



Research Article

Green Business Operations for Building Eco-Cities: Identifying the Role of Business and Critical Success Factors for Sustainability

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Abstract

It is anticipated that by 2050, the number of people living in cities will have increased from 3.6 billion in 2011 to nearly 6.5 billion and that 70% of the world's population will be residents of cities. This rapid increase in people will occur in developing countries (e.g., Saudi Arabia, China, India). Thus, complex issues related to an increasing level of urbanization present huge challenges but also huge opportunities for governments, societies, and businesses. For instance, sustainable cities projects can provide enormous opportunities with which to create better futures for larger numbers of people via the environmental greening of buildings, supply chains, energy, technology, transport, and waste management, as well as providing a wide range of economic and social benefits. Based on the literature review, this paper presents a research model that defines the unique roles that business firms play in building highly sustainable cities that thrive based on the triple bottom lines of economic, environmental, and social dimensions to create win-win situation. First, effective private and public partnerships are discussed in the context of sustainable cities. Second, the paper argues that enhancing and promoting sustainability strategies and practices in a city gives a firm a competitive advantage in both strategy and operations levels, making it a great role for the businesses. Third, the specific roles of businesses that link them between government entities and city residents will be discussed. Additionally, we have developed a measurement tool for measuring the success factors of these sustainable cities projects. This measurement tool aims to examine the changing roles of businesses in making urbanization sustainable in terms of economic sustainability (e.g., financial performance, job creation, and human resources development), social responsibility (e.g., Corporate Social Responsibility (CSR) indicators), and sustainable environmental terms (e.g., quality of life, and resources efficiency use (recycling, renewable energy use)). Finally, the case study illustration includes specific sustainable city projects already in progress in Saudi Arabia.

Keywords: The roles of businesses; sustainable cities; Green operations; efficiency measures; social responsibility measures; environmental measures; eco-city operations; Saudi Arabia.

Introduction

It is anticipated that by 2050 the number of people living in cities will have increased from 3.6 billion in 2011 to nearly 6.5 billion and that 70% of world's population will be residents of cities (Macomber, 2013; Zuzul et al., 2013). This rapid increase of people is predicted to occur in developing countries such as Saudi Arabia, China, and India (Eccles et al., 2012; Macomber, 2013). This increasing level of urbanization brings forth complex issues which present huge challenges for governments, societies, and businesses.

The uniqueness of sustainable cities projects is that they present the best chance for mitigating threats to the environment and its natural resources. Also, the projects present a unique opportunity to lead the sustainability through environmental greening of buildings, energy, technology, transport, waste management, and procurement, as well as providing a wide range of economic and social benefits (Sustainable Cities, 2012). For example, the government of Abu Dhabi announced that Masdar City would aim to be a zero-carbon city, powered entirely by renewable energy; additionally, it would be car-free, producing net-zero waste, and would contain other more modest sustainability performance indicators (Eccles et al., 2012). However, as reported by the United Nations Department of Social and Economic Affairs (2008), many governments have no funds with which to build such new cities or even develop existing cities, transit, and infrastructures. Therefore, this creates a great opportunity for the private sector (businesses) (Macomber, 2011).

Developing countries are the perfect opportunity with which to develop this initiative. Therefore, this initiative was announced in order to enhance the developing countries' lifestyle, businesses, etc. (Zuzul & Edmondson, 2013). Therefore, this paper will contribute to, first, trying to understand the unique roles of businesses to build sustainable cities effectively and

efficiently in developing countries and, second, discussing the critical sustainability success factors in term of sustainable cities performance.

To that end, this paper will discuss these issues and examine the changing roles of businesses in making urbanization sustainable in terms of economic sustainable development (e.g., financial performance, job creation, and human resources development), social responsibility (e.g., Corporate Social Responsibility (CSR) indicators), and sustainable environmental terms (e.g., quality of life, and resources efficiency use (recycling, renewable energy use)). Case study illustrations will include specific sustainable city projects in Saudi Arabia.

Sustainable Cities/Eco-Cities

Sustainable cities, sometimes called "smart cities" or "eco-cities," are an initiative of the World Bank. In its "Eco2 Cities" report, the World Bank (2010) stated: Sustainable Cities is a new initiative launched by the World Bank, as an integral part of the World Bank Urban and Local Government Strategy, to help cities in developing countries achieve greater ecological and economic sustainability. Ecological cities enhance the well-being of citizens and society through integrated urban planning and management that fully harnesses the benefits of ecological systems, and protects and nurtures these assets for future generations. Economic cities create value and opportunities for citizens, businesses, and society by efficiently using all tangible and intangible assets, and enabling productive, inclusive, and sustainable economic activity. (n.p.)

According to Eccles et al. (2012), the declaration of the Eco-city World Summit 2008 in San Francisco stated that an eco-city is a city that allows people to prosper while also enhancing their future quality of life by achieving environmental sustainability. However, building an eco-city requires a thorough understanding of many factors,

including environmental, economic, political, and socio-cultural factors. An eco-city is people-oriented due to the fact that it has a focus on the future well-being of its infrastructure and inhabitants. Additionally, according to Schaffers et al. (2012), the smart city idea looks at how investments made in both human and social capital now can create both growth of the city and a high quality of life for those living in it. This is done through the astute managing of resources and through a participative government. In other words, an eco-city has both its inhabitants' and its businesses' best interests in mind.

Based on the literature, we have defined a sustainable city, or eco-city, as a city designed to be environmentally-friendly, -healthy, and -sustainable in its development (e.g., by improving resource use efficiency, social responsibility, economic sustainability, and environmental sustainability) for immediate and long-term benefits. This

definition includes all cities that are designed to have less environmental impact by using their natural resources efficiently. Also, the sustainable city should ideally have a wide range of economic and social benefits for its residents and local businesses.

What Unique Role Can Businesses Play in Sustainable Cities?

Research Model

Businesses play unique roles at different levels in building sustainable cities. We focus here on building an effective partnership with the public sector, providing strategies to enhancing and promote the sustainability practices, and facilitating a linkage between the government entities and the city's residents in terms of employment and training, thereby reducing the burden of the government's work and responsibilities. See Figure 1.

Sustainable City Performance

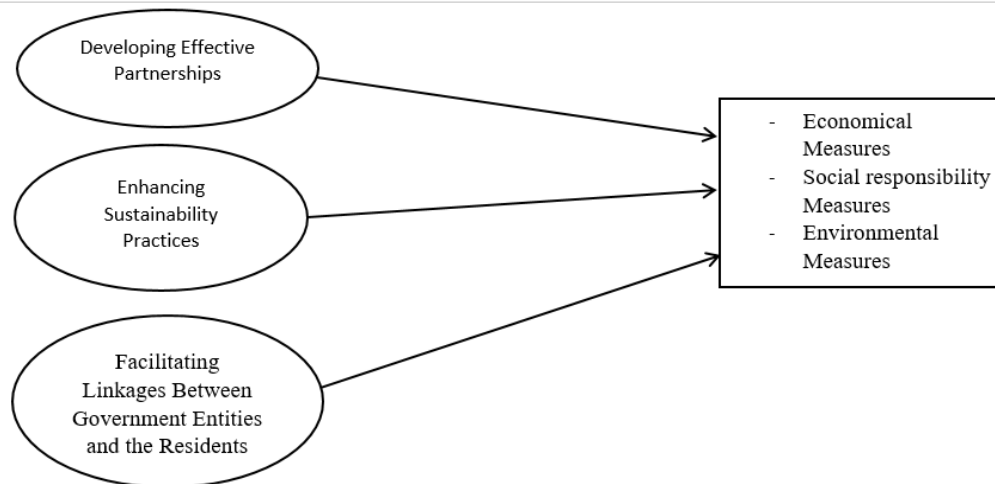


Figure 1: The research model

Developing an Effective Public-Private

Partnership (PPP)

Traditionally, governmental organizations have had the sole responsibility of dealing with sustainability issues. Recently, though, private sector businesses, as well as various social organizations and educational institutions have also started taking on environmental and societal responsibilities (Dublink, 2003; Arts & Leroy, 2006; Van Huijstee et al., 2007). The Masdar City initiative, introduced in 2006 by the government of Abu Dhabi, UAE, is an example of this. This initiative is a multi-billion dollar comprehensive economic development program designed to leverage Abu Dhabi's considerable financial resources and energy expertise into innovative solutions for cleaner, more sustainable energy production and resource conservation, as well as sustainable development (Mezher et al., 2010). In addition to the initiative which leverages the financial resources with energy expertise, Mezher et al. (2010) noted that in order for the initiative to provide such sustainable development and social success, there needs to be cooperation and collaboration among all stakeholders, which includes government institutions, NGOs, and both public and private sectors. Therefore, this tells us that in order to build a successful sustainable city, we need to invest in effective partnerships. Such partnerships will depend on the sense and willingness of all sectors to participate in genuine social enterprise and dialogue, while also recognizing the independent roles, responsibilities, and special capacities of each one. Some countries have already recognized the full benefits of the investment of such a partnership. According to Frame and Taylor (2005), New Zealand's government already understands this, stating that this public and private sector partnership is key to sustainable development. Ultimately, the responsibility cannot fall solely on a government.

Businesses play a very important role in this partnership for building sustainable cities effectively and competitively. As mentioned above, governments generally do not have the funds to create new cities or even fully develop existing cities, transit, and water/power infrastructures. Therefore, this presents a great opportunity for the private sector to invest in these mega projects. For instance, in Saudi Arabia, the government built Jubail and Yanbu, two industrial cities, years ago, while King Abdullah Economic City (KAEC) was built by the private sector in partnership with Saudi Arabian General Investment Authority (SAGIA), the main facilitator of the project. Nowadays, we can see that the KAEC is doing well and becoming more organized and growing up quickly. Also, there are many international companies that are starting their businesses in the city. New businesses create job opportunities for citizens, and that is one of the city's priorities. Such partnerships, therefore, have both immediate and long-term benefits for both governments and businesses. To that end, we offer our first proposition.

Proposition 1. *The greater role of business in developing an effective public-private partnership, the higher impact the sustainable city performance in terms of economic, social, and environmental measures.*

Enhancing Sustainability Practices

Besides helping to develop an effective public-private partnership, businesses can also play an important role by including sustainability strategies in their business strategies and operations, using these as a competitive advantage. Involving sustainability in business operations helps firms to fit in with a city's environment. In the sustainable city industry, everything encourages firms to apply sustainability practices in their strategic, tactical, and operational levels. In fact, this budding industry is more akin to an ecosystem than the more traditional sort of marketplace (Eccles et al., 2011). As a result, companies are challenged to create new strategies and more innovative business processes and

models in order to promote sustainability (Zuzul & Edmondson, 2013).

Governments, NGOs, and city society can only provide regulations for businesses, pressuring them to be more sustainable; but this does not happen in practice unless the businesses themselves take advantage of and responsibility for being sustainable organizations in terms of environment, economic, and social issues. Thus, the emerging industry that is created by sustainable cities projects leads to enhancing sustainability practices as well. Therefore, we offer a second proposition.

Proposition 2. *The greater role of business in enhancing sustainability practices, the higher impact the sustainable city performance in terms of economic, social, and environmental measures.*

Facilitating a Linkage between the Government Entities and the City's Residents

One important role businesses can play in a sustainable city is that of linking the government entities to the people of the city. When the government encourages businesses to invest in these sustainable cities projects, businesses can create job vacancies for the citizens and, as a result, help the government to solve unemployment issues, especially in developing countries. In turn, businesses can use this opportunity to attract talented people in the market, leading to further success in sustainable cities projects. In other words, if the government opens the door to businesses, both locally and internationally, by investing in sustainable cities projects, this may allow them to train and employ young talented workers who have the skills and qualifications to do work.

Simply put, when governments give businesses the chance to serve the residents of the city, it provides more efficiency of services as an outcome of this linkage between government and business. Businesses always try to have a high efficiency of services, and they take care to

maintain such a positive reputation. Additionally, businesses (private sector) tend to have the skilled people more than in the governments (public sector). So, when the private sector partners with the public sector, this helps to create more efficiency. Therefore, when the residents of the city are served by the businesses, they enjoy more efficient services. Furthermore, this helps the government to get benefits from the private sector and, at the same time, lessens their own responsibilities, creating a win-win situation. On the other hand, if government entities are the only ones providing direct services to the residents, the result is lower quality service, as compared to what the businesses in the private sector can offer. Additionally, if the private sector takes on more duties—instead of the government—this helps to lessen the government's responsibilities.

Businesses can also make long-term contracts with governments to develop land and build an effective water/power infrastructure; then, they can sell it at competitive prices to people who would like to live in the city. This idea may help a government (e.g., the Saudi government) to solve the housing problem, one of the biggest issues in the Kingdom of Saudi Arabia today. Therefore, based on the above argument, we offer a third proposition.

Proposition 3. *The greater role of business in facilitating a linkage between the government entities and a city's residents, the higher impact the sustainable city performance in terms of economic, social, and environmental measures.*

What Are the Critical Sustainability Success Measures in Sustainable City Context?

In this paper, we are presenting a research model that defines the success factors of sustainable city projects in terms of economic sustainable development (e.g., financial performance, job creation, and human resources development), social responsibility (e.g., Corporate Social

Responsibility (CSR) indicators), and sustainable environmental terms (e.g., quality of life, and resources efficiency use (recycling, renewable energy use)). These measures could be the most important values created by the city itself regarding the sustainability performance levels for the economy, society, and environment.

Economic sustainability Development

Economic sustainability activities focus on business growth, efficiency and effectively supporting the financial viability of the business. In engineering, full efficiency means that the production process can produce optimum output, given both the current technology and a fixed amount of inputs (Diewert & Lawrence, 1999). Efficiency is an important factor in the determination of productivity, and productivity is an indicator of competitiveness and economic growth. In regards to economic sustainability in cities, it is essential to ensure the efficient use of resources, promote the sustainable supply chain, and improve productivity. Sustainable city efficiency can be measured by using indicators that relate input to output through values such as productivity growth and job creation in the city. Therefore, for sustainable cities, Economic sustainability means the ability of the city to grow in terms of financial performance, creating job, and developing the human capital.

Additionally, it is important to ensure that a city has an adequate sustainable supply chain in order to achieve its sustainability goals. Construction materials manufactured in the city or provided by local suppliers need to be considered. Sustainable materials are essential for creating efficient and competitive sustainable cities.

On the other hand, though, job creation is an equally important priority of sustainable cities, particularly KAEC in Saudi Arabia. Job creation can be measured simply by the number of jobs that companies in the city announce as open positions, as well as the number of jobs already available in the city

itself, by the city and by the firms that participate in it. Also, the Human Resources Development (HRD) is an important issue for sustainable cities. Elwood et al. (1996) has mentioned that the HRD is a structure within which to invest in human capital in an organization; this is done through the development of organizations, groups, and individuals. Therefore, to measure HRD for the sustainable city, we need to also consider the city's investment in human capital for both the individual and for the organizations within the city.

Corporate Social Responsibility (CSR)

Measures

CSR is considered an opportunity for firms to contribute to sustainable growth and job creation, and it can play a leading role in enhancing an organization's innovation potential and competitiveness as well (Mezher et al., 2010). CSR includes indicators such as human rights, equal opportunity, employment of women, workplace health and safety, community involvement, and social development (Abbott et al., 1979). According to the Commission of the European Communities, CSR is about integrating social and environmental concerns in a firm's day-to-day operations; this includes all interaction with stakeholders too (CUC, 2001, p. 6). Likewise, Holme and Watts (2000) defined CSR as a business's commitment to behaving ethically and contributing to the well-being of not just their employees and the employees' families but to the community as well. In other words, social responsibility of an organization is not just about fulfilling legal obligations; it's instead focused on investing more into the human aspect of life, such as human capital, the environment, and effective relations with stakeholders (CUC, 2001).

To that end, a firm's strategic view of CSR can support both its financial performance and its stakeholders' interests (Burke & Logsdon, 1996; Mezher et al., 2010). Burke and Logsdon (1996), for example, developed a

CSR strategies model that may help managers develop their own CSR strategies. Scholars have studied many external drives that force an organization to develop CSR strategies; these drives include consumer demand for responsible products, enhancement of the organizations' reputations, regulatory pressure from other stakeholders (e.g., NGOs), industry requirements, CSR performance assessments and rankings, as well as the social responsibilities of organizational managers and employees (Heslin & Ochoa, 2008). Leadership also plays a critical role in the sustainability of an organization, so it is important to carefully examine a firm's mission, vision, and values (Mezher et al., 2010). Also, business leaders should fully understand the critical strategic sustainability factors, both internal and external. External factors include market, government, and stakeholders' expectations, while internal factors include managerial, operational, and economical factors (Szekely & Knirsch, 2005). For instance, Lynes and Andrachuk (2008) have acknowledged different firms' motivations for corporate social and environment responsibility. These can include long-term financial strategies, eco-efficiencies, competitive advantage, good corporate citizenship, image enhancement, stakeholder pressures, and desire to avoid or delay regulatory action.

Clearly, then, CSR is very important for sustainable cities and the firms participating in a sustainable city. Thus, we should measure the social responsibility of sustainable cities by what we call CSR indicators (human rights, equal opportunity, employment of women, workplace health and safety, community involvement, and social development).

Environmental Measures

Many researchers have suggested that concern about environmental attitudes and environmental behaviors of firms are related to people's values (Dunlap, Grieneeks, & Rokeach, 1983; Karp, 1996; Schultz &

Zelezny, 1999; Stern, 2000; Poorting, et al., 2004). While this may be true, environmental sustainability is an important organizational issue that also affects long-term development of businesses (Madsen, 2009; Wong, 2013). Businesses have tended to mainly focus on economic growth, but recent wisdom suggests that businesses should also simultaneously conserve the natural environment and society (Carter & Rogers, 2008; Paulraj, 2011). These are ideas that are interconnected.

One of the goals for people in sustainable cities is achieving a better quality of life. Based on the literature review, a better quality of life is related to the sustainable development (Vlek, Skolnik, & Gatersleben, 1998; Gatersleben, 2000; Poorting, et al., 2004) and, according to Plwman and Toyne (2013) in the Sustainable Cities publication, quality of life indicators include:

1. Quality education, services, work, housing, and leisure
2. Living in an environmental quality that is healthy, resilient, and stable now and into the future
3. Living and working within a society that is just, engaged, diverse, responsible, supportive, and socially sound
4. Being fulfilled and content and having sufficient self-respect

Quality of life is not the only environmental measure though. Another critical environmental measure in sustainable cities is the renewable energy use. Renewable energy (RE) is important in terms of the power it gives the sustainable cities to reduce their carbon footprint, provide a wide variety of socioeconomic benefits, drive diversification of economy, lead a sustainable development, and create an opportunity for a domestic industry (Mezher et al., 2010). As a consequence, businesses need to develop a greening policy for their operations and

purchasing, which then becomes the second environmental measure.

The third environmental measure is in regards to the recycling and waste system in the city. A city needs to minimize waste that can have a significant impact on its environment. A good example of a firm that created policies for waste reduction is the

Kyocera Group in Japan.

According to the Kyocera Group’s website, these basic policies include abolishing the use of non-recyclable materials, lessening business-activated waste (in part by creating harmless materials out of non-recyclable waste), and having a strict recycling policy.

Table 1: definitions and measurements factors of Success Factor of sustainable city performance

Success Factor of Sustainable City Performance	Definition	Measurement factors	Literature
Economical Performance	The ability of the city to achieve business growth that supporting the financial viability of the business in terms of economic development (e.g. financial performance, job creation, and Human Resources Development)	- Financial performance, Job opportunities and Human Resources Development.	(Diewert & Lawrence, 1999, Yang et al. 2011, Plwman & Toyne, 2013, Hong, et al. 2012)
Social Responsibilities Performance	CSR is a commitment to behave ethically, thereby contributing to economic development while also improving the quality of life of the inhabitants and all of society.	Human rights, equal opportunity, employment of women, workplace health and safety, community involvement, and social development	(Mezher et al; 2010; Holme & Watts, 2000; Abbott, Walter F. et al.,1979; Burke & Logsdon, 1996; Szekely & Knirsch, 2005; Lynes & Andrachuk, 2008.)

Environmental Performance	This refers to how a sustainable city improves its environmental performance and efficient use of resources.	Quality of life, Efficient use of resources (Recycling, Renewable Energy use)	(Yang et al., 2011; Vlek, Skolnik, & Gatersleben, 1998; Gatersleben, 2000; Poorting et al., 2004; Plwman & Toyne, 2013; Dunlap, Grieneeks, & Rokeach, 1983; Karp, 1996; Schultz & Zelezny, 1999; Stern, 2000; Madsen, 2009; Wong, 2013.)
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Case Illustration: Special Example

We use a case study in Saudi Arabia to better illustrate the role of business in the sustainable cities industry. We focus on King Abdullah Economic City in Saudi Arabia, one of the biggest and most ambitious sustainable cities projects in the Middle East. Emaar Economic City is a big real estate company in the Middle East and is the master planner of King Abdullah Economic City (KAEC). The company has signed with Saudi Arabian General Investment Authority (SAGIA) to develop the city. SAGIA represents the Saudi Government. In the following section, this specific case study is explored.

King Abdullah Economic City (KAEC)

The Kingdom of Saudi Arabia (KSA) has implemented a plan for developing its industrial and economic cities since 1970 since it sees industry as an important source of national income. In these cities, the government provides all the infrastructure, basic services, and equipment. In doing so, they consider the environmental conditions, employment opportunities, safety, and distribution of resources. The first three

cities were established in 1973 in Riyadh, Jeddah, and Dammam. The success of these cities led to the expansion of 25 more industrial cities in all parts of the Kingdom besides the two main industrial cities in Jubail and Yanba, which are managed by the Royal Commission for Jubail and Yanba. Part of the expansion included KAEC which was announced in 2005 by the King of Saudi Arabia, King Abdullah Bin Abdul-Aziz.

King Abdullah Economic City (KAEC) is located along the coast of the Red Sea and has had a total cost of \$86 billion. The project is being built by the private sector in partnership with the Saudi government, represented by SAGIA. KAEC has six main areas: the central business district (which includes the Financial Island), industrial zone, sea port, sea resort, educational zone, and residential areas (www.kaec.net). The city was built by Emaar economic city, a big real state company in the Middle East. Emaar Economic City and SAGIA have signed with other companies, such as Cisco, Orange Business services, Ericsson, and GEMS World Academy, in order to develop the city. This sustainable city is an ideal example of how the private sector and public sector can work

together, enhancing life and opportunities for the city’s inhabitants as well as the economic and environmental futures of the

government, the city, the businesses, the people, and the environment.



Figure 2: The Location of KAEC in Saudi Arabia

Data Sources

Our data was collected through the secondary data-sources including case study’s documents, reports, and its website, CEO’s interviews, and international conference presentations, and public media sources.

Data Analysis and Discussion

According to the Ministry of Labor in Saudi Arabia, unemployment is a major issue for the Kingdom in its efforts to strengthen the process of its economic development. Therefore, one of the Ministry’s main objectives is to train and come up with solutions that help job seekers to find suitable jobs. Also, they are promising to come up with a new policy for women

workers. According to the Human Resources Development Fund (HRDF) Guide Book, “Companies in the private sector are to be encouraged and assisted so that they can hire Saudis and make their capabilities and services available to them”. The General Manager of HRDF, announced that the percentage of unemployed woman is 80% of the overall Saudi unemployment. Therefore, Cadre Economic City was one of the programs that were developed in order to find innovative solutions for such unemployment issues. Cadre Economic City was established by SAGIA to develop and implement sustainable Human Capital Strategies for the Economic Cities (www.cadre-ec.com). Furthermore, they are trying to attract and train talents in order to develop state-of-the-art education systems (K-12, vocational/technical training, and

higher education).

The role of developing Public-Private Partnership (PPP): As has been shown above, the role of Public-Private Partnership (PPP) is critical. In terms of sustainable cities, **the role of government** is mainly to provide the regulatory framework and facilitation for the city while **the role of the private sector** is to create a master plan, execute it, and finance the project development. According to Emaar Economic City's annual report in 2012, the company entered into strategic partnerships with the private and public sectors in order to carry out a number of necessary projects, with the aim being to support and accelerate the construction and modernization of KAEC (Emaar Economic City Annual Report, 2012). Presently, more than 55 international companies have established their businesses in KAEC (e.g. MARS company, SANOFI, DANNON). In addition, the master company (the company primarily responsible for building the city) has signed with other companies, such as Cisco, Orange Business services, Ericsson, and GEMS World Academy, to develop the city.

Enhancing the sustainability practices: In addition to a public-private partnership, KAEC has developed comprehensive, organization-wide sustainability policies. KAEC also has set corporate values that underlie all of its business activities. The values are articulated within the company's Code of Conduct, which serves as the basis for how employees are expected to do business. The values and the sustainability policy statement are critical for ensuring KAEC's definition, commitment, and approach to sustainability. It guides KAEC in its sustainability efforts and outlines the ethos of the organization. At the same time, KAEC has announced sustainability strategies to promote sustainability practices in the city through its operations and other partners, too.

Role of business in facilitating the links between government and the residents:

According to the CEO of the KAEC, the Saudi government has invested more than 500 billion dollars in infrastructure - (e.g. industry, logistics, education, etc.), but the government also faces some difficult issues that need to be taken seriously. For instance, there is poor efficiency of labor. The Saudi economy is ranked as one of the biggest 20 economies worldwide in terms of competitiveness. But in terms of its efficiency for the labor market, it is in the 70s. According to the KAEC's CEO, this is because of two things. The first reason is due to the protection that is offered Saudi employees. For example, most of the Saudi laborers want to work in the government sector because of the job security. In the private sector, on the other hand, it is hard to get all the employees to do their jobs correctly; yet, at the same time it is difficult for the private sector to fire the Saudi labor. The role of government in this situation is too weak. Therefore, the second way that businesses are an important link for the people, and perhaps the most important reason, is the way they can help match the skills of the laborer with the job requirements. This refers not just to the kind of skills that Saudi employees need for today's jobs but also for the next 10 years. These skills include life skills (e.g., working with diversity, negotiating, etc.) which are important in the market today.

In KAEC, one way the businesses complete this linkage between the government and the city's residents is that they choose 700 young female and male students who graduated from high school but have never worked or had a job. The city gives them 2 months of training (career orientation, as well as computer, English, and general interview skills). The results have been very amazing. The city found that 40% pursued their education inside and abroad, another 40% got jobs on their own, and 10% started their own companies. We can understand from this experience the important role of education. At the same time, this illustration emphasizes the role of business in linking the government's entities to the residents. The

education that the citizens receive could be from within the company or in one of the governmental universities inside or outside the city. This training and education of citizens can take some of the responsibility off -the government entities, leading to more efficiency in government. According to Al-Arabiya Channel News, the City has announced that the Kingdom will need 3 million laborers throughout the next three years. Therefore, having trained laborers is one of the main priorities of KAEC. Also, the City has sold 63 Km² of industrial land to companies in only four hours. Emaar Economic City, a real estate company and the master company of the operations in the city, has developed these lands in terms of building the infrastructures to make them ready for the investors and the people who want to live in the city. Clearly, this linkage between the government and its residents through business firms is effective and important.

Additionally, KAEC is also planning to have high quality education systems. For example, King Abdullah University of Science and Technology (KAUST) was established in 2009. Also, Teacher's College-Columbia University and Thunderbird School of Global Management, which will offer its EMBA program, have signed with the city, in addition to The World Academy School (<http://www.sagia.gov.sa>).

Measuring Successes Factors (Sustainable City Performance)

Economical Measures: We have focused on the factors that are critical in economic

sustainability in cities. These factors are financial performance, job creation, promotion of a sustainable supply chain, and HRD. KAEC created a vocational training program in cooperation with Algonquin College of Applied Arts and Technology, Canada, to educate Saudi laborers to work for eco-cities in the Kingdom. The city and the companies that participated in the program from 2011 to 2013 created a total of 9,000 job opportunities.

Additionally, according to the KAEC's CEO, the city promotes the sustainable supply chain in the city, especially in the city's port, expected to become operational in the third quarter of 2013 and having an accommodating capacity of 1.3 million containers. In the city's sustainability mission, the CEO states, "It's our responsibility to create, build and develop King Abdullah Economic City in an economically, socially and environmentally sustainable manner. Having a positive impact on the socio-economic development of Kingdom of Saudi Arabia is our goal." This shows the city's commitment to efficiency.

In terms of financial performance for the companies to invest in the sustainable cities, we can see in Figure 3 Emaar Economic City's financial performance. According to the Company's accounting standards and policies relating to the realization of revenues, revenues amounted to SR 545,182 in the year 2012, against SR 407,724 in the year 2011, an increase of 33.7%. This is attributed to the increase in the size of sales of residential units and industrial land.

Table 2: Economical Measures of KAEC, Source: The city’s annual report (2012)

<p>Economic Development and Financial performance</p>	<ul style="list-style-type: none"> • 55 international companies invested in the city • Developed a strategic plan for economic and resources sustainability • Increased revenues amounted to SR 545,182 in the year 2012 against SR 407,724 in the year 2011 (Note: \$1= SR 3.75)
<p>Job Opportunities and HRD</p>	<ul style="list-style-type: none"> • Total of 2,000 job opportunities created (2011-2013) • 25% average hours of training per employee

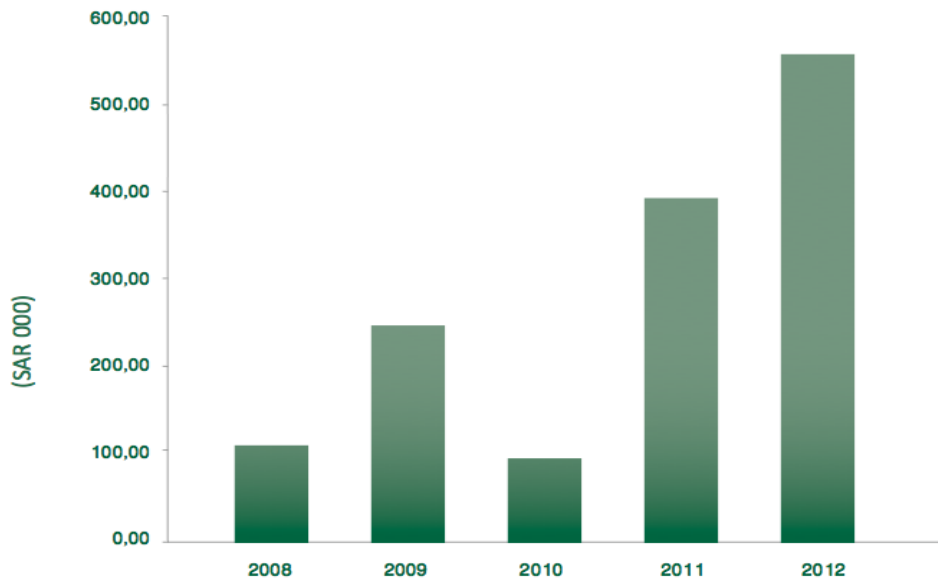


Figure 3: Emaar Economic City’s Revenues during the Past Five years. Note (1\$ =3.75 SAR)

Source: The Company’s annual report (2012)

Corporate Social Responsibility (CSR)

Measures: CSR is very important for sustainable cities and the firms participating in it. CSR includes indicators such as human rights, equal opportunity, employment of women, workplace health and safety, community involvement, and social

development (Abbott et al.,1979). Therefore, we could measure the social responsibility of sustainable cities by those CSR indicators (human rights, equal opportunity, employment of women, workplace health and safety, community involvement, and social development).

Table 3: CSR Measures, Source: The city’s annual report (2012)

<p>Corporate Social Responsibility (CSR) Indicators</p>	<ul style="list-style-type: none"> • Developed safety and health polices for its employees • 20% female employees • Most of country leaders visit the city • Hosted The Cityquest - KAEC Forum in 2013
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Environmental measures: According to the KAEC’s report, the city “hold[s] the environment in trust for our future generations. We are committed to promoting a better understanding of environmental issues among our stakeholders, partners and community. KAEC’s environment encapsulates both the local and the global impacts. Our considerations are beyond

minimizing the impact on the environment. Improving the environment, enhancing open space, bio-diversity and environmental amenity are our promise towards the city of choice to invest, work and live. As we are showing here, KAEC focuses on the most important factors of environmental sustainability (e.g. quality of life, recycling, renewable energy use).

Table 4: Environmental measures, source: The city's annual report (2012)

Quality of life	<ul style="list-style-type: none"> • Developed and built housing in a sustainable manner • The KAUST is a graduate institution that has enrolled nearly 1,200 master and PhD students through 2013. • Advancing a knowledge-based economy in Saudi Arabia
Resources efficiency use in terms of recycling and renewable energy use	<ul style="list-style-type: none"> • 110,290 mwh of clean energy generated • 30% of total waste material recycled

Conclusion

The sustainable cities industry, also called “smart cities” or “eco-cities,” is recognized as a nascent industry (Alusi et al., 2012; Zuzul & Edmondson, 2013), which means that there is still a lot of untapped opportunity in it. In this industry, everything encourages firms to apply sustainability practices at the strategic, tactical, and operational levels. Additionally, there are universities and research centers that are created specifically for these cities, thus adding more opportunity. They are supported by either the government sector or the private sector, of which both study and research the sustainable development of the city from different angles. This paper has proposed the development of a model which can examine the roles of businesses that impact the sustainability performance of eco-cities in terms of efficiency measures (e.g., productivity growth, job creation, and human resources development), social responsibility measures (e.g., CSR indicators), and environmental measures (e.g., quality of life, recycling, renewable energy use). Additionally, it has discussed issues related to the critical sustainability success factors.

Although not all success measuring factors could be covered, this paper has aimed to cover the most important factors. Ultimately, we believe that it would be useful if sustainable cities would report annually about their activities in terms of environment, economy, and social factors. One great example of an annual city report is sustainable London. Such a report would be a great opportunity to evaluate and develop sustainable cities and would be a good source for the researchers in this field.

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