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INVESTIGATING THE APPLICABILITY OF ADOPTING HACCP SYSTEM IN EGYPTIAN
FOOD PROCESSING INDUSTRY ORGANISATIONS

ZJIŠŤOVÁNÍ VYUŽITELNOSTI NAsAZENÍ HACCP SYSTÉMU V ORGANIZACÍCH
EGYPTSKÉHO PRŮMYSLU ZPRACOVÁNÍ POTRAVIN

Abstract

Globalisation and increased competition following recent GATT agreements will affect Egyptian food processing industry's internal and external market position. The industry profile is characterised by SME type organisations. Its successful expansion is dependent on its product quality and its ability to implement up to date quality standards. This paper explores the needs and potential of such implementation using the HACCP system.

Keywords: Quality, organization performance, developing countries, HACCP

Abstrakt

Globalizace a zvyšující se konkurence následovaná nedávnými dohodami GATT ovlivní průmysl egyptského zpracovávání potravin v jeho vnitřní i na jeho externí pozici. Profil průmyslu je charakterizován organizacemi malého a středního typu (SME). Jejich úspěšné rozšiřování závisí na kvalitě jejich výrobků a schopnosti zavádět současné standardy kvality. Tento příspěvek přináší pohled na potřeby a potenciál těchto implementací pomocí systému HACCP.

Keywords: Quality, organization performance, developing countries, HACCP

1 EGYPTIAN FOOD PRODUCT MARKET

Egypt has a high population growth rate of 1.88% and a young population. Of the 69 million Egyptians 12-13 million are in a position to afford imported food products. Egypt's middle income households represent the greatest portion of total household expenditure. Generally an urban household spends approximately 1.5 times more than a rural one. Despite the difference in spending both urban and rural households generally follow the same spending patterns (Agriculture Agricultural Trade Expansion Delegation, 1998). Egypt's per capita purchasing power sits at around US\$1000. Egyptians spend lavishly on food, beverages and clothing regardless of the level of income they earn, food and beverages generally constitute 50-55% of a family's total spending, while 10-15% is channelled towards clothes and footwear. At the same time, as the Egyptian pound declines, consumers are still inclined to spend, but spend on products that are competitively priced while still offering a high quality standard. Also, with inflation at a rate of approximately 5% in 2004, local costs have increased for goods that are imported or require imported parts. Consumers in as well as

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the private sector are feeling the effects of inflated prices and spending is done with more reluctance and thought (Agriculture Agricultural Trade Expansion Delegation, 2004).

2 THE FOOD INDUSTRY IN EGYPT

Food processing is Egypt's second largest industry next to textiles with annual production valued at \$US3.5 billion, and a strong annual growth rate of 20% to support it (Agriculture Agricultural Trade Expansion Delegation, 2004). The food processing industry relies on Egypt's high quality and low priced agricultural output. It is attracting a growing number of trans-nationals to serve expanding domestic and foreign markets. Egypt ranks fifth in terms of exports of processed food to the large Arab market. Over the past decade, land reclamation has added several thousand acres to vegetable and fruit cultivation which give food processing a plentiful supply of varied inputs that are highly cost competitive by international standards (Agriculture Agricultural Trade Expansion Delegation, 1998). Food processing as a whole has registered an annual growth rate of 22% over the 10 years of 1987-97, mostly in response to the sustained increase in domestic demand. The local market is boosted by the annual addition of about 1.2 million persons to the population, by the rise in the number of working women from the middle class, and the influence of the media on people's preference for convenience foods, pre-cooked meals, snack foods and confectionery. The Egyptian agribusiness sector lacks adequate processing and distribution facilities and therefore both the quality of the product and the value are low Egypt's Food Safety Inspection System (Labib, 2004). Egyptian import standards, testing and certification procedures often result in significant delays in clearance or outright rejection of food and agricultural imports. Members noted Egypt's recent willingness to work with USDA to make Egypt's food standards, inspection and certification procedures more efficient and consistent with international practices. It is believed that these technical improvements will benefit consumers and also help Egyptian exporters of food and agricultural products compete in world markets. U.S. exporters have expressed concern about the additional cost, uncertainties and delays caused by inefficient and faulty laboratory testing and inspection systems in Egypt. USDA is developing a project for training and technical assistance to strengthen the Egyptian Government's system of food inspection and analysis laboratories.

3 QUALITY RESEARCHES SURVEY IN DEVELOPING COUNTRIES

Sila and Ebrahimpour (2002) illustrated that analysis of various Quality related theories and hypothesis could allow managers to see what really works for them so that they can priorities their Quality activities accordingly. However he illustrated in his study which involved 347 studies which were published between 1989 and 2000 that the majority of the Quality studies were conducted in US (98), Europe (93) UK (44), and Australia (39). However the researches conducted in the other world countries were very limited. The study shows also that the research conducted in Africa (3) and Middle East (3) was limited. These findings was emphasized by (Ismail, 2003), and (Labib, 2004) who illustrated that Quality Studies in Arab countries is very limited in its number and scope. The literature review illustrates also that African and Middle East countries benefits from the US, UK, and Australia Quality researches could be difficult due to the fact that these countries are English speaking countries, and the quality management research and implementation in these countries are at a more developed stage relative to other countries except Japan (Sila and Ebrahimpour, 2002).

4 THE ARAB PUBLIC SECTOR ENVIRONMENT

Perry (1997) illustrated that African countries (developing countries) are characterized with high power distance (refusal of change) compared with the United States of America. Power differences in an African hierarchy tend to be greater and more accepted, thus paternalistic and authoritarian management styles are more common. Labib (2004) showed that despite the fact that there is a great interest in the improvement of organizations' business results worldwide, through developing management style; quality management has been given significantly less attention in some developing countries' public sector organizations, such as Egypt. This is due to the government's low level of interest, the absence of competition, poor communication, the poor

competitive environment, high power distance, bureaucracy, paternalistic, authoritarian management styles and the government public sector rules which have remained the same for more than 35 years. Moreover he showed that common view in developing countries is that the Quality systems are designed to fit the management systems of European organizations. Reviewing the literature confirmed Labib (2004) findings as it shows that there are several factors which make the implementation of the Quality systems very difficult in any organization and may hinder the implementation phase. These limitations are; Lack of funding and external pressure, Conflict of interest in the top team, and finally when leaders were not sufficiently committed (Reed et al, 2002); Unclear measurements of customer and employee related activities (Macleod and Baxter, 2001); It is very difficult to implement Quality systems in a rigid bureaucratic organization (Anjard, 1998); Refusal to change, paternalistic and authoritarian styles are common in African countries (Perry, 1997); and It could be argued that Quality approaches do not respect the way decisions are made, especially when there is political influence (Pitt, 1999).

5 QUALITY IN ARAB PRIVATE SECTOR ORGANIZATIONS

The literature relating to quality in the Arab World is very limited, although there are indications that the need to achieve ISO 9000 registration in order to export into the European Union (Zairi, 1996). A study of the impact of current approaches to quality on companies in Yemen was undertaken by Al-Zomany (2002). His initial finding was that there was reluctance to adopt models of quality because of their Western origins. This seemed to be a result of a belief that the theories behind these models were based on a set of values that were alien to and in conflict with the customs and beliefs of traditional Middle Eastern societies. His comparative analysis of the core values of quality management in the light of the Islamic value system concluded that there were no intrinsic differences between them. This indicates that the application of the basic principles of quality should face no particular barriers in Yemen. However, the fact remains that there is little take up of formal, systematic approaches to quality. Despite the fact that the mentioned above limitations existing in Egyptian environment. It is still essential to adopt a model for improving the quality of the product produced by the companies located in Egypt, in order to face the high world wide competition and ensure the customers safety and satisfaction. As this paper concentrate on food processing industry only. Next section will handle the need for an effective food safety assurance method.

6 THE NEED FOR AN EFFECTIVE FOOD SAFETY ASSURANCE METHOD

Food safety has been of concern to humankind since the dawn of history, and many of the problems encountered in our food supply go back to the earliest recorded years. Many rules and recommendations advocated in religious or historical texts are evidence of the concern to protect people against food borne diseases and food adulteration. However, in recent decades this concern has grown. The reasons for this are (Food Safety Unit, 1997; An increase in the number of vulnerable people, such as the elderly, immunocompromised individuals, the undernourished, and individuals with other underlying health problems; Increased awareness of the economic consequences of food borne diseases; Industrialization and increased mass production, leading to: i) increased risks of food contamination; and ii) the considerably larger numbers of people affected in food borne disease outbreaks as a result; and it is this climate of increasing concern about food safety, the lack of sufficient resources, and the recognition of the limitations of traditional approaches to food safety assurance which have accentuated the need for a cost-effective food safety assurance method. The HACCP system has proven to be such a system.

7 HACCP SYSTEM

The acronym HACCP, which stands for Hazard Analysis and Critical Control Point, is one which evokes "food safety". The Pillsbury Company, together with the National Aeronautics and Space Administration (NASA) and the U.S. Army Laboratories at Natick had developed this system to ensure the safety of astronauts' food. In the thirty years since then, the HACCP system has become the internationally-recognized and accepted method for food safety assurance. While it was originally

developed to ensure microbiological safety of foodstuffs, it has been further broadened to include chemical and physical hazards in foods. The recent growing worldwide concern about food safety by public health authorities, consumers and other concerned parties, to a great extent due to WHO's advocacy in this field, and the continuous reports of food borne outbreaks have been a major impetus in the application of the HACCP system (Food Safety Unit, 1997). HACCP attempts to analyse the potential hazards by identifying the stages in the operation where they are likely to occur. Points which are critical to consumer safety are then decided on, and this paves the way for corrective action and monitoring. To ensure that all the specified criteria have been met, it is imperative to verify that the system is functioning as planned (Wilson et al, 1997). Than, et al (2004) identified that HACCP is a scientific and systematic system for assuring food safety. It was developed by Pillsbury in the 1960s for the United States Army and NASA program in an effort to achieve zero defects and ensure total food safety. Hence it can be concluded that HACCP emphasizes in-process control rather than post-process inspection. This is accomplished by identifying the safety risk inherent in the product and implementing preventive measures to monitor and control the process.

8 HACCP ADVANTAGES

HACCP is considered advantageous in many aspects of the food production cycle (Wilson, et al, 1997); First, control is proactive, as remedial action is initiated before problems occur; Second, the monitoring of the stages is relatively easy as they deal primarily with time, temperature and appearance; Third, in comparison with other chemical and microbiological analyses, control is cheaper as it is mainly carried out by personnel directly involved with food; Fourth, the implementation of HACCP includes all levels of staff within the organization, and not just management. This gives staff a greater sense of belonging to the organization, which often results in a greater motivational output.

9 HACCP LIMITATIONS

It must be noted that there are limitations to the HACCP programme. It is almost impossible to prove that problems have been prevented, although better hygiene Practices are likely to counteract this argument partially. In addition, carrying out a HACCP audit efficiently will require a considerable amount of time and expertise (Wilson et al 1997). Than et al (2004) illustrated in their study that the main obstacle encountered by five of the eight companies in Canada (Medium to large size food manufacturing companies) was a resistance to change. This resistance was from both management and production personnel. The major obstacles were management and the quality assurance department. It was a paradigm shift for managers to have quality technicians sitting at a desk developing the program. Because the implementation was so fast, the operators were faced with too many changes. People were frustrated because they were not used to so many changes occurring at the same time

10 HACCP AND FOOD PROCESSING

Than et al (2004) showed that HACCP forces food manufacturers to be very disciplined, adhering to documented procedures and ensuring corrective and preventive actions are taken when deviations occurs. Studies carried out by Wilson, Murray et al (1997) states the importance of controlling food-poisoning outbreaks owing to the increasing number of meals consumed outside the home, and the ever expanding range of pre-prepared meals. This changing consumer lifestyle emphasises the need for better and more effective ways of controlling food hygiene. There is strong statistical evidence that the incidence of food poisoning caused by caterers is greater than in any other food sector, accounting for 70 per cent of all bacterial food poisoning outbreaks. Seventy per cent of these food poisoning outbreaks are due to the inadequate time and temperature control of food, while the remaining 30 per cent are the result of cross-contamination.

11 HACCP AND EGYPTIAN FOOD PROCESSING COMPANIES

Investigating the Egyptian organisations concerned with HACCP illustrated that in Egypt, about 32 companies working in the food industry sector and other related industries as packaging, marketing, sales and manufacturing of concentrates are already applying the HACCP system. Twenty six of them are big companies and the remaining six of them are medium to small sized companies. This survey illustrated that Egyptian food industry is still far of implementing one of the major competitive international systems for ensuring food safety. As most of the Egyptian foods processing companies are SME, and most of the Egyptian organisations which apply HACCP system are big companies, the competitive position of the Egyptian food processing companies is weak to face the global food processing companies. This fact will affect negatively both the Egyptian economic in general, and the Egyptian customer safety and satisfaction in particular. Analysing the reasons for this illustrated that there these companies lack the awareness about this system. They are not sure about its requirements and the expected advantages they will gain by applying this system. They think that applying this system will be expensive. They think that there will be a resistance from the shop floor managers to adopt this system. Hence this paper will concentrate on the successful implementation steps in Egyptian organisations and show the advantages gained by Egyptian organisations due to achieving HACCP system. Moreover the paper will handle cost associated with adopting the HACCP system. The survey outcomes illustrated that most of the companies which apply HACCP system had achieved a lot of benefits. These benefits can be summarized as; The HACCP system is amenable to effective food control. It allows for more efficient inspection of food operations; the HACCP system overcomes many of the limitations of the traditional approaches to food safety control (generally based on 'snap-shot inspection and end-product testing'); The difficulty of collecting and examining sufficient samples to obtain meaningful, representative information, in a timely manner and without the high cost of end-product analysis; Reducing the potential for product recall; The HACCP system allows for the identification of conceivable, reasonably-expected hazards, even where failures have not previously been experienced. It is therefore particularly useful for new operations; The HACCP system is sufficiently flexible to accommodate changes introduced, such as progress in equipment design, improvements in processing procedures and technological developments related to the product; The HACCP system will help target / direct resources to the most critical part of the food operation; Data collected facilitates the work of food inspectors for auditing purposes; and the HACCP system support the organizations export stage. Regarding the cost related to applying the HACCP system in Egyptian SME, the survey illustrated that the companies had offered the cost for the implementation phase through the system benefits. As the HACCP system was accomplished by reducing the following; Cost of troubleshooting; Re-inspection of stocks after defect detection; Disruption of production schedule; Complaints-handling and replacement plus extra time with customers; Cost of holding higher levels of stock as buffer against quality failure; Cost of corrective maintenance to plant.

12 CONCLUSIONS

The HACCP system can be applied through out the food chain, from the primary producer to final consumer. Its implementation should be guided by scientific evidence of risks to human health. The successful application of HACCP requires the full commitment and involvement of management and the workforce. It also requires a multidisciplinary approach. This multidisciplinary approach should include, when appropriate, expertise in agronomy, veterinary science / medicine, production, microbiology, public health, food technology, environmental health, chemistry, and engineering, according to the particular study. HACCP system has a considerable influence on the Egyptian food processing companies' performance. The HACCP system implementation in Egypt is seen as critical for the industry's future expansion and future development. Its export markets are unlikely to develop without the implementation of an industry wide standard which is acceptable internationally, furthermore it could be argued that the home market may also suffer without such a system. The effective industry wide implementation of HACCP should therefore be seen as an opportunity rather than a threat. HACCP system could be implementing effectively in all the Egyptian food processing

organisations. As the survey performed in this paper illustrated that the existing implementation phase did not include big organisations only, but it included also SME.

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