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Contemporary Perspectives

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Sustainability: A Corporate Responsibility

Section 1: Global Trend

In recent years, the effects of industrialized and industrializing nations on the environment have become more noticeable and more controversial. From global warming, to the depletion of important natural resources, to excessive energy usage, to pollution; people all over the world are beginning to see and experience the negative aspects of the globalization of countries all around the world. Globalization and industrialization can be great for a developing country's economy, which often leads to more jobs and eventually a more comfortable lifestyle for many people in that country. However, this economic boost usually comes with the development of a number of large companies within the country, as well as the expansion of the large corporations of other countries into the country. These companies require large office buildings, and even larger production plants, which inevitably require power and natural resources, and at the same time pollute the surrounding environment. However, these results do not go unnoticed. Governments around the world have expressed worries about this problem, and environmentalists have begun to push large companies to practice sustainable production and operation techniques. Japan, as one of the world's most densely populated countries, has recognized the importance of creating a balance between economic growth and environmental sustainability. This can be seen in a variety of

ways, including governmental policies, corporate policies, and even in architecture.

Corporations play a major role in a country's use of energy and resources; therefore they can have a lot of influence on a country's ability to lead a sustainable lifestyle, mainly its conservation of energy and resources. One of the most rapidly developing methods of conservation for these large corporations, and for companies in general, can be found in their buildings, and the “green” technology that is being incorporated into the design of these facilities.

Sustainable practices within large corporations have been a growing trend in recent years. A growing number of companies have assumed a leadership role in adopting sustainable business practices as they strive for sustainability (Sustainable). With all of the controversy about pollution, depletion of resources, and massive energy usage, it seems very logical for large companies, as the leading contributors to some of these problems, to begin to search for more sustainable methods of conducting business. Multinational corporations have received a lot of criticism for causing problems such as oil depletion in Nigeria, water depletion in India (Senqupta), and general pollution from the auto, mining, oil, and chemical industries (Frauenheim). This draws a lot of attention to the companies' unsustainable business methods and often causes them to look into ways of fixing them (sometimes because it is the responsible thing to do, but more often due to pressure from local people and government).

Sustainability has been a hot topic in countries all over the world due to increased knowledge of the damage that is being done to the environment. A number of attempts have been made to help push for a more sustainable and responsible approach to daily life, and on a variety of scales. The more that people become aware of the increasing environmental

problems, the more they feel obligated to search for more sustainable ways to carry out the same activities (Dahle). Local governments pass laws and restrictions to limit the amount of resources a company uses, or to reduce the pollution to the surrounding environment. The architectural field has taken its own approach to the idea of sustainability. They have created a set of standards called LEED, through which a number of points are awarded for each sustainable feature of a building. At the present time, it is not a requirement for design, but it is a prestigious accomplishment, and there has been speculation that it may become a requirement for all buildings in the future (LEED). An even larger-scale movement to spread the ideas of sustainable lifestyles and practices is the 3R Initiative. "The 3R Initiative aims to promote the "3Rs" (reduce, reuse and recycle) globally so as to build a sound-material-cycle society through the effective use of resources and materials" (The 3R Initiative). The idea, initiated by Japan's Prime Minister, is to create guidelines for the 21 participating countries (including the world's largest economies) and to promote international cooperation and recycling (21). Although some of these attempts have been more successful than others, each is a step in the right direction for a more sustainable world.

The opposition to sustainable business practice within large companies lies mainly within these companies. They have developed operation methods that have obviously worked for them, turning them into multi-million and multi-billion dollar companies. "The value proposition remains elusive," explains Rob Fenwick in the "New Zealand Management" magazine (Fenwick). Therefore, there are problems when the local government tries to intervene, telling them that they need to cut back on natural resource or energy usage. Many companies believe that doing this will cause a huge decrease in product output, therefore reducing profits greatly. Because profits are so important to large

corporations, they often try to find ways around obeying these limits. In many cases this is done by bribing the local government or reporting false figures about resource usage and pollution (Major). Another reason that people are opposed to sustainable business development is that they are unfamiliar with the term and what it involves. For example, a survey of New Zealanders showed that the main concerns of residents are decreasing water and energy usage, and minimizing the amount of trash added to their waste mountains. However, the poll also showed that most of the people surveyed do not understand the idea of sustainable development, and therefore do not promote it (Fenwick).

The supporters of sustainable corporation practices come from a variety of groups. Environmentalists in general, and people who are educated on the damaging effects that corporations have had on the environment make up a large percentage of the supporters. Of surveyed companies that have begun to adopt sustainable practices, the majority report noticing the following benefits: enhanced brand value, attracting and retaining staff, reducing risks, reducing costs, and identifying new business opportunities (Fenwick.) More importantly, the people who live in towns that are directly affected by a corporation's vast use of natural resources or release of pollution support sustainability within those corporations. A number of towns throughout India, for example, have begun to feel the presence of the Coca Cola Company in their neighborhood. While a large percentage of people in the area struggle to get clean drinking water, the company pumps millions of gallons out of the ground each day to wash their equipment and make its products. Also, the company has been disposing of toxic waste into the nearby soil, and even attempted to sell barrels of it as fertilizer to local farmers (Major.) When the effects of a large company cause such major problems in one's daily life, it is simple to see why he would support restrictions on that company's use of

resources or finding more sustainable methods of production.

Section 2: Case Study

As one of the most densely populated countries in the world and the home of some of the world's largest companies, Japan is a country that must be very careful with its resources. As the first city in the world to reach a population of 10 million, Tokyo is faced with a number of problems based on its size alone, including pollution, transportation, waste disposal, and energy consumption (Vujovic). Japan's large corporations have made it the second strongest economy in the world, and its two largest industries are manufacturing and construction. This means that in order to maintain its successful economy, while conserving energy and resources at the same time, Japan needs to create an effective yet efficient method of sustainable production. An organization called Japan for Sustainability has already begun to set guidelines for sustainability within the economy. The organization believes that in order for Japan to continue to be a prosperous, lively society in the future, there must be a shift toward a new, redesigned and sustainable social model. The group states that in order to achieve this, there needs to be a balance of four core elements: nature (the environment), economy, society, and individual well-being (Japan). For the Japanese, sustainability is considered a necessity, and it is apparent in the country's day-to-day urban lifestyles. Therefore, sustainable development is seen as an unofficial national policy, and is highly encouraged and promoted (Vujovic).

The field of architecture in Japan has recently begun taking steps toward a sustainable design standard. The Architectural Institute of Japan (AIJ) has assembled committees to analyze Japan's current conditions, as well as to outline the most effective approaches to

sustainable architecture in the country. The Global Environmental Research Committee researches and reports the current environmental conditions and any related impending issues or problems. From these reports, conclusions are drawn about the most effective sustainable construction methods and design techniques (Yashiro, 7). The Building Agenda Committee uses this information to report the most pressing sustainable issues for architectural design. For example, Building Agenda 21 reports that design should be focused on the life cycle impact of the building to the environment, producing codes for energy consumption, prolonging building life, reducing energy and resource use in operation, and sustainable land utilization to maximize sustainability (Yashiro, 8). The committees also set guidelines for construction, outlining methods of reducing material use, pollution, and carbon dioxide emissions.

In respect to the large corporations that have the greatest impact on the environment, more sustainable business practices must be adopted, beginning with the buildings from which their operation is based. Many of these companies have large headquarter office buildings, and then a number of manufacturing facilities scattered where they can find cheap labor and utilize the area's resources. The buildings themselves should be looked at and designed in new ways. Corporations should not look at sustainability as a cut in profits or a burden, but look for ways to continue the same tasks in new ways, while incorporating sustainable elements that will conserve resources and money. This can start with the design of the buildings, as the offices and manufacturing plants are usually run in a way that will most easily create profits, instead of in a way that that can minimize resource and energy consumption. In 2003, of 60 sustainable buildings studied, the average building cut energy usage and costs by 36%, compared to non-green buildings (Kats). However, as sustainable

building technologies continue to advance, the buildings are beginning to cost less, and the energy savings and costs are increasing every year.

Some of Japan's large companies have taken the initiative and have started to look for ways in which they can continue business in a more sustainable and responsible way. For example, as the world's leading developer in rechargeable and renewable energy, the Japanese company SANYO has taken some large steps toward becoming a more sustainable company. As the leading producer of rechargeable batteries for laptops, cellular phones, and personal organizers, the company began to look at renewable energy from a different source: the sun. Development of solar cells has been a priority of the company, turning the sun's energy into useable energy for everyday activities. These cells have been used to power houses, irrigate African deserts, and even power the first solar airplane to fly across America. Development on these solar cells has led them to be the world's most efficient photovoltaic panels, creating more energy per cell than any other in the world (Environmental Focus). This led to the design of the SANYO Solar Ark building in Gifu, Japan. This is the world's largest solar-power generating structure, and its 5,046 solar battery panels produce as much energy as nearly 34,000 gallons of petroleum fuel each year. At the center of the Solar Ark is a solar energy museum that explains the history, the technology, and the benefits of solar or "clean" energy (SANYO).

Aside from SANYO and its development of solar energy cells, Japan is the home of a number of the world's most "sustainable corporations". The most notable of these is Canon Inc., who is among the world leaders in production and sales of office equipment and digital cameras. Canon's reputation as a sustainable corporation can be traced back all the way to the philosophy on which the company was founded. The corporate philosophy of Canon is

“kyosei”, which literally means “living and working together for the common good.” The founders of the company believe that “true global companies must foster good relations, not only with their customers and the communities in which they operate, but also with nations and the environment. They must also bear the responsibility for the impact of their activities on society” (Corporate). Canon’s success as a sustainable corporation shows that when a company is developed with the environment and sustainability in mind, an environmentally friendly and very profitable corporation can be built. From production, to advertising, to collaborative grants and side-projects, Canon is continually working toward a more sustainable business model and a more eco-friendly corporate practice.

“Guided by its corporate philosophy of ‘Kyosei’, Canon has been carrying out activities to conserve the earth's environment” (Green Procurement Activities). One of the company’s major campaigns to accomplish this is green procurement, which led to the creation of the “Global Canon Green Procurement Standards” and the “Global Canon Green Procurement Guidebook.” In these sources, the company has outlined a set of requirements for their suppliers to meet in order to continue business with them. This deals with two major areas within the company – construction and operation, as well as in performance. Canon critiques and evaluates each supplier in legal compliance, use of prohibited substances, reduction of substances targeted for reduced levels of use, and preventative measures in soil and groundwater pollution in business activities. Before beginning to conduct business with a supplier, Canon must be satisfied with the company’s proposal and presentation, at which point a contract is written and signed by both companies. In following these standards, Canon makes sure to conduct business only with companies who share similar values regarding the environment. Canon has also adopted what they call a “milk-run” policy for procurement.

Normally, a company has parts delivered by the truckload on a certain schedule. Canon however, has begun sending their own trucks to the suppliers to pick up the exact number of needed parts, only when needed. This helps to cut down on the number of trucks on the road, therefore reducing carbon dioxide emissions into the surrounding environment (Production). Another method that the company has used to decrease the harmful effects of transportation on the environment is to rethink its packaging methods. Using a new “air shell” method of packaging for its toner cartridges, they were able to cut package sizes by over 30 percent, which allows for larger shipment sizes and less shipments.

Canon has also outlined its efforts to reduce energy use, conserve resources, and eliminate hazardous substances in manufacturing within all of its facilities. These efforts focus on reducing greenhouse gas emissions, reducing waste, and reducing emissions of other hazardous substances from Canon’s manufacturing plants. The company has also created an Operational Site Energy Efficient Special Committee, which focuses on making improvements on production facilities, as well as mechanical equipment that generally consumes substantial amounts of energy within the facilities. The last fifteen years has seen a major achievement in reduction of landfill waste from Canon’s Japanese facilities. In 1990, the Japanese plants alone produced over 35,000 tons of landfill waste. With the help of the 3R Initiative in Japan, the landfill waste from Japanese plants was reduced to zero by 2003, and all seventeen non-Japanese plants achieved this goal by 2005. In its outline to reduce the use of hazardous substances, Canon has set goals to achieve by certain dates, and is well on its way to meeting its goals for 2008 - “60% reduction of controlled chemical substances emissions” and “78% reduction for chemical substances subject to the PRTR system” (Environmental).

Almost as important as the energy and resources that it takes in the production of a Canon product is the energy that the product itself uses during its lifecycle. Addressing the high power consumption of Canon's large copy machines and even home printers has become one of the company's main goals. The company has put a lot of effort into creating more energy efficient technologies, and finding ways to incorporate them into their various products. From cameras to office copiers, Canon has successfully begun to create a much more efficient line of products. For example, the EOS Digital Rebel XT/EOS 350D model digital camera was designed to use 35% less power than the previous model, allowing for a smaller battery that requires less recharging. Also, the newest home printer models have been designed to use 89% less energy over the course of its lifespan, large-scale office copiers have been built that use 40% less energy, and even the latest models in radiology equipment use 49% less energy than previous models. Not only are these products much more energy efficient, but they are also resource efficient. They have been designed at a smaller size, as to require less material to put together, and they can be made from recycled materials (Environmental Technologies). Canon's commitment to producing more energy efficient models of all of their products saves the consumer money on their energy bills, as well as setting an example for a more sustainable future in electronics.

For a company so dedicated to the environment and its well-being, it only makes sense that the company would also focus on sustainability within the architecture of its buildings. Buildings in general consume roughly 70% of electricity in the Japan, as well as a large percentage of the materials and resources used (Kats). Therefore, to maintain its reputation as one of the world's most "sustainable corporations" (Most), the architecture of the company's manufacturing and office buildings is a great way to earn recognition. As technologies have

advanced dramatically in sustainable building design in the past 10 years, the possibility of having large-scale sustainable buildings built has become a cheaper and more feasible reality. Because these technologies are just beginning to become profitable and more affordable, large companies have been slow in adopting sustainable architecture as a standard for their facilities. Canon, for example has not placed sustainable architecture at the top of its list for sustainable development priorities in Japan. The company seems much more focused on sustainable business and production methods and minimizing harmful environmental effects through manufacturing.

The company, however, has not totally discarded the idea of adding sustainable architecture to its repertoire of sustainable business practices. Canon's new UK headquarters building in Surrey, designed by David Richmond and Partners, was designed with a sustainable focus from the moment that the 25 acre site was purchased. Throughout the construction of the nearly 120,000 square foot office facility, only one tree from the site needed to be cut down (The Greenest). To ensure that the completed building would be a highly sustainable project as the company had originally planned, they called in the help of a BREEAM committee. The design and construction of the building were monitored by the committee. When the building was completed and evaluated by BREEAM, it was awarded a rating of "Excellent", which is the highest honor (The Greenest).

Hopefully Canon will see the benefits of sustainable architecture from this UK headquarters building, which was designed as a symbol of everything that the company values, and use similar building technologies and ideas in future facilities. Sustainability in architecture does not stop after the building is designed and constructed. The process begins with land planning, building design, and construction by professionals, but it is then up the

clients to maintain the sustainable facility. When this is done correctly, the building will reach its maximum sustainability potential in areas such as waste management, water use, energy use, air quality, and monitoring performance (Frej). Canon, as a company, can learn about maintenance of a sustainable facility from the UK headquarter office, while at the same time experiencing the benefits of an environmentally friendly building and office setting. Now that the company has experimented with green architecture as an additional method of running a sustainable and eco-friendly business, it should only get easier to incorporate the same technologies into future facilities, and possibly create a standard for sustainability within all future expansion. This can apply to any new Canon facility, whether it is in Japan, the UK, the United States, or any other country from which the company operates.

Section 3: Global Implications for Architecture

The trend of sustainability and eco-friendly business practices has perhaps influenced the field of architecture more than any other profession. Because the construction, maintenance, and running of buildings makes up the majority of the world's energy consumption, the field of architecture must take extra responsibility in creating more energy efficient buildings and building methods (Frej, 6). For this reason the Leadership in Energy and Environmental Design (LEED) Green Building Rating System was created. "The goal of this system is to promote a "whole-building approach to sustainability by recognizing performance in six key areas of human and environmental health: sustainable site development, water savings, energy and atmosphere, materials and resources, indoor environmental quality, and innovation and design (Frej, 6). Since the rating system was created, more than 1,500 public, private, and nonprofit building owners have sought

certification for their projects, helping them to become known, locally and nationally, for their outstanding environmental design (Frej, 6). The LEED rating system is the United States' response to the need for a more sustainable approach to architecture, but similar responses can be seen in other countries. This does not necessarily mean that every country is creating a sustainable-scoring system for buildings, but a new focus on green architecture is present. LEED has also begun to rate notable green buildings in other countries, in an attempt to measure the effectiveness of green design in countries where such standards have not yet been created (Frej, 10). Not only are sustainable buildings being designed in other countries, but companies in other countries are helping to develop new and innovative sustainable building technologies (such as SANYO's improved solar cells).

Much like the United States, the United Kingdom has developed a scale on which to rate the effectiveness of a sustainable building project. This system is known as BREEAM, or the Building Research Establishment Environmental Assessment Method. Similar to LEED, the UK's system also assesses a building's performance in a number of areas (Nine, as compared to LEED's six). An accepted building will then be rated by the number of points that it received as Pass, Good, Very Good, or Excellent, and this can then be used to promote the building and the companies involved (Frej, 7). Europe in general has contributed greatly to the promotion of sustainable building design and related technological advancements. For example, new technologies have created a lot of buzz about buildings with "interactive envelopes." This is the idea of creating automated building envelopes (windows, louvers, and vents for example) that sense when to open or close to stabilize the internal environment of the building, making it more comfortable for its occupants. European countries such as Germany and Austria have led the way with such technologies, applying them to several

hundred buildings since the 1990s, whereas such buildings are still rare in the United States (Sullivan).

In the past decade, the sustainable building movement has gained great speed and support world-wide. Just because the United States and the United Kingdom are the only countries that have created scales on which to assess, score, and certify each green building does not mean that they are the only two countries who are taking green design seriously. The objectives of green building design all focus on minimizing the detrimental effects of buildings on the environment; a cause that people all over the world can relate to. As sustainable architecture continues to gain support, remarkable new green buildings are being designed and built in countries all over the world. In Hyderabad, India for instance, The Confederation of Indian Industry – Godrej Green Business Centre became the first building outside of the United States to receive the highest LEED Platinum certification (Frej, 9). Shanghai, the largest city in the People’s Republic of China will soon see a new skyscraper in which interior vegetation will “scrub” the air as it rises through a cavity-wall atrium (Frej.23.) In Spain, the headquarters of Endesa, one of the world’s largest private electrical companies, generates all electricity for its own energy needs using photovoltaic cells (Frej, 34.) The World Trade Center in Amsterdam applies simple passive solar heating and cooling methods to a large-scale, double-skinned office facility. It also offers a safe underground storage area for up to 2,500 bicycles to help promote alternate transportation(Frej, 92). In Harare, Zimbabwe, the Eastgate building drew inspiration from a termite mound when designing its ventilation system to dramatically decrease energy use (Frej, 241). All of the above-listed examples of sustainable architecture show that designing with the environment in mind is an important factor for architects and clients from all over the world. In addition, each of the

examples is a large-scale building such as an office building or a company's headquarters. The clients and the architects realize that a normal office building uses a large amount of energy and resources, and hope that designing a sustainable office building will dramatically decrease the negative effects that the company will have on the environment.

The economic growth of countries all over the world has harmful effects on the environment for several reasons. With economic expansion comes the creation and growth of businesses within a country. These businesses need offices and manufacturing facilities, to which employees need to commute. The construction of these facilities uses energy and natural resources, and the delivery and construction vehicles emit carbon dioxide. The finished buildings then require energy and other resources to run, and the employees' commutes to work also release carbon dioxide into the air. As the economy expands and offers more money and more jobs, the residents of the country begin to adopt a more "westernized" lifestyle. This usually leads to larger houses and more automobiles which creates the above problems all over again. There really is not way to stop economic growth and the changes that it brings. There is however, a way to minimize the harmful effects that these changes have on the environment. The large companies and their manufacturing plants are major contributors to these economic problems, but the negative consequences that they have can be decreased through smart and sustainable design and business practices. Companies such as Canon Inc. place great importance on sustainability through their production methods and business habits, earning the company the title of "one of the world's most sustainable corporations." Other companies focus less on sustainable business strategies and more on creating a sustainable image for themselves with state-of-the-art green facilities.

Whichever approach a company decides to take toward making itself more sustainable is a step in the right direction. Whether minimizing energy and resource usage and decreasing pollution and waste through manufacturing techniques or through sustainable architectural design, the company is reducing its harmful effects on the environment. This trend has continued to become a more pressing issue in recent years, and with the continued development of smaller countries around the world, it must continue to gain support to make global development easier on the environment.

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