

## Chapter 2

# Sustainable Universities and Green Campuses


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### ABSTRACT

*In recent years, the importance of greening enterprises in all institutions has grown as a practical entry point for dealing with target markets and global markets. In this chapter, it will be referred to the theoretical framework of the concept of greening business as a new strategic philosophical approach that has become reliable in various organizations, and the reasons behind the adoption of these green initiatives in the course of companies work and the benefits achieved. Thus, universities in different countries of the world have adopted a strategic approach to the environment, sustainability, and green direction in their work. As a result, many measures exist to achieve green directives for universities, such as reducing environmental pollution, recycling, increasing green spaces in the universities, conserving water, etc.*

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### **INTRODUCTION**

In recent years, one of the terms that have appeared is taking care of the environmental system, keeping away from industrial pollutants, rationalizing the growing consumption of energy, the symbolism, and slogan of green or greenery, such as green buildings, green transportation and green agriculture (Nulkar, 2014).

Therefore, the green dimension of the enterprises has become a strategic direction in dealing with the environmental changes surrounding them (May et al., 2007). The increasing of the harm in the environment is due to gross infringements by humans, whether in the disproportionate Expendables of raw materials, especially depletion (Orenstein et al., 2019). Or in the large consumption of energy resources and the consequent environmental pollution, adding new risks reflected on the natural environment and human beings and all living things (Ghoshal, 2011)

Not long ago, practices and tools were designed to reservation the environment. In addition, the term “greening” of classes and teaching courses has recently emerged as future enterprises which intended to green education, such as green schools and universities (Alshuwaikhat & Abubakar, 2008). Universities around the world have adopted a strategic concept in dealing with the environment, sustainability and the green trend in its course of action. As a result of this trend, standards have emerged to measure green directives in universities (Sharp, n.d.)

This chapter will cover the green business and sustainable green universities. It is organized as follows: Section 2 introduces the green business, followed by the objectives of green business in section 3. Section 4 introduces a green university. The green accounting and its costs in section 5 and followed by types of environmental costs in section 6. Section 7 about calculation methods of environmental costs. Finally, section 8 about the recommendations of the chapter.

### **GREEN BUSINESS**

The greening of the organization for its work represents a new vision in its strategy, which is an extension of the concept of green marketing, (Mintu & Lozada, 1993) defined green marketing as the implementation of marketing tools to simplify interchanges that meet organizational goals in such a way that the maintenance and protection of the physical environment is supported”.

Green marketing define also as, includes the natural environment protection by trying to decrease the harmful impact on the environment (Ghoshal, 2011)

Thus, the green marketing expresses its tendency to protect the environment and its efforts to avoid any adverse effects on it by its actions (Nguyen, et al., 2019) This is a subjective expression of the organization’s strategy and policies before it complies with the circumstances provided by the government, enterprises, and organizations worried with the environment and consumer protection (Jacquelyn A. Ottman, 1998). The greening of the company’s business is not only environmental, but the direct beneficiary is the customer who will reap the benefits of living in a clean, pollution-free environment, further, a wealth of goods that are conformity with green, environmentally sound and healthy guidelines. To the impressions of the concept of the green economy (Nulkar, 2014).

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The concept of the green economy is a new and emerging trend in the economies of the world in a fast and growing manner, and tell now there is no definition for the green economy. Green businesses, like new companies entering the market, are based on different backgrounds and ideas than in the traditional environment in which they are dealt with (Wanner, 2015). But in general, greening business is meant to be the main content as the following (Bergius, et al., 2018; Fawaz & Soliman, 2016; Wanner, 2015):

1. Continuing by organizations of different forms and specialties to work towards improving the quality of the environment.
2. Working in accordance with the establishment of safe and sound conditions towards the economic support of society.
3. Provide appropriate training to the members of the community to clarify the course of dealing with the profession in which they work and to achieve efficiency and effectiveness in performance and achieve environmental and social justice.

The businesses green does not stop at these limits in the general sense. Rather, it requires a number of practical measures in the field of reducing the radiation and environmental pollution resulting from production processes, using renewable sources of energy and improving their efficiency, preserving natural resources and reducing excessive depletion (Bergius, et al., 2018). As well as achieving minimum waste and raising the level of recycling, etc. The important thing that can be said here is that the greening of businesses is not limited to one particular party, but all organizations, whether small or large, profitable or non-profit, public or private, protected or international, etc., can contribute to the process of greening business and take Its path is to contribute to building a green economy (Nulkar, 2014).

Of course, this process of contribution does not come at the same time or expression of a temporary situational situation but must be carried out through a programmed and accurate planning process for greening. The plan developed by the Organization In its traditional form aims to achieve the desired objectives, and its main essence is towards achieving financial returns (Gupta & Vegelin, 2016). The plan for greening business is to achieve a positive impact on society and to respond to the needs of individuals and thus make a profit for the continuity of the work of the organization (Nulkar, 2014). This is called the green triangle in the strategic directions of the organization in greening its business. Here, it must be said that the plan for greening the business should address the details and serve the three parties mentioned above to embody the concept of Citizen Concept citizenship in being part of the community. According to (Bisgaard, et al., 2012; Richardson & Lynes, 2007) there are two main models in green business:

1. The incentive models:

This model includes functional sales or product service systems and performance-based models, which may have green effects such as Energy-Saving Companies, Water Saving Companies, Material Saving, etc.

2. The life-cycle models:

This model suggests individuals plan their consumption and savings attitude over their life-cycle. They propose to even out their consumption in the best possible manner over their entire lifetimes, doing so by accumulating when they earn and dis-saving retired.

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### **THE OBJECTIVE OF GREEN BUSINESS**

The important question that can be asked is why organizations should adopt the concept of green marketing in their various dealings, whether for production and service organizations in their design of the green product, or marketing in their outburst of the green product in marketing their products (Bloomer, 2004). The answer to this great question in the following:

#### **Competitive Advantage**

Many marketers know, especially in green marketing, that their pursuit of specific approaches to environmental protection gives them an opportunity to achieve competitive advantage compared to other organizations operating in the same industry. For example, Philips Electric Industries, has made a big leap in the field of energy conservation and reduce its consumption through the manufacture of energy lamps (Elias & Mahidin, 2013) It has achieved a competitive advantage in the industry in which it operates compared to other competitors and to achieve superiority in this field compared to other competing producers. Thus, it has placed at the heart of its mission the fact that it is improving its services beyond its customers' expectations and is committed to business ethics (Jacquelyn A. Ottman, 1998).

In this regard, the American Marketing Association (AMA) has developed a green environmental innovation and marketing award, the Edison Award of 1990, which has been won by many industrial companies by offering environmentally friendly and competitive products compared to similar traditional products. This prompted small producers to stimulate new creative ideas for green products. Through which it earned the respect and respect of consumers and the desire to buy them (Albakry, 2017).

The competitive advantage is not the ones with inexpensive inputs, but ones which have the ability to create more. Firms which aggressively follow green strategies stand to benefit in many ways than just profits. A green competitive advantage is a potential for environmental performance to improve long term profitability (Nulkar, 2014). The benefits are classified into four categories as following:

#### **Emerging Market Emerging**

Research has shown that customers who are interested in the quality of the product they are buying have increased. 85% of American customers buy green products, and 8% choose to purchase green products for most of their purchases (Nguyen et al., 2019).

#### **Early Mover Advantage**

The benefits are many such as reduced costs because the green because the cost of green business is lower than others. This is the main opportunity for organizations to be going green and positioning green (Albakry, 2017).

#### **Costs and Risks Management**

Reducing the costs of material and generating less waste is one of the known ways in which organizations have benefitted the environment through their business objectives. Investments intended at reducing environmental risks led to reducing the cost (Albakry, 2017).

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### **Opportunities**

That market participant, whether individuals or organizations are more interested in the natural environment as a living environment. Therefore, the adoption of different companies and institutions as an opportunity requires investment to reach the goals that seek to achieve through the marketing of appropriate products and products environmentally friendly. This makes it a competitive advantage over other competing organizations that market their products in their traditional form (Albakry, 2017).

### **Social Responsibility and Governmental Pressure**

Today, organizations are becoming more aware of their social responsibility in their dealings with society and the environment, so that they see themselves and through their higher management as a citizen or part of society. This means that organizations today are required to achieve their environmental and social goals as well as to achieve their goals, such as profitability, which is the basis of their continuation and growth (Bisgaard et al., 2012)

Governments in different countries of the world also seek to protect consumers and society from harmful activities and are expressed as products or services. It also legislated consumer protection laws as part of the commitment of business organizations to the content of consumer and environmental movement, which leads to the implications of greening business. In general, the government issues a number of instructions that can be a stressful tool to protect the consumer and society in general (Nguyen et al., 2019)

### **Environmental Sustainability**

Sustainability is the process of maintaining changes in a balanced environment to meet human needs and aspirations, in which the utilization of resources and the investments, the direction of technological development and the change institutional are all enhanced both current and future potential. The Brundtland Commission in UN in 1987 defined sustainability as “improving the quality of human life and ensuring the capacity to support the ecosystem” (<https://en.wikipedia.org>).

And later, according to contemporary trends in the protection of the environment, as “the development strategies adopted by the organization to achieve two goals at the same time the first is to support and protect the environment and the second generation of profits for the organization” (Richardson & Lynes, 2007).

The ‘sustainability’ is conceived as humanity’s purpose goal of human-ecosystem balanced, while ‘sustainable development’ refers to the totalitarian policy that leads to the end point of sustainability.” Even though, the increased grassroots the use term “sustainability”, the prospect that human communities will achieve environmental sustainability has been, questioned—in light of environmental worsening, climate change, population growth and societies’ seeking of unlimited economic growth in a closed system (Nguyen et al., 2019).

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### **GREEN UNIVERSITY**

Because the higher education organizations especially universities play a key role in sustainable development. So, green education, the so-called Green School or the Green University, is the modern education that seeks sustainable development, keeping abreast of technological development and benefiting from it in all other elements of the educational process with high efficiency and outstanding products according to environmentally friendly standards (Velazquez et al., 2006). It is developing two parts: the section related to environmental programs of buildings, energy, forestry and services, and this aspect is clearly and clearly found in many countries in the developed and developing countries and universities in Arab Countries, and has been in operation for several years (Ng et al., 2019). The other part is all that focuses on the educational process with the techniques, applications, strategies, and practices associated with the concept of green education, and many countries have started to adopt it in its institutions and educational system (Grindsted, 2011).

One of the benefits of this system is the adoption of energy-saving techniques resulting from the use of computers, lighting, air conditioning, etc., as well as the use of educational techniques in an environmentally sound, economical and time-consuming manner, as well as a radical shift to electronic services in order to eliminate the use of paper and textbooks. According to (Elsawy & Ahmed, 2019) the distance training, and to make effective use of modern education techniques, which has the greatest impact on:

1. The quality of education and the expansion of student perception and direct communication and active between the student and teacher.
2. Develop the skill of creativity and exploration and have a distance from the traditional learning routine.
3. Transform traditional chapters into a virtual world that simulates reality.
4. Create an interactive space with exciting possibilities for the student's thinking and knowledge at the same time and in a healthy and safe environment.

“Sustainable Universities” aims to build capacity and support youth in universities and colleges to assess environmental impact and take mitigation measures in their colleges and universities through environmental auditing and management to help them identify and respond to sustainability problems in the community by undertaking a sustainable work project through youth communication within Which facilitates communication and collaboration with youth sustainability networks at the regional and international levels, through videoconferences, sharing and learning best practices through participation in events and conferences and organizing annual outreach conferences for youth (Gomez & Yin Yin, 2019).

So, as an example of green education applications and technologies, Smart Computing for designing smart applications and applications for use in the learning process, teaching iPad and similar tablets as an alternative to paper courses, students can use personal computers (Laptops) in universities, without the need for computer labs, as well as virtual laboratories for use in chemistry, physics, biology and other medical and industrial disciplines. Social and educational platforms such as Edmodo, which provides a secure environment for communication and collaboration, and the exchange of educational content and its digital applications, are also tools that support and encourage green education (Yildiz Çankaya & Sezen, 2019).

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### **GREEN ACCOUNTING (SUSTAINABLE ENVIRONMENTAL ACCOUNTING)**

An environmental accounting (the green accounting) emerged in the early nineties due to the appearance of many factories and the production of a large quantity of pollution, whether air or water pollution, which may cause the pay company or the state a lot of money to protect the environment from the damage of these factories and look at how the environment effects in terms of costs and benefits to the financial accounting system in order to preserve the capabilities of future generations that can achieve sustainable development (Alsffar, 2006).

Thus, emerged a new branch of accounting is “Environmental accounting or green accounting”, in this type, companies try to incorporate the company’s sustainable environmental costs into the financial statements. It has expostulated that gross domestic product (GDP) disregard the environment and the decision maker need a modified model that involves green accounting (Thi et al., 2019)

According to the International Federation of Accountants (IFAC), environmental accounting, defined as the environmental and economic functioning management of the company by establishing and developing of suitable accounting systems which linked between environment and its applications (Thi et al., 2019). This involves the reporting and auditing operation, also compute the cost and assessment of the advantages for environmental management (Abdeen & Rashuan, 2018).

According to (Wang et al., 2018) the environmental costs are the costs associated with the environment and the amount of pollution or damage from misuse of available natural resources to maintain the environment in which the company, taking into consideration the following:

1. Reduce environmental pollution resulting from the use of machines using eco-friendly machines.
2. Disposal of industrial waste harmful to the environment in ways that do not cause environmental pollution.
3. Maintain the protection of natural resources and reduce the depletion of their resources.

### **TYPES OF ENVIRONMENTAL COSTS**

According to (Gale, 2011; Tijani & Hamadi, 2013) an environmental cost is divided into two main types:

1. Costs of Environmental Pollution Prevention: This type starts from the costs of the beginning of the source of pollution can be avoided by improving raw materials, production requirements, such as a measure of pollution prevention, as well as the costs of reducing or treating it also product recycling intake- back, disassembling, reverse distribution (Champ, 2003).
2. Costs of removing the environmental impacts caused by factories, such as the costs of removing waste, whether liquid or solid waste and the smoke of factories (Champ, 2003).

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### **CALCULATION METHODS OF ENVIRONMENTAL COSTS**

There are various methods for assessing environmental costs (Tijani & Hamadi, 2013), in this section will be introducing the most method used for assessing environmental costs:

1. **The Cost Avoidance Method:** This method requires to design a new method to identify the environmental impact of company activities. In the beginning, the company try to keep away from any environmental pollution (preventive actions) and then, it tries to fix the environmental pollution caused by its activities (remedial actions). The cost method of avoidance depends entirely on abatement costs.
2. **Method of Restoration:** In this method, the company must reduce the negative effects of its activities and must assume the costs of pollution resulting from its activities.
3. **Method of Probability Assessment:** This method measures the well-being of individuals exposed to air pollution by choosing a random value, choosing an environmental service, asking them about their willingness to pay for this service or preserving the environment.

### **RECOMMENDATIONS**

It should be noted that the green economy is the result of a set of intellectual ideas that are an extension of social responsibility and consumer and environmental movement. Therefore, the adoption of green universities in dealing with the surrounding environment and the community in which it operates is an affirmation of its environmental commitment and its social responsibility towards the parties that the company deals.

Finally, the authors are recommended:

1. The orientation towards the design of green university buildings, in addition to greening the various sites in the universities with trees.
2. The shift towards alternative energy based on solar and wind sources as an alternative to traditional energy and expansion of projects that some universities have started in the field of solar energy investment in university facilities. As well as profiting from the ceilings of buildings to install different solar systems in power generation.
3. Carry out a wide culture campaign among university students for the importance of recycling for the various things which use in the university, which are consumed and thrown without attention to its importance.
4. Universities should set up a recycling system for paper and recyclable waste or agree with manufacturers to take it instead of dumping it.
5. Raising realization of the importance of rationalization in the use of water and working on designing a water reuse system in the fields of watering for various crops or cleaning works, in addition to re-maintenance of water pipes, which prevents leakage of water.
6. Review the transport system at the university, and encourage the use of bicycles within the university and to arrive at the university by students and the employees.



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