 60,000 kW of electricity. This is equivalent to approximately 41 t of carbon emissions.
- An annual reduction of 800 t of coal, and 18,000 t of fresh water, use by improving waste heat utilization, ventilation and landscaping at factories in Shanghai.

Baosteel's Product Lifecycle Assessment also systematizes greener operations. The Assessment analyzes the environmental impact of Baosteel products from production through to disposal and reuse. There are currently 4 R&D programs and 15 sub-programs involving 18 company units working on lifecycle assessments. More qualitative than quantitative, the Assessment creates environmental benchmarks such as Baosteel's Iron and Steel Product Classification Rules, works to improve the efficiency of non-oriented silicon steel products and increases the strength and ductility of steel plates like those used on the new 632 m high Shanghai Tower.

2.2.1.4 Towards the Future: A Greener Company, a Greener Industry

This iterative process towards greener operations also allows the company to think about its impact on the steel industry as a whole. The company continues to develop technologies and participate in thought leadership advisory groups like the Baosteel-Australia Joint Research and Development Centre. This Centre is collaborates with 4 major Australian universities towards developing new knowledge and technologies for the steel industry.³⁹ Baosteel also hosts a biannual academic conference that serves as an "...open international platform for scientists and engineers in the steel industry to exhibit their academic and scientific achievements [and] boost technical exchange and cooperation."⁴⁰ Baosteel is working towards a greener steel industry both inside and outside China.⁴¹

- In 2011, Baosteel began 23 new energy management projects as part of its work in industry emissions reduction. At a total investment of US\$49 million (RMB300 million), these projects estimate saving 106,000 t of coal and reducing carbon emissions by 275,600 t.

³⁹ Baosteel-Australia Joint Research and Development Centre, *About Us*. <http://www.bajc.org.au/about-us> (accessed June 2013).

⁴⁰ BAC, *The Fifth Baosteel Biennial Academic Conference*. http://bac.baosteel.com/baosteel_bac4/index_en.jsp (accessed June 2013).

⁴¹ Ibid., *Social Responsibility Report*.

- Baosteel continues to develop energy-efficient, prefabricated steel housing. These pre-fab houses cut carbon emissions between 20 and 40 %, increase useful floor area and are entirely recyclable. To date, steel-structured housing community projects are underway in two Chinese cities with an impact of 150,000 square meters of homes.
- In line with the Chinese Government's newest 5-year plan, Baosteel is reducing its net energy consumption and carbon output. In 2011, company energy consumption dropped by 4.5 % per US\$1,600 (RMB10,000) of output, saving 30 % more than the previous year. Baosteel also reduced its emission of sulfur dioxide by 20 % and carbon dioxide by 31 %.

Moreover, Baosteel utilizes its sustainability methodology when considering expansion plans. Termed *The Three Transformations*, these expansionary goals include moving from an "... iron and steel enterprise to a material enterprise, from a manufacturer to a service provider and from a domestic company to a global one."⁴² Continuing to improve its CSR activities and reporting system is a key component of gaining legitimacy in many international environments. Some of this involves those worried about the high environmental costs of the energy-intense steel industry.

Looking ahead, Baosteel make seek to make its methodology even more comprehensive. The company may also want to improve the transparency of its reporting mechanism as a means to reduce energy consumption and emissions. In addition, the methodology can serve as a catalyst for promoting and developing ecologically designed products, with the ultimate aim of integrating technological findings into the steel industry as a whole.⁴³

2.2.2 Global Sustainability Leadership

Implementing environmental performance across our value chain is an important step to deliver sustainable operations over the long term.

Herbert Hainer, Chief Executive, Adidas Group⁴⁴

The Adidas Group, founded in 1924 and headquartered in Germany, has found innovative ways to achieve its sustainability goals throughout its global networks while benefiting its bottom line. The Group's endeavor is to take what for many organizations is a narrow internal monitoring process and develop a more holistic approach to supplier engagement, product design and logistics. With revenues of €14.83 billion in 2012, over 46,000 employees and operations in nearly every

⁴² Ibid., *Social Responsibility Report*.

⁴³ Ibid.

⁴⁴ Grammatical note: occurrences of Adidas company name are presented in lowercase, per Adidas Group spelling convention.

country in the world,⁴⁵ Adidas uses its influence as a major buyer to drive sustainable practices into its supply chain, and achieve its own sustainability goals through operations re-engineering.

At a corporate level, Adidas has set ambitious goals across a wide range of performance metrics, including a focus on its environmental impact, suppliers, employee relations and community involvement. The company has set forth a number of bold initiatives, including a joint zero-emissions roadmap in collaboration with several other apparel retailers, ISO 14001 certification, a sustainable manufacturing initiative and also a continued strengthening of its work on protecting worker rights. The Dow Jones Sustainability Index also recognizes Adidas as an industry leader in corporate responsibility.⁴⁶

In China, Adidas operates through nearly 400 distributors, one-third of its total global supplier number. China is also home to a quarter of Adidas' global sourcing partners, meaning it serves as a crucial link in the company's supply chain. With environmental performance of its manufacturing partners managed through Hong Kong, and design and process change driven by teams in Adidas's headquarters in Germany, the company is working to ensure compliance and create a sustainable operation across the entire value chain.⁴⁷ Within the region Adidas places a critical focus on pollution, energy and carbon footprint reduction.

2.2.2.1 15 % by 2015: Excellence in Environmental Impact Management⁴⁸

Adidas seeks to reduce its environmental footprint 15 % by 2015.⁴⁹ The company's 2015 Environmental Strategy sets the direction for this goal, working through three phases: creating guidelines and tools for environmental efficiency; aligning priorities to address social and environmental gaps; and, continuous measurement and improvement. To guide these phases, the company focuses on management processes, product design, support function processes and supply chain management. Each division has its own set of targets and milestones to ensure progress towards the 2015 goal of 15 % reduction in its environmental footprint (Fig. 2.6).

⁴⁵ Adidas Group. *Financial Highlights*. http://www.adidas-group.com/en/investorrelations/financial_data/default.aspx (accessed August 2013).

⁴⁶ Adidas Group. *Highlights 2012*. <http://www.adidas-group.com/en/SER2011/highlights-2011/Default.aspx> (accessed November 2012).

⁴⁷ Bill Anderson of Adidas, interview by InnoCSR, in-person interview, September 2012.

⁴⁸ Adidas Group. *Targets 2015 and Milestones 2012*. http://www.adidas-group.com/en/sustainability/assets/progress_targets/Environment_targets_2015_milestones_2012.pdf (accessed August 2013).

⁴⁹ Adidas Group. *Sustainability Progress Report 2012*, http://www.adidas-group.com/SER2012/downloads/adidas_SPR2012_full.pdf (accessed August 2013).

Fig. 2.6 The Kayley low-waste shoe



For example, Adidas reduced the use of colors in its product designs by 50 % with an additional 20 % reduction in color-material combinations.⁵⁰ The company has now partially achieved its 2015 goals set for a 20 % color consolidation for apparel and a 40 % consolidation in footwear. These changes have a direct effect on how its suppliers consume, for example, chemicals or water in producing the textiles or materials it uses. As innovation and design are the critical first step in the lifecycle of a new product, it is crucial for Adidas to meet these targets to ensure it stays on track in other areas of the Environmental Strategy.

2.2.2.2 Walking the Walk: Adidas's Sustainable Sourcing Strategy (Fig. 2.7)

With 90 % of the environmental impact arising from production and materials sourcing activities, Adidas has set very clear quantitative targets for its supply chain in the Environmental Strategy. When considering sourcing, Adidas' process focuses on continuous improvement through risk mitigation, performance management and collaboration. Hard numbers around these areas include: 40 % use of sustainable cotton⁵¹ by 2015, with 100 % use by 2018, for all products; 100 % of non-European leather tanneries to have a Silver or above rating from the Leather Working Group;⁵² and, a 15 % reduction in energy emissions at Adidas core suppliers, which account for over 80 by volume of its production.⁵³ Other targets include the ability to trace sustainable material lifecycles, conduct environmental

⁵⁰ *ibid. Sustainability Progress Report 2012.*

⁵¹ Sustainable cotton, as defined by the Better Cotton Initiative, involves the minimization of environmental impact and promotion of better work practices by cotton farmers. More information is available at <http://bettercotton.org/better-cotton/>.

⁵² "The Leather Working Group (LWG) is a group of brands, retailers, product manufacturers, leather manufacturers, chemical suppliers and technical experts that have worked together to develop an environmental stewardship protocol specifically for the leather manufacturing industry." (leatherworkinggroup.com).

⁵³ *ibid. Sustainability Progress Report 2012.*

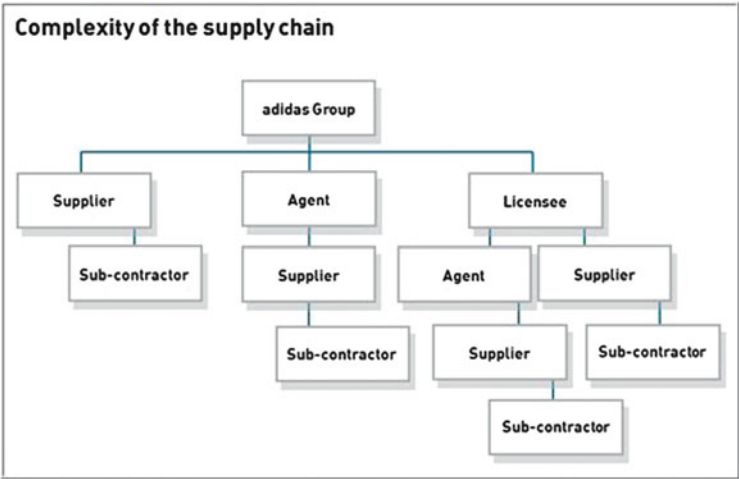


Fig. 2.7 Adidas’ supplier relationship

assessments on suppliers, establish an industry-recognized audit system for dyeing facilities and implement Green Design requirements with their suppliers.

Outside of this environmental sourcing strategy, Adidas seeks to address other impact areas in relation to its supply chain. Three of the most pressing areas are fostering sustainability and accountability through all levels of the supply chain, minimizing shipping and transport emissions and simplifying product offerings to reduce consumption and waste (Table 2.1).

2.2.2.3 Beyond Tier 1 Supplier Engagement: Delivering Change to Key Impact Areas

A significant portion of consumer goods’ environmental footprint can occur in its supply chain, as is the case with Adidas. As reporting mechanisms become increasingly transparent and stakeholders become more empowered, many industries choose to manage potential risks and opportunities by engaging beyond 1st tier suppliers. By looking at suppliers of suppliers a company can garner a better understanding of how its products are impacting the environment.

Adidas’ tier 1 suppliers are the factories that assemble products that Adidas sells directly for retail, while tier 2 suppliers supply materials and components to those tier 1 suppliers, such as dyes and cloth, and tier 3 are the raw material suppliers. Beyond energy consumption, tier 1 groups have very little impact on the environment relative to the entire supply chain. This means that product lifecycle environmental impacts occur predominantly in Adidas’ tier 2 and 3 suppliers, where the likelihood of chemical effects on water, energy consumption and pollution is higher, especially in the energy-intensive textile mills. By engaging with key tier

Table 2.1 Goals and milestones of selected targets

Target	2015 Goal	2012 Milestone
Reduction in used colors in the Adidas Sports Performance Division	50 % reduction	20 % color consolidation in apparel; 40 % color consolidation in footwear
Reduce number of clothing ranges	20 % reduction	Continue reducing ranges
Reduce color-material combinations	20 % reduction	Go live with Footwear Sourcing Matrix
More sustainable cotton	40 % use by 2015; 100 % use by 2018	Achieve sourcing target of 5 % Better Cotton
Full traceability of materials	100 % by 2014	Continue to monitor suppliers' compliance
Leather Working Group silver rating	100 % of non-Europe tanneries	99 % of non-Europe leather finishing to achieve a Silver Standard or above
Reduce energy consumption	20 %	Optimize ISO 14001 management system
Reduce retail store resource use	5–15 % in Western Europe	Develop a mid-term plan
Reduce IT infrastructure environmental footprint	20 %	Decommission 45 further physical servers; Improve physical-to-virtual ratio by a further 12 %; Set up a global green printing policy

Source: Adidas Group. Targets 2015 and milestones 2012

2 and 3 suppliers, Adidas demonstrates environmental leadership through its clear intent to ensure that its products are manufactured in environmentally responsible ways. In this way, Adidas addresses stakeholder concerns, protects the environment, and manages operational risks in its efforts to do good for people, planet and profit.⁵⁴

2.2.2.4 From Supervision to Engagement: Strengthening Supplier Collaboration

Adidas' tier 1 nominated tier 2 supplier engagement is based on a rigorous selection process through which a limited number of tier 1 and 2 suppliers are deemed eligible to supply goods. This leads to an "approved supplier" list. Suppliers that are "approved" undergo technical evaluation and engagement with Adidas. They also have targets and key performance indicators set with Adidas to further reduce their environmental impacts. Adidas provides support by way of collaboration and

⁵⁴ *ibid.* Anderson.

technical assistance via an advisory board made up of representatives from both the supplier and Adidas, which monitors these targets.

The ultimate goal of the advisory program is not to micro-manage operations, but to build capacity to enable suppliers to self-govern their operations. Using a star rating system, suppliers are ranked from 1 to 5 in such areas as social compliance, safety, health and environmental impact. If a supplier ranks at 1 star for a year they are removed from Adidas's approved tier 2-supplier list. The higher a supplier the further it moves up the ranking system, the less need there is for Adidas to conduct visits or audits. By the time a supplier is in a 4 to 5 star ranking, they have sufficiently demonstrated responsible environmental management and are effectively monitoring their own operations, or commission third party expert firm to do so.

In the lead up to the 2012 Summer Olympics, Adidas Group's Global Director for Social and Environmental Affairs, Frank Henke, told delegates to a Sustainable Supply Chain's conference why his company releases a full list of all its suppliers, every year as part of its long standing transparency efforts. "Today, international labor rights groups are so well connected, they are able to identify every issue—you cannot hide any factory scandal."⁵⁵ He also spoke about the importance of fostering a transparent, collaborative relationship between a company and its suppliers. Through partnerships with civil society organizations, Adidas manages a hotline for workers in China to report their concerns. "We get these concerns channeled back to us and it gives us a good indicator how well factories are doing."⁵⁶

2.2.2.5 Magnifying Sustainability Lessons: EHS Academy

Adidas' approach also provides the ability to advise on best practices and help suppliers improve their environmental performance. One such initiative is an NGO led Environmental Health and Safety (EHS) Academy, which has secured the backing of Adidas, General Electric, Wal-Mart and other major brands. With locations in Guangzhou and Suzhou, the Academy has developed its own proprietary curriculum to teach technical expertise, environmental health and safety, energy and core material development. Through the Academy, Adidas is proactively forming an environment of sustainability between itself and its suppliers. To date, the Academy has trained over 3,500 individuals from various multinational companies.⁵⁷

⁵⁵ Supply Management. 'You can't hide factory scandals', Warns Adidas CSR Chief. <http://www.supplymanagement.com/news/2012/you-cant-hide-factory-scandals-warns-adidas-csr-chief/> (accessed November 2012).

⁵⁶ *ibid.*

⁵⁷ Institute for Sustainable Communities. *Environment, Health and Safety*. http://www.iscchina.org/what_we_do/environment_health_safety/ (accessed November 2012).

2.2.2.6 Transportation: The “Profit and Planet” Nexus

In a country the size of China, transportation emissions can account for a significant percentage of a product’s environmental footprint. Until recently, shipment of Adidas products within China was done from the company’s warehouse located in Suzhou, a central eastern city. This geographic position becomes problematic when distribution is necessary for other major cities. Cities in the north, like Beijing and Qingdao, are over 1,200 km away. Guangzhou and other southern cities would take nearly 18 h to reach in optimal traffic conditions from Suzhou. In 2013, Adidas made the decision to construct another distribution center in the city of Tianjin—both decreasing distances to key markets and also reducing distribution-related fuel consumption.

Although the decision to construct another China distribution center was primarily driven by market proximity decisions, the fuel savings and reduction in environmental impact was a significant factor in getting leadership buy-in for the decision.

2.2.2.7 Streamlining Dye Use: Win for the Environment and Bottom-Line⁵⁸

Adidas has also taken a critical look at how its diverse and localized product range impacts the company’s environmental footprint. While product localization may benefit the consumer by closely catering to differing regional tastes, it also leads to high product diversity. This inability to benefit from economies of scale tends to also result in a higher portion of waste per product. Adidas has identified that creating “global” products in a mandatory range foundation—i.e. same articles that are sold in multiple markets—would not only be desirable to its client base but also reduce production waste through streamlined manufacturing lines based on higher efficiency. Adidas does still tailor its product offering to individual markets through a localization scheme, for example, in China, where demand is high. However, a mandatory range foundation does exist in China and it is driving efficiency on key products. Other regions are also seeing a reduction and optimization in production as a result of a global article reduction strategy where articles created globally and locally are reducing. There is also a drive to increase the number of global key products throughout all markets, with an ideal ratio of about 50 % “global” products and 50 % localized products. The company estimates that this scheme reduces a local product’s lifecycle, from design to purchase, by two-thirds, and reduces waste by streamlining the use of materials, colors and dyes.

Globally, Adidas also seeks to reduce the total number of product ranges on offer by 20 % and, as previously mentioned, use 100 % sustainable cotton by 2018. This past year, the company launched its DryDye collection. A first in the market, the

⁵⁸ Sabrina Cheung of Adidas, interview by InnoCSR, in-person interview, September 2012.

products use dying technology that uses zero water in the dyeing process. Adidas has reduced the number of physical samples by 600,000 in 2012, introduced virtual modeling systems and will expand its virtual systems in the future. These all help lower the environmental impact of product production while meeting market demands. In China, physical samples have been reduced as a result of centralized trade meetings. Adidas Headquarters also has plans to implement a virtual Global Brand Conference to drive up the adoption of virtualization between business partners and sales managers.

2.2.2.8 Environmental NGO Collaboration

In addition, Adidas is moving beyond its relationship with suppliers to engage members of civil society. The company is partnering with non-governmental organizations to identify areas for risk reduction and early intervention. One critical engagement is with the Institute of Public and Environmental Affairs, a regional non-profit based in Beijing, which uses governmental data to track ecological issues like pollution and water contamination. Adidas is working closely with the Institute to identify non-compliant suppliers, those whose emissions or discharges breach government requirements, and to improve the environmental performance of those manufacturers.

In fact, an October 2012 report by the Institute entitled *Sustainable Apparel's Critical Blind Spot*⁵⁹ highlighted Adidas' efforts to curb subpar supplier performance. The report noted that raw material processing comprised 80 % of the textile industry's pollution in China. This expanded on findings in April of the same year that listed environmental problems emanating from suppliers to 46 domestic and international apparel retailers. Of the 46 retailers, Adidas is one of only 4 to be proactively monitoring, advising and gauging progress of raw material suppliers, as well as their dyeing and printing suppliers, towards more sustainable practices. Ma Jun, the Executive Director of the Institute, has publically acknowledged the efforts of Adidas to go above and beyond to keep their suppliers off the organization's polluters list.

2.2.2.9 Being the Change: Adidas's Industry Leadership

As social and environmental issues increasingly pose risks and opportunities in the marketplace, many organizations realign their operations and supply chain to address social and environmental issues. Adidas' management in this regard serves as a best-practice example. Creating a dialogue with supply chain partners, reengineering its transportation networks and eliminating product redundancies

⁵⁹ China Daily. *Pollution Blind Spot in the Textile Industry*. October 9, 2012. http://www.chinadaily.com.cn/china/2012-10/09/content_15802134.htm (accessed December 2012).

not only benefit the environment, but do so by meeting market demands and generating profit for Adidas. By finding innovative solutions to align its business needs with environmental stewardship, Adidas is not only positively impacting its own operations, but also paving a road for other companies to follow. In combination with continued proactive approaches to supplier management throughout the entire supply chain, this formula will prove beneficial in helping Adidas reach its profitability and sustainability goals.

Thinking Points—Green Management System & Reporting

Reporting works best when companies are held accountable to that which they are reporting. Many companies seek to gain this credibility in sustainability reporting practices through 3rd party audits and/or independent verification from relevant stakeholders.

- There is an automatic bias when companies evaluate themselves. What can be done to minimize this bias?
- For some companies, reporting has become an exercise in checking boxes on a list instead of working towards organizational change. This can especially be true in large organizations with established systems and processes. What can a company do to foster critical thinking around change instead of rote fulfillment of tasks?

A company may have superior sustainability reporting capabilities, such as thoroughness of their report and/or a well-articulated sustainability strategy, but that may not always link to strong sustainability performance. What is the relationship between responsible disclosure and responsible behavior, and to what degree are the two related?

2.3 Criteria 3: Supplier Management Programming

2.3.1 Sony—Diversifying Information Sharing

We [...] acknowledge the importance of pursuing innovations tied in with our business strategies that will contribute to building a sustainable society. In order to contribute to the resolution of global challenges that we all face, we are committed to creating products that pose less impact on the environment and addressing global social issues such as poverty and education through uniquely Sony initiatives.

Kazuo Hirai, President and CEO, Sony Group⁶⁰

⁶⁰ Letter to Stakeholders. *A Message from Kazuo Hirai, President and CEO*. <http://www.sony.net/SonyInfo/IR/financial/ar/2012/message/page04.html> (accessed December 2012).

The Sony Group is one of the world's largest entertainment companies, with operations in electronics, motion pictures, music and finance. Headquartered in Tokyo, the company began in 1946 as a small electronics shop. Since that time it has grown to employ over 162,000 people around the world, with 2013 third-quarter sales of US\$23 million (RMB143 million).⁶¹ Sony is the world's third largest television manufacturer, one of the top 20 global semiconductor producers and a major distributor of movies and video games.⁶²

2.3.1.1 Sony Addresses Sustainability

Addressing sustainability and becoming an environmentally friendly organization is a long-term, holistic process. While many companies look to address their operations through the implementation of a single program, Sony looks at a diverse range of opportunities. Three of the company's major initiatives include the Road to Zero, green programming and supplier information-sharing. These, in combination with Sony's acute attention to detail in their operations, show how a leader in entertainment is also becoming a leader in environmental sustainability.

Sony's Road to Zero Global Environmental Plan⁶³

The first step towards becoming more sustainable was to look at the environmental impact of the company and its suppliers. To this end, Sony developed its Road to Zero Global Environmental Plan. The overall goal of the Plan is to reduce Sony's environmental footprint to zero by 2050. This includes the entire range of operations, from carbon impact to waste, water and energy usage. It also encompasses the company's use of oil-derived virgin plastics, to be replaced by more sustainable recycled materials. The current Road to Zero Plan highlights mid-term targets through 2015 (Fig. 2.8).

The main impetus of the Plan comes from Sony's realization that its impact on the environment also impacts its relationship to current and future business. Without a stable, functioning environment to conduct operations there is no hope for a sustainable company. Sony also recognizes that a company's adverse impact on the environment is increasingly impacting brand image among consumers. Howard

⁶¹ Sony Group. *Consolidated Financial Results for the Third Quarter Ended December 31, 2013*, Sony Corporation. http://www.sony.net/SonyInfo/IR/financial/fr/13q3_sony.pdf (accessed March 2014).

⁶² Sony Group. *Consolidated Financial Results for the Fiscal Year Ended March 2012*, Sony Corporation. http://www.sony.net/SonyInfo/IR/financial/fr/11q4_sony.pdf (accessed December 2012).

⁶³ Reliable Plant. *Sony Launches 'Road to Zero' Environmental Plan, Sets 2015 Mid-Term Targets*. <http://www.reliableplant.com/Read/23865/Sony-environmental-plan-targets> (accessed December 2012).



Fig. 2.8 Sony's road to zero timeline

Stringer, former Sony CEO, said the company would work aggressively to "...[introduce] better processes in manufacturing and production..."⁶⁴ of new materials and technologies.

Some of the mid-term goals that the Plan highlights include:

- 30 % reduction in annual energy consumption per product. (Compared with FY2008)
- 10 % reduction in the mass of its products per product. (Compared with FY2008)
- 5 % reduction in utilization ratio of virgin oil-based plastics in products. (Compared with FY2008)
- 30 % reduction in greenhouse gas emissions, 50 % reduction in waste generation, 30 % reduction in water usage at Company sites group-wide. (Compared with FY2000)
- Improve waste recycling rate at Company sites group-wide to 99 % or more.
- 14 % reduction in carbon emissions from its transportation and logistics sectors. (Compared with FY2008)

The goal of becoming an entirely carbon neutral organization is something no major multinational company has yet to attain. With Sony's mid-term targets still a few years away, it is difficult to gauge how successful the electronics giant will be. What is certain is that Sony's use of the Japanese model of *Kaizen*, or continuous process improvement, is deeply engrained in the company culture. This has led to many successes in operational efficiency in the past. As the company

⁶⁴ Ibid. Reliable Plant.

applies this model to its sustainability operations, lessons learned in the lead up to 2015 will certainly be used to benefit Sony's Road to Zero Global Environmental Plan.

Sony's Green Programming⁶⁵

In addition to its Road to Zero Global Environmental Plan, which focuses on global company operations, Sony employs a portfolio of green programs aimed at its supply-chain partners. The principle program, the Green Partner system,⁶⁶ is one way Sony monitors product purchase and development. The system encourages suppliers to adopt green policies in line with Sony's Green Partner Standards, launched in 2001. These Standards are the method by which Sony ensures green procurement of supplies. Suppliers are also asked to submit information to Sony on products purchased, which Sony engineers conduct inspections on to ensure environmental compliance in line with Sony standards. All companies participating in Sony's program have to comply with internal Sony standards on the controlled use of chemicals, local governmental regulations and financial and environmental risk assessment.

On the manufacturing side, Sony has implemented the Green Star Program⁶⁷ to enhance environmental activities. Each manufacturing site is assessed qualitatively and quantitatively on four qualifications: climate change, resource conservation, chemical substance management, and biodiversity conservation. These areas are in line with those of the Road to Zero Global Environmental Plan, and are graded on a 4-star system. Within the first year of the Program, the average manufacturing site had a 2-star rating. From this baseline, Sony hopes to identify and analyze strengths and weaknesses in an effort to quantitatively improve manufacturing operations. The Program also provides manufacturing sites with a checklist of requirements, progress reports and informational sessions to increase a manufacturer's efficiency and reduce their environmental impact.

Supplier Information-Sharing

In addition to the Road to Zero Global Environmental Plan and green programming, Sony is also encouraging supplier information-sharing through various methods. Workshops enable suppliers to speak directly with, and learn from, Sony's experts in sustainability. For the Green Partner Program, workshops are focused on the

⁶⁵ Yumi Ota of Sony China, interview by InnoCSR, in-person interview, September 2012.

⁶⁶ Sony. *Green Procurement*. <http://www.sony.net/SonyInfo/procurementinfo/green.html> (accessed December 2012).

⁶⁷ Sony. *Introduction of Green Star Program*. http://www.sony.net/SonyInfo/csr_report/environment/site/index3.html (accessed October 2013).

environmental impact of operations. Topics are introduced globally, and then discussed in regional meetings to address particular needs. The workshops also give suppliers the opportunity to submit data on how their specific organization is addressing a certain topic, and learn from Sony best practices.

2.3.1.2 Sony and China

Sony began operating in China in 1978. The company's direct engagement with their suppliers on issues of sustainability began in the late 1990s, initially as a means of ensuring adherence to local regulations around corporate responsibility. A team of high-level subject-matter experts, who are the direct contact points for participating partners, now oversee environmental operations in China. Currently, there are approximately 2,000 Asia-Pacific suppliers participating in Sony's Green Partner Program, the majority of which are in China. There are also an additional 9 manufacturing sites in China that are participating in the Green Star Program.⁶⁸ In a recent audit of major China-based suppliers, all were found to be in full compliance with Sony's supplier code of conduct. This is testament to the benefits of operational knowledge sharing.

2.3.1.3 Challenges and the Future of Sony's Programs

To date, Sony has been able to utilize its green programs to garner an improved brand image while reducing its global carbon footprint. While these achievements are laudable, Sony is also encountering various challenges in the implementation of its Programs, particularly implementation in China. One critical element missing is the current inability of Sony's Programs to specifically monitor progress in China. All environmental data is currently disclosed at a regional level only.⁶⁹ Without proper monitoring, it is impossible to use Kaizen to gauge how to improve methodologies, Program implementation or Program success.

In addition, the program does not address higher levels of the supply chain. Although direct suppliers may be operating in accordance with Sony standards, are secondary or tertiary suppliers doing the same? It is difficult to monitor this without direct interaction throughout all levels of the supply chain. Sony's program must also do more to address timely reporting by suppliers. To encourage this, Sony is taking steps to remove suppliers from their programs if compliance is not met. The Sony programs also need to do more in terms of monitoring greenhouse gas emissions and audit the entire supply chain. Currently, this sort of comprehensive audit is only conducted every 2 years. With such a diverse portfolio of

⁶⁸ Ibid. Yumi Ota of Sony China.

⁶⁹ http://www.sony.net/SonyInfo/csr_report/environment/data/region/06.html.

environmental programming, monitoring and auditing should become streamlined over time.

This diversified portfolio of programs is working to ensure all areas of Sony's supply chain are included in the Group's sustainability efforts. More so than corporate initiatives that work only on one area, Sony's stakeholder engagement is the right approach to a company with such broad and disparate global operations. These initiatives also address the very precise, and some would say aggressive, targets the company has set for itself in its Road to Zero plan. Targets aside, simply implementing such far-reaching methods towards information sharing will undoubtedly benefit Sony in what current CEO Kazuo Hirai says is his company's pursuit of "...innovations tied in with our business strategies that will contribute to building a sustainable society."⁷⁰

2.3.2 Dow: Providing Public-Private Supplier Training and Collaboration

The supply chain has a crucial role as Dow continues to drive its robust, long-term business growth in China, and we will forge close collaborations with our supply chain partners to capture this growth opportunity in a safe and sustainable manner. The S⁴TAR program will be the ideal platform to achieve these goals together with our partners.

Niklas Meintrup,

Director, Dow Supply Chain and Business Services, Asia Pacific.

Our Greater China business strategy requires safe, reliable, and competitive supply chain capabilities to support strong business growth. With the launch of this program, we are jointly taking an important step towards achieving a safer, more sustainable, and more prosperous future.

Peter Sykes,

President, Dow Asia Pacific

Dow Chemicals, the second largest chemical producer in the world, delivers a broad range of technology-based products and solutions with its diversified industry-leading portfolio of specialty chemical, advanced materials, agrosociences and plastics for over 160 countries.⁷¹ Expanding greatly from its founding in 1897, Dow's 2012 revenues topped approximately US\$57 billion. The company now employs around 54,000 people globally. Most notably, Dow has one of the largest R&D investments in the global chemical industry with annual investment of around \$1.7 billion, focusing on applied science and technology, biotech, materials engineering, building solutions and global product stewardship.

⁷⁰ Ibid.

⁷¹ SECDataBase.com. *Dow Chemical Company 2011 Annual Report*. <http://pdf.secdatabase.com/2175/0000029915-12-000008.pdf> (accessed December 2012).

2.3.2.1 Dow's Sustainability Goals

Dow prides itself as a company with a long, reputable history in sustainable operations.⁷² They trace this back to 1906, when the company partnered with Westinghouse to develop co-generation of electricity and heat. Dow's major successes around sustainability also include the development in 1935 of bacteria to reduce waste, water-based paint technology in 1953 and the energy conservation program "War on BTUs" in 1967. Dow has been working towards more contemporary sustainable operations in earnest since the mid-1990s. In 1995, the company set forth its first set of goals around environmental health and safety, with further revisions focusing on community relationship building. For its work in sustainability, Dow has been named to the Dow Jones Sustainability Index every year since 2000.

Currently, Dow's sustainability goals focus on the areas of chemistry, environmental impact, product safety, community involvement and human health.⁷³ The Company seeks to increase the percentage of products that are highly advantaged by sustainable chemistry to 10 % of sales by 2015. Environmentally, Dow is addressing climate change by maintaining greenhouse gas emissions below 2006 levels and reducing energy usage by 25 %, based on 2005 numbers, by 2015. Dow also seeks to achieve a 75 % improvement in environmental health and safety key indicators, while also presenting at least 3 innovative programs to address major global issues.

2.3.2.2 The S⁴TAR Initiative

Dow understands that sustainability is a holistic undertaking (Fig. 2.9). The Company also knows that each of its logistic suppliers in Asia Pacific is at a different level of maturity when it comes to sustainability practices. Dow's position is that "...to be successful, [they] need to not only leverage Dow best practices in [their] own organization but partner with logistics service providers."⁷⁴ With this idea in mind, the company is expanding its work in sustainability beyond the core of the organization. Begun in 2011, the S⁴TAR Initiative is Dow's strategic redesign for how it interacts with its suppliers. The Initiative is based around the four areas of safety, sustainability, social responsibility and service. By 2016, the Initiative seeks to "...increase Dow and its suppliers' overall performance in four key areas with

⁷² Dow. History. <http://www.dow.com/sustainability/commitments/history.htm> (accessed January 2013).

⁷³ Dow Business Services. *Dow Launched S⁴TAR Program to Raise the Bar to Deliver the Enhancement on Performance and Industry Standards in Asia Pacific*. File from in-person interview by InnoCSR, September 2012.

⁷⁴ Ibid. Dow Business Services.

Fig. 2.9 Dow S⁴TAR initiative logo



regular measurements against the defined KPIs.”⁷⁵ These KPIs are in line with the Company’s 2015 sustainability goals. The Initiative also leverages Dow’s extensive institutional knowledge and combines this with local industry capacity and market depth.

Dow gives all of its supply chain partners across all areas the opportunity to participate. Key project indicators are set within each of the four categories and are the same for all participating companies, regardless of maturity. The participating companies then provide monthly progress reports, and Dow conducts quarterly audits to gauge on-site growth. These audits take into account safety compliance, emissions reductions, social responsibility and customer service.

In addition, Dow presents quarterly discussion topics that help to broaden the scope of participation. For example, the first topic of the Initiative involved operational safety. As a result of participation in topical workshops and dialogues, partner companies conducted fire drills, leakage containment drills and other initiatives to implement ideas learned from Dow. These focus topics help to not only improve operations for partner companies, but also to enhance collaboration and the sharing of best practices between supply chain partners. The hope is that this form of collaboration will help speed up the rate at which some partners mature, getting everyone to the same level in the shortest amount of time.

The S⁴TAR Initiative, while leveraging global efforts, has a particular focus on operations in China. The Initiative seeks to harness Dow’s second largest global market, with 2012 revenue of US\$4.4billion. Over the next 5 years, Dow will highlight the importance of China, not only for revenue generating, but also for achieving sustainability goals (Fig. 2.10).⁷⁶

Ultimately, the goal of the Initiative in China is to create a portfolio of capable suppliers, particularly within the transportation and manufacturing elements of Dow’s supply chain. Towards this end, Dow interacts monthly with supply-chain partners and conducts quarterly workshops. The logistical head for China on the Dow side, as well as subject-matter experts, attend these workshops. There is also high-level participation on the supply partner side. Partner collaboration outside of these gatherings is certainly encouraged.

⁷⁵ Ibid. Dow Business Services.

⁷⁶ Niklas Meintrup of Dow Chemicals, interview by InnoCSR, in-person interview, September 2012.



Fig. 2.10 The Dow S⁴TAR award

Recently, Dow partnered with China's State Administration of Work Safety to conduct national training on hazardous chemicals handling. The project impacted over 50 small- and medium-sized Chinese enterprises, with an overall participation from more than 2,000 managers and regulators dealing with chemicals handling. To date, this has resulted in the creation of 3 new national industry standards and the implementation of 17 training and certification programs. For its collaborative efforts, Dow was awarded the 2012 CSR Leadership Award by the American Chamber of Commerce in Shanghai.⁷⁷

Currently partnering with 12 suppliers in China, the S⁴TAR Initiative is also being rolling out to other Dow locations in Asia including India and Japan. A similar program is conducted in Brazil for a number of years, the basic principles of the Initiative are the same across countries, but focal points and standards may vary. It is also interesting to note that the Initiative is not limited to developing economies that are the main market for company growth. Dow is looking at its entire global supply chain and how each market interacts and impacts others.

⁷⁷ China Daily. *Dow Wins AmCham Shanghai CSR Leadership Award*. http://www.chinadaily.com.cn/regional/2012-03/08/content_14792262.htm (access January 2013).

2.3.2.3 Current and Future State of the Initiative

Dow feels positively towards the Initiative's reception by most partner companies. In the words of Shanghai Milkyway International Chemical Logistics, "...Dow sets a good example to all of us."⁷⁸ In addition, an existing relationship with some of these partners enables Dow to more easily encourage senior-level participation. This level of participation can serve as a better indicator of how well the Initiative's work will transfer over to the participating partner.

An additional impact of the S⁴TAR Initiative is the moving of supplier systems from ideation to measurable data. Quantifying systems, instead of operating in an ad-hoc fashion, can result in wider participation among both partner companies and internal stakeholders, lower data variation between departments and streamlining of operations. Moving to a quantifiable approach, however, is also proving to be one challenge for the Initiative as an entire overhaul of operating systems is not a feasible option for most supply partners. To overcome this, the Initiative seeks to introduce small changes to systems and gradually ramp up to more numbers-driven, measurable achievements. This process allows participating companies to ease into this methodology, while also ensuring accurate and consistent tracking, monitoring and reporting.

Dow is convinced that initiatives like the S⁴TAR Initiative yield not only qualitative improvement but do generate significant value. Globally Dow's "green" initiatives in Supply Chain have delivered cost savings of US\$85 million (RMB 529 million) across 320 supply chain projects.⁷⁹ Along with these savings to the bottom line, streamlined processes achieved through these projects will continue to save money and provide more sustainable operations for many years to come. There will, of course, certainly be adjustments to the Initiative as it is little more than 1 year old. Because of this, Dow plans on reexamining and adjusting its work accordingly.

In China, Dow's market reach moves increasingly beyond the coastal regions, which now comprise a significant share of Dow's revenues in China. Dow is opening new offices, including one in the central city of Chengdu. To make this growth sustainable, the company understands that it must optimize its supply chain and work with logistic suppliers in the hinterland to influence change. The company is examining the performance of their road, warehouse and transportation operations. In short, Dow is looking at projective trends in the country to determine where its sustainability goals will move. This proactive, rather than reactive, stance will help to place constructive pressure on its supply chain partners to contribute to Dow's S⁴TAR Initiative vision towards the improvement of its global sustainability operations.

⁷⁸ Ibid. Dow Business Services.

⁷⁹ Ibid. Niklas Meintrup of Dow Chemicals, interview by InnoCSR, in-person interview, September 2012.

Thinking Points—Supplier Management Program

Holistically looking at supply chain operations is not only good for business but also for the environment. Companies like Sony and Dow are passing down their institutional knowledge to suppliers. In return, they are increasing transparency and accountability from all sides.

- Supply chains are often international. Does this pose an inherent threat or opportunity for increasing transparency between manufacturer and supplier?
- Ensuring environmentally sustainable behavior trickles down throughout supplier companies is a massive undertaking. Does training a small number of experts on a macro level really mean that a supplier is implementing good practices on a micro level? What can be done to ensure compliance, given the varying demands on suppliers from different buyers?
- Companies sometimes get a makeover in preparation for audits. Their day-to-day operations, however, may not be entirely up to code. What measures can help internalize the need for making sustainable operations part of a company's culture?

2.4 Criteria 4: Climate Change and Biodiversity Protection

2.4.1 COSCO: Weathering the Stormy Seas of Change

[COSCO seeks to] reflect the active contribution and leading role of Chinese transnational companies as a pioneer in sustainability...

Wei Jiafu, Chairman, China COSCO⁸⁰

Scientists are increasingly concerned about mankind's impact on the world's oceans. Hurricanes, typhoons and other severe weather systems are growing in severity, with the number of deaths and total financial loss the highest on record. The shipping industry, which makes up 90 % of global transportation, is keenly aware of the effects of environmental change on their business. Whether an increase in weather system intensity, like Hurricane Katrina or the devastating flooding of the Australian north, or events like the 2011 Japan earthquake and tsunami, all influence shipping times and cargo levels. Add to this the continuing effects of the global financial crisis and it is no wonder the sea freight industry is experiencing dramatic fluctuations in costs and demand.

These alarming trends are prompting the international community to put pressure on the sea freight industry to green operations. *The Economist*, in its 2013

⁸⁰ China COSCO 2011 Sustainability Report, pg. 9.

article “The Shipping Industry: Sinking Under a Big Green Wave”,⁸¹ points to several factors where sustainable actions are adversely influencing shipping. Calls for cleaner fuel, with sulfur limits and “emission control areas” along populous coasts, can cost shipping companies 50 % more than regular fuels. There is also pressure from the International Maritime Organization (IMO) to cut carbon emissions from ships 20 % by 2020 and 50 % by 2050. Not surprisingly, these moves are angering some shipping bosses including John Platsidakis, who said, “. . . we carry 90 % of world trade and we emit only 2.7 % of the CO₂ but still we are treated as if we are acting with indifference to the environment.”⁸²

The China Ocean Shipping Group Company (COSCO), China’s largest sea freight shipping company, is working with international organizations like the IMO and the United Nations Global Compact to make its operations more environmentally sustainable. Through benchmarked analysis and stakeholder engagement, COSCO aims to change preconceptions about the industry’s impact on the Earth and act as a best-in-class example for China, the world’s fastest growing shipping market.

2.4.1.1 Building Sustainable Shipping: China COSCO

China’s role in the modern global shipping industry began in 1961 with the establishment of several State-owned shipping companies. By 2002, China surpassed the United States in the handling shipping containers and the eastern city of Shanghai became the world’s busiest port. Today, China imports 90 % of its foreign goods, 95 % of its oil and 99 % of its iron ore by sea. On par with its international counterparts in terms of efficiency and network capacity, China’s shipping industry continues to push for the improvement of mechanization and containerization. This push comes at a time when Chinese shipping accounts for more than 30 % of the world’s shipping trade growth (Fig. 2.11).⁸³

For its part, COSCO is now the largest liner carrier in China and the ninth largest by container volume in the world.⁸⁴ The company owns 800 ships with a carrying capacity of 400 million tons and calls on over 1,600 ports worldwide.⁸⁵ A State-owned enterprise, COSCO traces its history back to the first foreign joint venture in the People’s Republic of China, the Chinese-Polish Joint Stock Shipping

⁸¹ *The Economist*, “The Shipping Industry: Sinking Under a Big Green Wave.” March 30, 2013. <http://www.economist.com/news/business/21574517-shipowners-face-onslaught-new-environmental-laws-sinking-under-big-green-wave> (accessed May 2013).

⁸² *Ibid.*, *The Economist*.

⁸³ Gulf News.com, *Chinese Shipping Industry is Big but not Powerful*. <http://gulfnews.com/business/opinion/chinese-shipping-industry-is-big-but-not-powerful-1.656076> (accessed May 2013).

⁸⁴ Bloomberg News, *China Ocean Shipping Group Co.* <http://www.bloomberg.com/quote/COSCZ:CH> (accessed May 2013).

⁸⁵ COSCO Group, *History*. <http://www.cosco.com/en/about/index.jsp?leftnav=/1/1> (accessed May 2013).



Fig. 2.11 One of COSCO's fleet of 800 ships

Company.⁸⁶ Today, growing principally through acquisition, COSCO operates 7 listed companies and 300 subsidiaries in Asia, North America, Europe and Africa. The company currently ranks 384th on the Fortune 500 with 2011 revenues of \$28.8 billion (RMB177.7 billion).⁸⁷

⁸⁶ Ibid., *History*.

⁸⁷ Fortune Global 500, *China Ocean Shipping*. <http://money.cnn.com/magazines/fortune/global500/2012/snapshots/11313.html> (accessed March 2014).

Green Competitiveness⁸⁸

COSCO considers itself an innovator in social responsibility for the Chinese shipping industry. The company is a signatory to major international shipping conventions, the International Maritime Organization, the United Nations Global Compact and the Global Compact's LEED Steering Committee. It was the first company in China to fully implement the United Nations Global Compact, including the group's Annual Sustainable Development Report. The Report, certified each year by Det Norske Veritas (DNV),⁸⁹ benchmarks what COSCO dubs its "green competitiveness" work: management strategy; resource use; environmental protection; and, stakeholder relations.

- The company encourages continuous learning and growth in these four areas by offering ongoing courses for employees and specialized skill training workshops for management.
- Resource use, a key sticking point for critics of the shipping industry, falls within COSCO's Life Cycle Assessment. The Assessment monitors the company's carbon footprint by calculating emissions during vessel manufacture, freight shipping and liner decommissioning. Of these, the shipping component is the largest adverse contributor to the environment. COSCO looks at myriad processes to reduce this impact, including "...adjusting fleet structure, increasing operation capacity of ships, optimizing design of shipping lines, reducing navigation speed, adopting matured technologies and developing new technologies."⁹⁰
- Since 2005, COSCO has spent US\$82 million (RMB504.7 million) towards reducing its carbon footprint.⁹¹ In 2011, COSCO reduced its total consumption of fuel by 1.21 % and lubricants by over 11,000 t.⁹² In addition, COSCO's Green Driving Program regulates land and air vehicle emissions and encourages the use of virtual meetings. In 2010, the company saved US\$4.3 million (RMB26.7 million) by holding video and teleconferences versus in-person meetings,⁹³ all of which translates into a reduction in overall carbon emissions.

⁸⁸ COSCO, *2010 Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/a/1-1.html (accessed May 2013).

⁸⁹ Det Norske Veritas (DNV) is a global organization providing independent risk management assessment to the maritime, energy and business industries. More information can be found at www.dnv.com.

⁹⁰ Ibid., *Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/c2/c2-3.html (accessed May 2013).

⁹¹ Ibid., *Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/c1/c2-2.html (accessed May 2013).

⁹² Ibid., *Sustainability Report*.

⁹³ Ibid., *Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/c2/c2-7.html (accessed May 2013).

- In line with their focus on stakeholder engagement, COSCO developed tools to aid customer management of carbon emissions from sea transport. These include the company's proprietary Carbon Emissions Calculator.⁹⁴ The Calculator uses real-time data to quantify and report their ships' transport emissions. To calculate emissions, the application takes the dynamic EEOI⁹⁵ value of its fleet. This uses actual oil consumption measures averaged out over a period of years, and then factors in length of journey and weight of freight. It is the world's third calculator, first in China and the only application of its type to pass strict DNV certifications. Allowing customers to determine their cargo's shipping-related carbon footprint empowers them to select routes that minimize environmental impact on an individual level.

Its efforts in sustainability and corporate responsibility have garnered China COSCO numerous awards and accolades.⁹⁶ These include the 2011 Most Influential Enterprise Award in the Chinese Logistics Industry, the Top 10 Seafarers of China, and the Far East Best Carrier Award, ten times over, by the Canadian International Freight Forwarders Association. The Fortune China social responsibility list also ranked COSCO first among domestic companies.

2.4.1.2 Corporate Growth and the Greening of Operations

Even with a sustainable structure in place, and tools to increase stakeholder engagement, COSCO may still face barriers in the greening of its operations. These are mainly a result of COSCO's growth to meet the demands of the global shipping industry. The company is being proactive in identifying and beginning to address some of these issues, including:

- **Raw material consumption:** From 2004 to 2009, COSCO steadily increased its use of raw materials in shipbuilding. Several factors could account for this, but the number one cause is the increase in number of ships produced. In 2010, however, the company reduced the use of raw materials by nearly half.⁹⁷ COSCO did recognize the high use of raw materials in its *2010 Sustainability Report*. Moving forward, COSCO needs to continue to examine methods and avenues for utilizing non-raw materials in all their operations.
- **Energy consumption:** With the growth of any company there is a risk of energy consumption increasing. COSCO has been successful at holding energy

⁹⁴ Ibid., *Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/c2/c2-3.html (accessed May 2013).

⁹⁵ The Efficiency Operational Indicator (EEOI), set by the International Maritime Organization, is a measure of carbon output by shipping vessels. More information is available from http://www.imo.org/blast/blastDataHelper.asp?data_id=26531&filename=684.pdf.

⁹⁶ Ibid., *Sustainability Report*, pp. 13-14.

⁹⁷ Ibid., *Sustainability Report Online*. http://www.cosco.com/GC_report/GC_report2011/web-en/c2/c2-1.html (accessed May 2013).



Fig. 2.12 Wei Jiafu meets with UN Secretary-General Ban Ki-Moon at the UN Global Compact Leader's Summit

consumption steady since 2006 by incorporating lean management strategies, including its Life Cycle Assessments.

- **Vessel efficiency:** The single largest contributor to COSCO's carbon footprint is its operational sea vessels. With the company building more each year, and a growing demand for their use on trading lines worldwide, wear and tear will likely compromise efficiency. To counter this, COSCO is "...tightly focused on development trends [in] international ship energy-saving and environmental-protection technologies."⁹⁸

2.4.1.3 Action versus Awareness

The fact that the global shipping industry produces 2.7 % of the world's carbon emissions, more than air travel but not nearly as much as automobiles, raises concerns about where greening initiatives are best placed. What role should the shipping industry play in the environmental sustainability dialogue? Is it simply about creating sustainable operations or can more be done to innovate for the future? (Fig. 2.12)

⁹⁸ Ibid.

For COSCO's part, actively participating in environmental dialogue at the Global Compact and IMO, streamlining and greening operations through the Green Competitiveness and Life Cycle Assessment Programs and engaging stakeholders with its carbon emissions calculator all point to the potential for thought leadership and innovation from the shipping industry. Indeed, it is critical that an industry handling 90 % of the world's trade is, pardon the expression, on board with environmental sustainability. If the IMO reaches its intended target of reducing shipping emissions by 50 % in the next 40 years, that will place the industry well below the current 2 % of global emissions from airlines and 70 % from automobiles.⁹⁹ This will give shipping both a competitive and fiduciary responsibility to influence action and awareness. COSCO, through its current work, is using its innovative strategies to move well ahead of that curve.

2.4.2 Lenovo's Vision for Sustainability—Collaborative Partnerships for Effective Climate Change Management

Lenovo commits to absolute reductions in the emissions of greenhouse gases...and to drive and facilitate similar reductions in Lenovo's supply chain and customer base through the implementation of a comprehensive climate change strategy.

Yuanqing Yang, Chief Executive, Lenovo¹⁰⁰

Lenovo was founded during China's economic liberalization under Deng Xiaoping. Initially, Chinese businessman Liu Chuanzhi formed the Legend Group to distribute imported computers. Through acquisition, joint ventures and product innovation for Chinese consumers, Lenovo became the world's largest personal technology company and second largest vendor of personal computers. They are also the largest personal computer distributor in China, Japan, Russia and Germany. The company employs over 30,000 people with operations in 60 countries, a distribution network in 100 more, and over US\$34 billion (RMB209 billion) in revenue for the 2012/13 financial year.¹⁰¹

Headquartered in Beijing, China and Morrisville, North Carolina, Lenovo is often touted as one of China's homegrown success stories. Their impressive growth, however, is not sidelining the company's commitment to China as an agent for change. Nowhere is this more apparent than in Lenovo's work in corporate responsibility and environmental sustainability. A thought leader in this area,

⁹⁹ Air Transport Action Group, *Facts & Figures*. <http://www.atag.org/facts-and-figures.html> (accessed May 2013).

¹⁰⁰ Lenovo, *Climate Change Policy*. http://www.lenovo.com/social_responsibility/us/en/climate_policy.html (accessed May 2013).

¹⁰¹ Softpedia, *Lenovo Has Record Fiscal Year*. <http://news.softpedia.com/news/Lenovo-Has-Record-Fiscal-Year-and-Fourth-Quarter-2013-Revenues-355464.shtml> (accessed March 2014).



Fig. 2.13 Representatives at the launch of Lenovo's Greenhouse Gas Protocol Program

Lenovo is a signatory to the United Nations Global Compact and a participant in China's Greentech Initiative Project. This Project works to "...create a 'Vision and Roadmap to Realize China's Environmental Sustainability Goals.'"¹⁰² Boasting an AA rating by the Hang Seng Corporate Sustainability Index and a Prime rating by oekom research AG,¹⁰³ Lenovo is embracing its position as a global leader in sustainability.

Lenovo divides its corporate responsibility work between product quality and safety, environmental sustainability, employee welfare, ethics and building a sustainable supply chain. In terms of environmental impact, Lenovo recycles more than 90 % of its non-hazardous solid waste and is looking to improve this number throughout 2013.

2.4.2.1 Lenovo's Collaborative Partnerships

Supplier collaboration is a critical element in successful environmental strategies (Fig. 2.13). Lenovo understands this, working with 95 % of its first- and second-tier suppliers to develop emissions management strategies. These strategies include such support as tracking and monitoring systems for greenhouse gases. Lenovo also audits a majority of its suppliers who provide brokering, refurbishment, resale,

¹⁰² Lenovo, *Corporate Responsibility*. http://www.lenovo.com/social_responsibility/us/en/index.html (accessed May 2013).

¹⁰³ Ibid.

dismantling, recycling and disposal services to minimize their environmental impact.¹⁰⁴ Additionally, Lenovo works with its transportation network to establish baseline measurements for tracking emission reductions.

What truly differentiates Lenovo, however, is its exceptional use of partnerships and deep stakeholder engagement as a catalyst for impacting the environment outside conventional organizational metrics. This partnership model resonates within Lenovo's supply, purchasing and distribution chains, as well as externally to civil society via the consumer and other stakeholders. Through collaboration, Lenovo is making an impact on other companies' internal climate change policies, strategies, objectives and targets, as well as adding its strength to industry efforts to actualize global initiatives.

Lenovo's work in collaborative partnerships is especially notable in its environmental policies and climate change strategy. These include a tiered impact scale accounting for internal, supplier and customer emissions, as well as "...government, NGO, and public actions in support of transition to a low carbon economy."¹⁰⁵ Partners are chosen based on relevance to Lenovo's core principles, extent of expertise in a particular area, customer demand, compliance, adherence or even reputation.¹⁰⁶ The goal of this strategic partnership model is to enhance Lenovo's capabilities, particularly supplementing the company's operational work in renewable energy and alternative fuels, product manufacturing, shipment and efficiency.

Lenovo's range of partners is wide and includes supply-chain providers through to international organizations.

- Lenovo works with Sterling Planet and Climate Action to "...purchase renewable energy to support [their] emission reduction commitments where actual direct energy reductions are not technically or economically feasible."¹⁰⁷ Lenovo has purchased nearly 10,000 carbon offset credits. Part of these will go towards offsetting the impact of Lenovo's new manufacturing hub in the central Chinese city of Chengdu.
- Lenovo works with the Electronic Industry Citizenship Coalition (EICC). This group created a Code of Conduct for supplier engagement in line with corporately responsible practices. A member since 2006, Lenovo undergoes iterative self-assessment in line with the EICC. In addition, Lenovo is working with the EICC to implement a tool that will measure supplier carbon emissions and water usage.

¹⁰⁴ Lenovo, *Sustainability Report 2012*. (2012). http://www.lenovo.com/social_responsibility/us/en/FY2012_Lenovo_Sustainability_Report.pdf#page=9&view=fit (accessed May 2013).

¹⁰⁵ Lenovo, *Combating Climate*. http://www.lenovo.com/social_responsibility/us/en/climate.html (accessed May 2013).

¹⁰⁶ Sona Stenclova and Mary Jacques of Lenovo, interview by InnoCSR, e-mail interview, June 2013.

¹⁰⁷ Lenovo, *Combating Climate*. http://www.lenovo.com/social_responsibility/us/en/climate.html (accessed October 2013).

- Lenovo also voluntarily reports its environmental impact to the CDP, "...an independent not-for-profit organization holding the largest database of primary corporate climate change information in the world."¹⁰⁸

Other partnerships include social venture and philanthropic work, which the company calls Social Investment. As part of this effort, Lenovo pledges up to 1 % of its pre-tax income to social initiatives. The heart of Social Investment is Lenovo's work in local communities. Under the Next Generation Hope Fund, Lenovo is working to "...enable doers to do more through social investment programs that support a wide range of programs including those focused on education, research, entrepreneurship, disaster relief and regional community outreach."¹⁰⁹

Domestically, Lenovo works with a large number of organizations that reflect the company's continuing commitment to China. These include the Chinese Environmental Labeling Program, Energy Saving Work Association of the Chinese Institute of Electronics and the China Energy Conservation Program.

Lenovo also engages in open dialogue with its stakeholders on a range of issues. These include the company's climate change policy, participation in the Carbon Disclosure Project, product package redesign, energy efficiency data, free customer recycling programs and choice of suppliers. Over the next year, Lenovo plans to formalize its stakeholder engagement model. Part of this involves benchmarking itself against competitor programs, as well as "...global sustainability leaders."¹¹⁰

Dr. Li Rusong, China Head for the Carbon Disclosure Project, holds Lenovo in high esteem. Of Lenovo, Li says they are an "...internationally leading company [that] embraces traditional Chinese business wisdom and contemporary universal business ethics. [They] fully understand that transparency creates value [and] set an excellent example for companies, especially for Chinese ones, to follow."

2.4.2.2 Public Sector Collaboration to Develop Carbon Standards for China

Lenovo is working together with, information technology companies and academia on the Product Attribute to Impact Algorithm (PAIA) project (Fig. 2.14). The goal is to create a universal methodology to determine consumer products' carbon footprint.¹¹¹ According to The Carbon Trust, a product's carbon footprint takes into account "...emissions over the whole life of a product or service, from the

¹⁰⁸ CDP Project, *About Us*. <https://www.cdproject.net/en-US/Pages/About-Us.aspx> (accessed May 2013).

¹⁰⁹ Lenovo, *Social Investments*. http://www.lenovo.com/social_responsibility/us/en/social_investments.html (accessed May 2013).

¹¹⁰ Ibid., *Social Responsibility Report*.

¹¹¹ Lenovo, *Lenovo's Product Carbon Footprint Strategy*. http://www.lenovo.com/social_responsibility/us/en/Lenovo_PCF_Strategy.pdf (accessed October 2013).



Fig. 2.14 Lenovo's Shanghai golden sun photovoltaic system project

extraction of raw materials and manufacturing right through to its use and final reuse, recycling or disposal.”¹¹² Because this definition is so broad it has proven difficult to calculate precisely how consumer products impact the environment. The PCF World Forum does note, however, “. . .each well documented carbon footprint contributes to the common understanding of relevant emissions sources and mitigation options.”¹¹³

Currently, there are a limited number of international methodologies and standards for determining product carbon footprints. The onus of standardization primarily falls on individual countries, with Germany, Japan and France leading the way. Lenovo is helping develop China's own standards under the Product Carbon Footprint (PCF) China Standard Project. Lenovo began this collaboration with the Ministry of Industry and Information Technology in November 2011. Lenovo's work focuses on devising product category rules, desktop and notebook carbon footprint values and certification standards. Lenovo views this lack of methodological definition a principle avenue for inconsistencies in reporting and thus higher emissions.

Lenovo continues to work with its suppliers, particularly its top first-tier suppliers. These suppliers represent 80 % of all supply chain operations for the

¹¹²The Carbon Trust, *Carbon Footprinting*. <http://www.carbontrust.com/resources/guides/carbon-footprinting-and-reporting/carbon-footprinting> (accessed May 2013).

¹¹³PCF World Forum, *Product Carbon Footprint (FAQ)*. <http://www.pcf-world-forum.org/about/product-carbon-footprint-pcf/> (accessed May 2013).

company. Lenovo also trained more than 200 cross-industry suppliers on product carbon footprint methodologies. Furthermore, the company

“...will be conducting several initiatives to drive transparency in direct procurement spend, including the development of metrics to estimate Lenovo-related absolute and per-unit emissions to establish baselines, quantitative reduction goals, and measure improvements.”¹¹⁴

For 2013, Lenovo plans to establish product carbon footprint numbers for select notebooks, desktop computers and monitors, while finalizing the methodology among their other product categories.¹¹⁵ As an add-on to the new product carbon footprint methodology and standards, Lenovo wants to incorporate “...emissions in consumers’ use of the company’s products into consideration during the designing process...to develop more low-carbon products,” according to Gong Xun, Lenovo’s Global Head of Low Carbon Technology.¹¹⁶

With the advent of corporate responsibility comes an increase in collaboration between the private and public sector. Companies that are working to engage stakeholders and develop effective partnerships are well ahead of this trend. This is particularly apparent with collaborative partnerships around climate change and environmental sustainability. For Lenovo, collaboration is a key way to utilize the strengths of others, instead of trying to re-create the proverbial wheel. Through this, Lenovo can focus on its own areas of expertise, shaping policy and direction for the global IT industry.

Over the next several years, Lenovo plans to further strengthen its strategy for stakeholder engagement and identify potential opportunities for shared resource utilization for cooperation to tackle social and environmental issues. On a global level, Lenovo wants to integrate the work that each local office is doing into a more comprehensive, worldwide program.¹¹⁷ To further promote corporately responsible practices, the company is looking at ways to harness the power of advanced digital devices—smart technology. This is a very interesting proposition given the rise of technology over the past decade. Examining ways to utilize smart devices will invariably result in further collaboration between the public and private sector, civil society and consumers. The outcome of this for corporate responsibility, while yet to be seen, is likely to be positive.

¹¹⁴ Greenpeace, *Lenovo*. <http://www.greenpeace.org/international/Global/international/publications/climate/2012/GuideGreenerElectronics/LENOVO.pdf> (accessed May 2013).

¹¹⁵ *Ibid.*, *Sustainability Report*.

¹¹⁶ *Xinhua News*, “New Global Greenhouse Gas Measuring Standards Unveiled in China.” November 18, 2011. http://news.xinhuanet.com/english2010/china/2011-11/18/c_131256061.htm (access May 2013).

¹¹⁷ Sona Stenclova and Mary Jacques of Lenovo, interview by InnoCSR, e-mail interview, June 2013.

Thinking Points—Climate Change and Biodiversity Protection

Working internally on sustainable measures is important, but engaging stakeholders externally is far more beneficial. COSCO and Lenovo are partnering with civil society and encouraging individual responsibility towards climate change.

- What is the best way to effect critical change? Starting with the individual consumer, from a business perspective, is cost heavy. Working with more established international partners, however, could garner greater results.
- What is the true relationship between market share and responsibility to protect? Should larger companies be expected to be proportionately responsible in caring for the earth?

How accountable are these companies to the stakeholders or partners they work with? If an environmentally responsible company shifts strategy to a policy that destroys the rainforest, for example, can stakeholders do anything to counter this?

2.5 Criteria 5: Investment in the Environment

2.5.1 *Intel—Leveraging Information and Communication Technology to Transform and Reduce Clients' Environmental Impact*

We believe that technology will continue to play a fundamental role in addressing the world's toughest environmental and social challenges.

Paul Otellini, former Chief Executive, Intel¹¹⁸

The information and communications technology (ICT) sector accounts for 2 % of global carbon emissions.¹¹⁹ As the industry grows, particularly in developing nations, leading IT companies seek to apply their expertise in technology and innovation towards reducing the 98 % carbon emissions in their “non-footprint.” Leading companies in the industry see an opportunity to achieve a win-win by adding value to their business through innovating products that also help their clients reduce their environmental impact. By enabling reductions in other sectors via the application of carbon-smart ICT products, the ICT industry can multiply the potential positive impact of any single organization beyond its own direct emissions.¹²⁰ An MIT study encourages this viewpoint, noting, “. . .the effective use of

¹¹⁸ Intel, *2012 Corporate Responsibility Report*. (2012).

¹¹⁹ CY Yeung of Intel, interview by InnoCSR, in-person interview, January 2013.

¹²⁰ Digital Energy Solutions Campaign, *ICT and Low Carbon Growth in China*. (2010).

ICT across industries can contribute to a 14–16 % reduction in carbon intensity in China [alone].”¹²¹ Intel, one of the world’s largest technology firms, is partnering with organizations in the private sector, public sector and civil society, to further capitalize on the potential of the ICT industry to drive reductions in the environmental cost of doing “business as usual”.

2.5.1.1 Intel¹²²

In the late 1960s, newly founded Intel began creating semiconductors in a place that would later come to be known as Silicon Valley. Over the next decade, they gained a reputation for making not only efficient semiconductors, but also microprocessors and even one of the world’s first microcomputers. By forging an indelible link with the rapidly expanding computer market of the 1990s, Intel became a household name. It is now the world’s largest and highest valued semiconductor manufacturer. The market research firm Millward Brown Optimor’s annual ranking of brand valuation places Intel 58th out of the world’s 100 most valuable brands.¹²³ Today, Intel employs more than 104,000 people with major operations in North America, South America, Asia and Europe. Its 2012 revenues of US\$53 billion (RMB330 billion) place Intel 173rd on the Fortune Global 500 list of the world’s largest companies.¹²⁴

Numerous CSR experts and organizations acknowledge Intel as a leader in corporate responsibility. For example, since 2007 Intel has been the largest purchaser of green power in the United States, has donated more than 5 million volunteer hours and sponsors a wide range of global education programs to addressing gender and educational gaps.¹²⁵ These programs include the Intel Education Service Corps and multi-billion dollar Education Transformation program.¹²⁶ In 2005, Intel was one of the first global companies to voluntarily produce quarterly sustainability reports. In 2012, *Newsweek* ranked Intel the seventh greenest company in America.¹²⁷ The Dow Jones Sustainability Index has also

¹²¹ Ibid., Yeung.

¹²² Intel, *A History of Innovation*. <http://www.intel.com/content/www/us/en/history/historic-time-line.html> (accessed June 2013).

¹²³ Millward Brown, *Brand Z Top 100 Most Valuable Global Brands 2011*. http://www.millwardbrown.com/Libraries/Optimor_BrandZ_Files/2011_BrandZ_Top100_Chart.sflb.ashx (accessed June 2013).

¹²⁴ CNN Money, *Intel*. <http://money.cnn.com/magazines/fortune/global500/2012/snapshots/642.html> (accessed June 2013).

¹²⁵ Intel, *Well Folks, That’s a Wrap... Introducing Intel’s 2012 Corporate Responsibility Report*. <http://blogs.intel.com/csr/2013/05/well-folks-that’s-a-wrap...-introducing-intel’s-2012-corporate-responsibility-report/> (accessed June 2013).

¹²⁶ Ibid.

¹²⁷ Intel, *2012 Corporate Responsibility Report Executive Summary*. http://csrreportbuilder.intel.com/PDFFiles/CSR_2012_Exe-Summary.pdf (accessed June 2013).



Fig. 2.15 Intel merges technology with civic duty

included Intel in its prestigious Top 10 % Most Sustainable Companies list every year since the report's launch, naming Intel the "Technology Supersector Leader" in sustainability.¹²⁸

2.5.1.2 Intel's Application of Technology to Environmental Challenges

Intel is exploring ways to best utilize its new and existing technologies to address the exponentially growing need for sustainable, environmentally friendly operations from all sectors (Fig. 2.15). The company's 2012 *Corporate Responsibility Report* notes progress in developing energy management solutions for commercial and residential buildings, high-performance models for climate predictions and tools, models and sensors for more sustainable cities.¹²⁹

Some of Intel's more recent initiatives include:

- **The Energy and Sustainability Lab**, where Intel conducts research "...in the application of IT to enable a high-tech, low-carbon economy [and] sustainable cities."¹³⁰ Part of the Lab's work includes the development of ways to ease traffic problems, monitor weather patterns and help city buildings conserve energy.

¹²⁸ *The Economist*, "Pursuing Sustainability." <http://www.economist.com/debate/sponsor/136> (accessed June 2013).

¹²⁹ *Ibid.*, *CSR Report*, pg. 71.

¹³⁰ *Ibid.*

- Partnering with **Pecan Street**, Intel is working to develop smarter smart grid technology for consumer use. Taking energy consumption data from 200 households in Texas as a base, the project has created new technology enabling a grid's analytic tools to operate faster and more accurately.¹³¹
- Energy-saving applications, like wireless energy-sensing technology and the **Personal Office Energy Manager (POEM)**.¹³² This device uses a company's internal computer network to display individual, floor or building energy footprints. While providing real-time information for employees, POEM also gives tailored advice on how to reduce one's carbon impact.
- Partnership with civil society and academia, to develop the sustainable cities of the future. With an eye towards the shift and increase in urban populations, Intel launched the **Collaborative Research Institute for Sustainable Cities** in 2012. The goals of the Institute, a collaborative partnership with Imperial College London and University College London, are to "...understand key city challenges and technology opportunities..."¹³³ as the make up of cities changes dramatically over the next few decades.

Intel is using its global reputation in corporate responsibility to focus on the increasing impact of China. Intel's management emphasizes the need for social innovation to ameliorate social and environmental issues resulting from China's dramatic growth over the past 20 years.¹³⁴ In 2009, Intel unveiled a multi-disciplinary approach to social innovation by committing US\$1 million (RMB6.1 million) to advance education transformation, support entrepreneurship and non-profit organizations with technology solutions, and ICT-enabled environmental programs. This includes a focus on working with disadvantaged communities in western China with the aim to "...enable a vibrant social ecosystem through grass-roots NPO capacity building..." and "...mobilizing the ICT industry...to support green growth."¹³⁵

Intel annually commits US\$4 million (RMB24.5 million) in research funds towards educational initiatives. Over the last decade, the company has invested US\$50 million (RMB306.4 million) to improve teaching and learning environments in China. They have also:

- Trained 2 million K-12 teachers impacting nearly 500,000 students in western China.
- Collaborated with 100 universities to fund joint research, software design, visiting scholar exchange programs and entrepreneurship education.

¹³¹ Ibid.

¹³² Ibid.

¹³³ Intel, *Announcing the Intel Collaborative Research Institute for Sustainable Cities*. <http://blogs.intel.com/intellabs/2012/05/24/icri-sustainable-cities/> (accessed June 2013).

¹³⁴ Ibid., *CSR Report*, pg. 84.

¹³⁵ Ibid.

- Sponsored over 365 Chinese students to attend the world's largest pre-college science competition, the Intel International Science and Engineering Fair, of which 228 received awards.

The company also commits itself to use ICT for sustainable development in China. The company established the Digital Energy Solution Campaign alliance. The alliance works to increase collaboration between the ICT industry, government and academia in addressing ways technology can contribute to China's sustainable growth. Intel also authored the policy paper *ICT and Low Carbon Growth in China*, which looks at the potential of the ICT sector to reduce greenhouse gas emissions in China, and improved ICT infrastructure for 330,000 village clinics in 33 areas in an effort to advance rural and regional healthcare networks.¹³⁶

2.5.1.3 Dalian: Developing a Sustainable City¹³⁷

Additionally, Intel is working with individual Chinese cities to develop roadmaps for sustainable economic, environmental and social development.

The northern Chinese port city of Dalian has set the goal of reducing its economic sector energy consumption 20 % by 2015. In line with these goals, the city is encouraging a move away from heavy industry towards more information technology and high technology industries. Officials see these industries as those with the biggest potential impact not only on sustainability goals, but also "...public service delivery and management, optimizing manufacturing process [*sic*] that delivers both efficiency and productivity, and changing people's way of life."¹³⁸ If the industry grows as planned, officials estimate the eventual output of the sector to be over US\$9.7 billion (RMB60 billion). This will result in an 18 % decrease in the city's carbon emissions, cars off Dalian's roads (Fig. 2.16).

In line with Intel's focus on information and communication technology as a social innovator, it is working with Dalian's Government to harness the "...advantages [of ICT] as a higher value added industry..." and its ability to "...enable direct and indirect social and economic benefits." The city's new 5-year plan emphasizes ICT's potential impact on new sources of renewable energy, biotechnology and manufacturing. It also discusses the need to scale ICT solutions in all sectors, implement smart-grid technologies and create more efficient energy management systems. "These efforts will significantly contribute to achieve an efficient shift to sustainable growth in Dalian's social and economic development."

In China, the emission intensity of the ICT industry is projected to decrease by more than half over the next decade.¹³⁹ It is clear that for the foreseeable future,

¹³⁶ Ibid.

¹³⁷ Dalian Development and Research Center, et.al, *ICT To Drive Sustainable Development of Dalian*. (2011).

¹³⁸ Ibid., *CSR Report*, pg. 33.

¹³⁹ Ibid., Digital Energy Solutions Campaign.



Fig. 2.16 Intel's investment in solar technology

information and communication technology will have the ability to influence the environmental impact of industry on China. Intel's sponsored research on GHG emissions, *ICT and Low Carbon Growth in China*, posits five focal areas for the sector over the next decade: developing SMART grids; green building construction; optimized automation for industry; optimized logistics; and, dematerialization.¹⁴⁰

Steve Harper, Director of Environment and Global Energy Policy at Intel points out, however, that for the ICT industry as a whole to address these needs they will have to overcome certain barriers.¹⁴¹ Most critically, there is a lack of information and evidence available on the merit of these wider ICT programs. This is due to the lack of a common standard for technical performance in accessing products and solutions as well as there being no platform to share information across the industry.

Financial barriers also exist because of this difficulty in quantifying the impact of ICT efforts.¹⁴² Since its effectiveness cannot be easily measured, it is difficult for most companies to make investment decisions. There is a lack of willingness on the part of companies to shift resources towards what many consider a long-term project versus potential short-term gain. These issues are exacerbated in smaller companies, where a lack of capacity and necessary skills towards effective utilization of ICT in a wider scope exists. To overcome this, Harper finds it vital that these businesses build partnerships and balance early investment with long-term cost-

¹⁴⁰ Ibid., Digital Energy Solutions Campaign.

¹⁴¹ Ibid., Yeung.

¹⁴² Ibid.

saving benefits to ensure economic sustainability as well as environmental sustainability.

For its part, Intel commits to continue to push the boundaries of their contribution to sustainability and corporate responsibility. Some key goals, among many, include: eliminating chemical waste in landfills by 2020; achieving a 25-fold increase in the energy efficiency of Intel notebook computers and data center products by 2020; and, obtaining a minimum Silver LEED Certification on all new Intel buildings.¹⁴³ With their supply chain, Intel seeks to establish a purely green ground transportation system by 2016, encourage supplier compliance with Global Reporting Initiative (GRI) benchmarks and reporting, and develop the world's first conflict-free processor by the end of 2013.¹⁴⁴ All of these programs will benefit not only Intel, but also every one of the companies, public sector organizations and individual consumers that purchase Intel products, in efforts towards a more sustainable business world.

2.6 ZTE's Green Reporting—A Springboard for Telecommunication Innovation

2.6.1 Introduction¹⁴⁵

ZTE Corporation [is] based on sustainable growth [and] ceaseless innovation...devoting all efforts to construct green networks together with our customers.

Hou Weigui, Chairman, ZTE Corporation

Originally founded in 1985, the ZTE Corporation is now one of the world's largest telecommunications companies. In 2012, ZTE ranked fourth globally in mobile phone sales and fifth in the manufacture of telecommunications equipment. A multinational company, ZTE has operations in more than 160 countries including China, Germany, Australia and the United States, 18 research and development centers in Asia, Europe and North America, and over 100 subsidiaries globally. Its product range extends beyond mobile phones and equipment into software, streaming media services and video-on-demand programming.

ZTE's operations continue to expand. In 2011, its operating income increased by 23 % to USD 13.8 billion (RMB 86.3 billion), with over half of this from international sales. ZTE is also investing heavily in research and development. In 2011 ZTE held more patents than any other Chinese company, and also led the world in number of patent applications.

¹⁴³ Ibid., *Executive Summary*.

¹⁴⁴ Ibid., Yeung.

¹⁴⁵ ZTE Corporation, 2012 *Corporate Social Responsibility Report*. http://www.zte.com.cn/en/about/corporate_citizenship/report/201306/P020130715623106739366.pdf. (accessed March 2014).

ZTE understands the impact that its operations, and nearly 65,000 employees, have on the environment. This is why they have focused corporate social responsibility strategies around transparency via responsible, green reporting—namely through annual corporate responsibility reports and its 2011 Green Technology White Book. The White Book focuses on the company's environmental actions, taking its cues from the United Nations Global Compact (UNGC), an organization that supports good corporate citizenship by providing a set of CSR principles for corporate actors to follow. As a result of their work over the past several years, ZTE has been recognized as one of “China's Top 100 Green Companies” by the Daonong Center for Enterprise, part of the China CSR Honor Roll and a “Business Continuity Management Pioneer” by the British Standards Institution. It was also honored as one of the Top 25 Most Responsible Companies in Fortune China's CSR Rankings.

2.6.2 Green Reporting, Green Innovation and the Green Technology White Book

ZTE's notion of “Green Reporting” came out of its focus on research and development. According to its *2011 Corporate Social Responsibility Report*, ZTE insists that “investment in research and development every year account for about 10 % of the company's sales revenue.”¹⁴⁶ This translates into USD 1.3 billion (RMB 8.6 billion) every year and helps fund the 18 centers and 30,000 staff that work solely on research and development for ZTE. Testament to this investment in R&D, ZTE Corporation filed 2,826 patent applications in 2011, the most international patent applications of any company in the world.

Green technology development is also part of this total investment. More specifically, ZTE categorizes its green innovation work in two ways: improving telecommunications methodologies with a view to reducing carbon emissions; and, reducing emissions produced by carrier network operations.¹⁴⁷ These goals require a collaborative approach to innovation that bridges carrier and vendor. ZTE recognizes that there is no one-size-fits-all answer. It develops multi-level strategies to address this, taking into account everything from global networks down to micro-chip processors. This broad view allows ZTE to gauge its entire supply chain when working towards sustainability goals.

ZTE began to formalize its green reporting efforts in 2005 with the introduction of the company's environment management system.¹⁴⁸ Gradually ramping up over time, the system incorporated best practices from the International Standard

¹⁴⁶ *ibid.* pg. 14.

¹⁴⁷ Caie Liu of ZTE, interview by InnoCSR, in-person interview, January 2013.

¹⁴⁸ *ibid.*

Organization's Certification of Environment Management System (ISO14001) and the European Union's WEEE/RoHS¹⁴⁹ program.

ZTE also began to produce its Green Solutions case studies, which formed the basis for the 2011 Green Technology White Book. The Book highlights ZTE's work around green technology innovation and offering green, sustainable solutions to the telecommunications market. The White Book serves two purposes: first, it is a guiding document for benchmarking ZTE's progress in internal sustainability; and, secondly, parts can be used by external stakeholders, clients and industry competitors as best-in-class examples of work in sustainability.

The company gave additional credibility to its green reporting mechanisms by joining the Global Compact in 2009. The UNGC is based around 10 business principles covering human rights, labor, the environment and anti-corruption. To date, the Global Compact has a membership of around 10,000 private-sector companies, 300 of which are in China. ZTE sees its membership in the organization as an opportunity to "...ensure the global community that our CSR programs and corporate culture are of an international standard."¹⁵⁰

For its 2011 White Book, ZTE ensured that all company efforts were in line with the environmental principles of the Compact. In addition, the company's annual corporate responsibility reports are written with reference to the Compact's encompassing ten principles.

2.6.3 Green Reporting as a Catalyst for Change

As a result of research, development and reporting towards greener technology, ZTE is seeing marked improvements in internal innovation and green production, supply chain collaboration and overall carbon offsetting. Externally, ZTE is sharing its best practices with domestic and foreign stakeholders to build a more sustainable and competitive telecommunications industry.

2.6.3.1 Using Green Reporting to Make ZTE a Better Company

Whether it is through annual comprehensive corporate responsibility reports, best practice case studies or the 2011 Green Technology White Book, ZTE is using green reporting to benefit the company internally. In addition to providing

¹⁴⁹ The Waste Electrical and Electronic Equipment Directive (WEEE) and the Restriction of Hazardous Substances Directive (RoHS) were adopted by the European Union in 2002 and 2003, respectively. *Official Journal of the European Union*. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:037:0019:0023:EN:PDF> (accessed February 2013).

¹⁵⁰ United Nations Global Compact. *Overview*. <http://www.unglobalcompact.org> (accessed January 2013).

benchmarks for evaluating progress, the reporting has produced several tangible changes to ZTE's CSR practices.

- The “Bringing You Closer” Program¹⁵¹ works to encourage an environment of open dialogue and collaboration, not only between employees but also with external stakeholders including academic institutions, other telecommunications companies and subject-matter experts. An example of this is ZTE's “. . .University Industry Collaboration Forum. . .the largest university-industry collaboration organization in the telecom communication industry.”¹⁵²
- In 2011, ZTE set up 10 joint innovation centers. The goal of these centers is to “. . .provide a platform to conduct research and develop forward-looking technologies in order to better grasp market demands.”¹⁵³ ZTE has also created its Internal Venture Fund to promote innovation, investing USD 16 million (RMB 100 million) to encourage and incubate new internal ideas.
- Green reporting also recognized gaps in ZTE's supply chain. ZTE is now vetting suppliers through a CSR and risk assessment system and Supplier Code of Conduct. In 2011, ZTE established a supplier CSR expert management team and began to require “. . .suppliers to establish an effective CSR management system, including CSR control of sub-suppliers.”¹⁵⁴ In the same year, ZTE provided training for 292 suppliers and added 106 new suppliers to their approved list. The next steps in the ZTE supplier CSR and risk assessment system will be to look at further optimizing suppliers' CSR management, as well as ensuring adherence to increasingly strict global CSR standards.

ZTE's efforts are also helping the company continuously improve and offset its corporate carbon footprint.¹⁵⁵ In 2011, ZTE cut its facility carbon emission by over 1,200 t as a result of installing new solar power generating cells on buildings. The company also reconstructed high temperature rooms, reducing emissions by a further 5,000 t. In addition, ZTE created the Conference Service Sharing Center platform to reduce the need for corporate travel and its associated environmental impact.

2.6.3.2 Sparking Growth in the Telecom Industry

Externally, solutions from ZTE's green reporting are “. . .widely used by more than 300 operators in about 100 countries and areas around the world”¹⁵⁶ as best-case

¹⁵¹ ZTE Corporation, 2011 ZTE Green Technology Innovations. http://www.zte.com.cn/en/about/corporate_citizenship/report/201108/P020120918593482919117.pdf (accessed March 2014). pg. 14.

¹⁵² *ibid.*

¹⁵³ *ibid.* pp. 14-15.

¹⁵⁴ *ibid.* pp. 45-46.

¹⁵⁵ *ibid.* pp. 32-33.

¹⁵⁶ *ibid.* Caie Liu of ZTE.



Fig. 2.17 ZTE's highest altitude 3G-communication tower

benchmarks for industry standards (Fig. 2.17). ZTE also uses these innovations as springboards for further collaboration with domestic and international stakeholders.

Domestically, ZTE is working with the Chinese telecommunications industry to employ a series of products that address traditional wireless emissions. According to ZTE, these solutions can reduce energy consumption from anywhere between 70 % and 90 %. With "...1,000,000 wireless base stations belonging to the national three [telecommunications] operators..." this results in approximately "...7.9 billion degrees of electricity..." saved and a decrease of "...1.05 million tons of carbon dioxide."¹⁵⁷

ZTE is also working to implement its waste disposal and recycling platform for use throughout China and has set up the "Wu Wenjun Artificial Intelligence Technology Award" to encourage Chinese technical innovation.¹⁵⁸

Internationally, ZTE collaborates with the public sector to utilize company innovations. Working with the Government of Ethiopia, ZTE has been able to develop that country's communications grid. ZTE has worked on the country's

¹⁵⁷ *ibid.*

¹⁵⁸ *ibid.* pg. 48.

Global System for Mobile Communications (GSM), a cellular network standard set out by the European Telecommunications Standards Institute.¹⁵⁹

“In four years, the capacity of GSM rapidly increased from 1.2 million lines to 20 million lines. [It] covers all big cities and most of the rural areas, with the number of mobile telecommunication users increasing from 900,000 to 16 million. Such rapid development in communication resources and quality are rare worldwide.”¹⁶⁰

Other instances of public sector collaboration include ZTE's work with Brazil on building state-of-the-art industrial telecommunications parks, establishing global HR communications hubs in India and helping Chile create broadband networks in the country's rural areas.

2.6.4 Looking Ahead

While optimistic, ZTE still sees several challenges ahead for their industry.¹⁶¹ One of the most critical is building, upgrading and streamlining the mobile cellular network. As it stands, the network is a conglomeration of different technologies, frequency resources and overlaid networks. While this poses a serious problem for consumers, it also leads to the operation of multiple, energy consuming networks. To solve this issue, ZTE is working on a wireless solution that will host multiple technologies on a single platform. The claim is that this solution can reduce energy usage by up to 50 %.

ZTE also continues to expand its partnerships with various consultancies, governments and international organizations. Along with the UN, ZTE is working with GeSI, “... a leading source for impartial, credible information on existing and emerging issues in the area of ICT and sustainability...”,¹⁶² Greentouch, whose mission it is to “...deliver the architecture, specifications and roadmap to increase network energy efficiency by a factor of 1,000 from current levels...”¹⁶³ and the Initiative for Sustainable Development.

Finally, ZTE's green reporting stresses their ongoing commitment to improve “...supply chain CSR, overseas CSR, and green environment protection...to become a CSR leader in the communications industry.”¹⁶⁴ By being forward looking, instead of reactionary, ZTE has been able to differentiate itself in a market saturated with players. Their green reporting, continuous investment in research

¹⁵⁹ European Telecommunications Standards Institute. *Cellular History*. <http://www.etsi.org/technologies-clusters/technologies/mobile/cellular-history?highlight=YToxOntpOjA7czo0OiJnc20iO30=> (accessed March 2013).

¹⁶⁰ *ibid.* 2011 Corporate Social Responsibility Report. pg. 16.

¹⁶¹ *ibid.* Caie Liu of ZTE.

¹⁶² GeSI. Overview. www.gesi.org (accessed February 2013).

¹⁶³ Green Touch. *About Us*. www.greentouch.org (accessed February 2013).

¹⁶⁴ *ibid.* 2011 Corporate Social Responsibility Report. pg. 13.

and development, approach to supply chain management and partnerships are impacting not only the bottom line but raising the bar for the industry as a whole. By publically acknowledging successes and promoting best practices, ZTE inherently encourages broad collaboration. This butterfly effect has proven exponentially beneficial in the past for companies and communities to innovate and further greener, more sustainable operations.

Thinking Points—Investment in the Environment

Companies will often talk about the green bottom line as being separate from a hard-and-fast financial bottom line. The two are not so different in the minds of companies like Intel and ZTE. Investment in the environment is part of sound financial policy.

- At issue for many companies is a visible return on investment. Without this, it is difficult to convince investors or board members to keep programs afloat. How does one develop a way to attribute a growth in sales, for example, to money spent on environmental research?
- How can one align investment that generates both economic return, but also positive social and/or environmental return?
- Corporate responsibility, and helping the environment, can take many forms. What steps can help ensure investment is not disproportionately distributed to one particular facet of sustainability, thus leaving other areas at a detriment?

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