

Lastly, the same report indicates the number of dairy related firms in egypt, num...

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## **Executive Summary**

Market Research (2011) states that the market in the Middle East for dairy products has incredibly grown in the last 30 years. According to a study Market Research conducted in 2011, the milestones that the Middle East has achieved have developed remarkably well, with the industry firming up its structure and regulations. Local production of dairy products has even overtaken imported sources. This is rightly remarkable since the Middle East is known to be a dry area that requires massive amounts of irrigation to thrive. The Egyptian government has proactively taken a strong stand towards lifting its economic and social status. Starting in 2001 until 2004 Egypt's Dairy Directive Project (DDP) implemented a program that was aimed at preventing malnutrition and sickness in Egyptian children by empowering its dairy industry. This stance is easier than it actually sounds. Firstly, Egypt is a very arid area and dairy cows are normally grown in areas that are temperate to simulate milk production. DDP's strategy thus employed a dual approach. The first approach involved ensuring that the dairy producers in Egypt are provided appropriate technical training. The second strategy required the use of an information campaign to help alleviate the awareness of the population. These strategies were accomplished using a US\$ 1.5 million grant from the USAID. The results of this program were nothing short of impressive. The ACDI VODA website (2013) states that the incidence of deaths due to malnutrition in Egypt for children ages five (5) and under are down to 40 in 2004 from 45 deaths per 1000 children in year 2000. This demand for high dairy products has increased the demand for milk by 16% since the time the program started. Packaged milk product's demand

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increased by 37% also due to the program.

Sustainability Methodology Egypt's agriculture sector is 31% of the country's total economy, as significant with its industrial and tourism sectors. Because of the size of the country's agricultural sector, it has thousands of companies engaged in the production and distribution of agricultural products and services. Currently, the dairy industry is one of the largest contributors to the agricultural sector of Egypt, with about 47% of all food and agricultural enterprises in the country related to dairy production. Regional Activity Centre for Cleaner Production's Mediterranean Action Plan (2001) charts the size of Egyptian dairy industry compared with other Mediterranean countries, as shown in the graph below.

#### Figure 1 Size of Dairy Firms in Mediterranean Countries

Egypt is a large producer of milk as well. It currently ranks as the fifth largest producer of milk in the Mediterranean with about 4, 000 metric tons of milk produced per year or about 5% of the total output of the Mediterranean. This is shown in the graph below, also from the report of the Regional Activity Centre for Cleaner Production's Mediterranean Action Plan, released in 2001. The report also states about 90% of the milk produced in Egypt comes from cows while the balance from goat and sheep.

#### Figure 2 Number of Dairy Farms in the Mediterranean

The dairy sector has become very sophisticated in the last decade in Egypt. There are a wide range of companies that offer its services to ensure sustainability of dairy production as well as companies that have actually undertaken sustainability measures to continue being competitive and

productive in the Egyptian dairy sector. It is noted that almost half of the dairy related firms in the Egypt are controlled by Multinational Enterprises (MNEs).

The number of firms and the importance of the dairy industry in Egypt is the reason why government agencies and private enterprises are striving to become more competitive and sustainable. Here are some sustainability measures that are available for agro-industries such as dairy production:

## **Plant Design**

An example of sustainable dairy production services comes from First Food Projects, of Bridgwater, Somerset, as reported by Food and Drinks (2011). According to the article, this company offers specialized factory designs for dairy production with services starting from the inception of the plant to the actual completion of the project and everything in between. This integrated approach is considered sustainable since the production facilities are “ built for purpose” and not a combination of mismatched equipment. This approach has been successfully embraced as well, with several food companies in Egypt already acquiring their services. Industrial plant design, as proposed by companies such as this is defined as by the internet site WiseGeek (2013) as:

“ the process of planning and building an industrial plant, starting from the conceptualization to the drawing up of a plan, up until the completion of the project. This design is usually done by external professionals who are focused on the execution of such projects as a career. It may be carried out on any number of projects in just about any industry, depending on the

requirements of the clients.”

The benefits of using industrial plant design are obvious. The value of the expertise on the business viability is evident and a firm that provides these specialized services would increase any dairy project’s sustainability.

## **Dairy Stock Improvement**

The key to sustainable dairy operations is the selection of cows. It is the unspoken commandment of the business, since milk production literally comes from the cow and the type and breed of animal used and the resulting need for care is driven by the quality of the animal. Consider for example two cows, a good producer of milk and a poor producer of milk. The cost-to-benefit ratio of feeding and caring for these animals favor good milk producers.

Related to the selection of the bovine breed is the development of the necessary infrastructure to provide them with ample space and facilities needed for optimum dairy production. If the dairy facility has been master planned using industrial plant designs, it should address the cowshed concerns of the herd and the processing of the dairy products as required by law. Pasture space is also an important consideration, since cows require significant amounts of feed and there is a significant difference in costs between open pasture land and enclosed feedlots. The amount of pasture land is of course a function of land and water costs while feedlots require more capital equipment and exacting processes to be effective.

## **Soils Management**

Warwick Dougherty of the NSW Department of Primary Industries of Australia states that soils management is another critical element of sustainable dairy production. In his report, there are several challenges to soils management brought about by the way dairy farms are set up. These include:

- Chemical, physical and biological impact due to high nutrient use (poor efficiency in feeding) as well as losing nutrients to the environment
- The effect of high stocking rates that results in compaction and erosion of soil
- The effect of the different farming systems to support dairy feeds

Managing the soil is an important sustainability measure. By managing the soil stocking rates increase, the ecological resistance of the soil increases.

This means that it would be able to sustain the pasture land and the management of the land reduces in terms of inputs and costs. 📄

## **Market Compliance**

A key component of business sustainability is market compliance. Legislation on the standards for the production of dairy products is established to ensure that the products received by consumers are safe. It also ensures that the businesses are viable and do not contribute to economic degradation. The Egypt Food and Agriculture Regulatory Board sanctions the production of dairy and dairy products in Egypt and has the power to inspect, regulate and even discontinue operations of errant producers. This makes compliance with the necessary sanitary and ecological requirements integral to business operations.

## **Sustainability Suggestions**

K Farm is currently operating a 7, 000 dairy farm that produces milk for about 25 outlets throughout Egypt. The dairy farm maintains about 7, 500 Holstein cows which were shipped from the US, starting in 1987. It is currently one of the biggest dairy farms in Egypt. Because of the size and volume of operations, K Farm requires a lot of space for operations. The requirement for space, cleanliness and the need to comply with government regulations for safety and ecological protection has prompted the company to look into sustainability measures to ensure viable operations while protecting the larger interest of Egyptian consumers. Based on the sustainability aspects for dairy production as shown above, the recommended sustainability measures and their implementation and monitoring mechanism are:

### **- Suggestions for Plant Design**

For K Farms, the facility has started as a demonstration project that grew to its current size. As a result, the facility is not “ master planned” for optimum efficiency. Its current operations are substantial and because of its heft, a sustainable compliance measure is the re design of the facility to incorporate modern technologies that save on costs while preserving the environment. This could be undertaken through the use of specialist companies that provide such services, such as that mentioned above.

Implementing a plant design project could take a year or two in total, from inception to actual design to implementation. Monitoring progress is easy because contractors would provide the necessary time table for each relevant activity. The decision to undertake a review of the plant’s existing

design should be done immediately. After a firm decision on the need for a re-design and the costs of upgrading the plant finalized, the company should examine the suggestion from a cost benefit standpoint as well as from a compliance standpoint.

### **Suggestions on Breed Management**

It is important that the breed be managed well by the company to operate productively. To do so, the company should adhere to strict standards for acquiring bovine from outside resources. The hereditary lines must be clearly established and the company should rely only on trusted sources. With this in mind, the company should have a detailed list of suppliers and an exacting process for the determination of suitable stock as well as a standard procedure for importation and acclimation. This process is a sustainable process in itself since the results of the entire selection and breed management will be evaluated and fed back to management to improve the system.

### **Suggestions on Farm Management**

Water is an important requirement of managing the farm whether it be the Pasteur land or the dairy facility. Access to water should be resolved immediately, since the water resource in Egypt is scarce and polluted in most growth centers. To manage this, K Farms will utilize ground water located in its property. K Farms will pump water from the ground, usually from a depth of about 150 to 200 meters. Water will be treated to ensure cleanliness before going through the process and re-treated as it exists the process as effluent. As much as 50% of the water used must be recycled.



This suggestion can be accomplished through the use of water recycling systems that are commonly used in other agro-based food industries. While this system is a bit capital intensive, the reuse of a scarce resource makes the system pay for itself, at the same time providing an additional level of compliance and sustainability to the company. This should be integrated as a system of its own within K Farm's operating systems and should be monitored periodically.

## **Suggestions on Legal and Regulatory Compliance**

### **Use of Sustainability Matrix**

The sustainability matrix for the plant operations can be used. A sustainability matrix lists down the key elements of operation, the critical issues affecting each element, and proposes specific approaches to mitigate any and all environmental effects brought about by the facilities operations. In the case of K Farms, the critical elements of the sustainability matrix are soil management, ecological balance, water and waste water treatment, and solid waste management.

## **Conclusions and Recommendations**

Compliance is an important aspect of business because of its big-picture impact to the industry. On one hand, compliance increases costs i. e. companies have to pay for environmental monitoring, etc. which adds to the overhead costs of the company. On the other hand, it sustains the company and in many instances, makes the company more competitive in the long run. Even if the company has to shoulder front-loaded costs that does not help the balance sheet of the company, the long-term effects of compliance

ensure that the longer term viability of the company is protected. This is why compliance becomes important for many companies.

The suggestions presented herewith highlight the general areas of sustainability which are related to legal and regulatory frameworks identified by the Egyptian food and agriculture agencies as relevant for dairy production and farm operations. While the suggestions are general in nature and do not indicate any detailed financial impacts (costs and returns), the suggestions intuitively highlight the benefits of complying with regulatory, legal, operational and technical requirements needed by the company in its operations.

## **Evaluation and Lessons Learned**

I have learned the value of through research because of this case. This case is very interesting because it combines the aspect of business with social responsibilities of an organization, which in this case is through compliance with business requirements. It is very appropriate to examine the Egyptian dairy industry, an industry that is blooming and is operating above its peers in the Mediterranean. This case highlights that even a profitable sector may still improve and that compliance is not a deterrent to corporate progress but in fact is a critical factor for long-term success.

Lastly, this case has given me an insight into what goes on in the real world of business and what it takes to be able to survive. Change comes not only from consumers and from competitors; change can also come from legislation. A firm that is successful must be able to guide through all these challenges while still maintaining its long-term objectives.

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