

ACHIEVING SUSTAINABLE FOOD INDUSTRIES: GOOD PRACTICES IN
ENVIRONMENTAL MANAGEMENT

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ACHIEVING SUSTAINABLE FOOD INDUSTRIES:
GOOD PRACTICES IN ENVIRONMENTAL MANAGEMENT

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ABSTRACT

Historically, development strategies ignored the effect of economic activity on the environment. Few decades ago also have been marked by intensification of pollution. Then only people start to be aware on the importance of environmental preservation. Economic activities related to food manufacturing industries are one of the sources that contribute to unhealthy environment if the management within the industries is not carried out properly. This study is aimed to evaluate the level of environmental management system (EMS) within the food manufacturers in Johor. Their roles towards achieving sustainable environmental management are evaluated by questionnaire surveying method. The data were processed to obtain statistical results using SPSS 11.0 for Windows. A total of 200 sets of survey component were sent to the food manufacturers and the replies were 25 (12.5%). The results are mainly on awareness level, environmental management system applied and problems encountered towards achieving sustainable development. The awareness towards environmental criteria is in a fair condition. In terms of environmental practices, the relative index (RI) obtained for waste segregation; reduce, recycle and reuse activity; and landfill disposal of solid waste is 0.78. This indicates that the three approaches often being applied by them. Other waste management approaches including storage of waste on and off-site; direct discharge of waste into watercourse, drains or sewers; open land discharge; and incineration on or off-site is rarely applied, as the RI is only 0.26. The RI for wastewater management and air pollution control is 0.38 and 0.47 respectively. In conclusion, the awareness among them towards sustainable development is still below the satisfied level. However, the effort towards this objective is clearly shown through management practices applied, together with the earnest in complying to the rules and regulations. Although there are some difficulties traced, those can be overcome by full commitment between all parties involved.

ABSTRAK

Strategi pembangunan suatu masa dahulu seringkali mengabaikan kesan aktiviti ekonomi terhadap kualiti alam sekitar. Beberapa dekad lalu turut menyaksikan peningkatan pencemaran yang kerap kali berlaku. Hanya selepas masalah timbul, barulah manusia menyedari akan kepentingan penjagaan alam sekitar. Aktiviti ekonomi berkaitan dengan industri pengeluaran makanan adalah salah satu punca yang boleh menyebabkan kemerosotan kualiti alam sekitar, terutamanya jika ia tidak diurus dengan baik. Kajian ini menilai sejauh mana tahap sistem pengurusan alam sekitar (EMS) diaplikasikan di kalangan pengusaha produk makanan di negeri Johor. Peranan mereka ke arah mencapai pengurusan mapan dinilai melalui kaedah soal selidik serta pemerhatian. Data yang diperoleh diproses menggunakan perisian “SPSS 11.0 for Windows” untuk mendapatkan keputusan statistik. Sebanyak 200 komponen soal selidik telah dihantar kepada pengusaha makanan di negeri Johor, dan sebanyak 25 (12.5%) maklumbalas telah diterima. Keputusan kajian adalah berkenaan dengan tahap kesedaran, sistem pengurusan alam sekitar yang dipraktikkan serta masalah yang dihadapi dalam usaha mencapai pengurusan mapan. Kesedaran terhadap beberapa kriteria berkaitan alam sekitar adalah di tahap sederhana. Dari segi praktikal, Relatif Indeks (RI) yang diperolehi bagi aktiviti pengasingan sisa; pengurangan, kitar semula dan guna semula; serta pelupusan sisa di tapak pelupusan adalah 0.78. Ini menunjukkan bahawa pendekatan ini selalu dipraktikkan di kalangan pengusaha. Pendekatan lain seperti penanaman sisa, pembuangan terus sisa ke dalam air atau longkang, pembuangan terbuka serta pembakaran adalah jarang dilakukan berdasarkan nilai RI iaitu 0.26. Bagi pengurusan air sisa dan pengawalan pencemaran udara, masing-masing mencatat nilai RI sebanyak 0.38 dan 0.47. Secara kesimpulannya, kesedaran di kalangan pengusaha terhadap alam sekitar adalah masih belum mencapai tahap yang memuaskan. Walau bagaimanapun, mereka menunjukkan usaha ke arah mencapai pengurusan mapan dengan mempraktikkan sistem pengurusan yang baik, serta menepati segala peraturan dan undang-undang yang telah ditetapkan. Walaupun terdapat pelbagai masalah dalam mencapai objektif tersebut (pengurusan mapan), namun ia diyakini dapat diatasi dengan komitmen padu daripada semua pihak yang terlibat.

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LIST OF ABBREVIATIONS

BCSD	- Business Council for Sustainable Development
BPEM	- Best Practices Environmental Management
DOE	- Department of Environment
DSM	- Department of Standard Malaysia
EA	- Environmental Auditing
EAPS	- Environmental Aspects in Products Standards
EMS	- Environmental Management System
EPE	- Environmental Performance Evaluation
EQA	- Environmental Quality Act
FMM	- Federation of Malaysian Manufacturers
GMP	- Good Manufacturing Practice
HACCP	- Hazard Analysis and Critical Control Point
IS	- Information System
ISO	- International Organisation for Standardisation
ISO 14000	- ISO 14000 Series on Environmental Management Standards
ISO 14001	- ISO 14001 Environmental Management System-Specification with Guidance for Use
LCA	- Life Cycle Assessment
MOH	- Ministry of Health
RI	- Relative Index
SPSS	- Statistical Package for Social Science
TC	- Technical Committee
TRI	- Toxic Release Inventory

- USEPA - United States Environmental Protection Agency
- VOC - Volatile Organic Compound
- WCED - World Commission on Environment and Development
- WICEM - World Industry Conference on Environmental Management

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CHAPTER 1

INTRODUCTION

Historically, development strategies ignored the effect of economic activity on the environment. Few decades ago also have been marked by intensification spreading of pollution. Evidence of environmental changes worldwide indicates that humankind cannot continue its development path at the expense of nature. Realising that there are so many negative impacts of unstable environment, people are starting to be aware on the importance of preserving it. They are now demanding for better quality of living. Thus, the implementation of sustainable development is very important to meet such requirement.

1.1 Human and Development

Human needs development. The lack of development is pathology, but it is increasingly apparent that development along some paths is also pathological because of its effects on the environment and on the quality of life. According to R.Daniel (1992), if

growth, which implies an increase in size is a quantitative phenomenon, development, which implies a realisation and enhancement of potentialities, is a qualitative phenomenon.

According to Ackhoff (1988), there is no development except self-development, which implies the following:

- 1) Socio-economic development is, in essence, human development;
- 2) Development can be stimulated, favoured and accelerated from outside; yet it cannot be imposed, granted or transferred;
- 3) Development for any society or community requires that the group first realise that the main responsibility includes both designing the goals and path of development and investing the effort necessary to achieve those goals;
- 4) A variety of development styles are conceivable since each society has its own cultural traits.

The importance of development cannot be denied anymore. Via development, the enhancement of people's welfare can be achieved as it provides more job opportunities and also supplying people with the products required. Therefore, the economic aspect of a country can be improved. Economic stability is one of the most important parts to be stressed in order to be a developed nation.

Rapid competition among people during this globalisation era also has forced countries all around the world moving towards development. Again, development is a key point to bring us standing together with other developed country and not easily left far behind them.

Industrialisation is one of the most important factors, which contribute a lot towards development. It had started from Industrial Revolution that begins in Britain in early 1700s. In the early 19-th century, this revolution had spread rapidly throughout much of Europe and North America (Bishop, 2000).

As for Malaysia, the industries had been developed from agricultural-based to manufacturing-based. If at the time of independence in 1957, Malaysian manufacturing and industrial based was rudimentary and most manufactured goods were imported, but since 1960's, it's diversified manufacturing sector was developed aiming at the import substitution. This rapid and consistent growth has brought a lot of benefits in economic growth of the country (Lim *et al*, 1997).

1.2 Food Manufacturing Industries

Food constitutes an important and indispensable group of consumer items. In general, food manufacturing involved with the total environment from the farm to the customer. It is actually a manufacturing industry that processes raw or prepared animal, marine, and vegetable material into intermediate foods or edible products.

Food manufacturing is one of the most important industries in Malaysia. In 2005, there are 493 industries registered under Federation of Malaysian Manufacturers (FMM) involved in food, beverages and tobacco production. This is the third largest sector after electrical and electronics, and chemical industries.

Due to rapid development in this sector, Malaysia has gained a lot of benefit in socio-economic aspects. Data from the Malaysian Economic Report has shown that RM 4,987 million from the country's income in January to July 2004 was from the exports of food, beverages and tobacco products.

Besides that, the ability to fulfill human basic needs and even their demands have been improved due to the growth of this industry. There are varieties of food products in the market to be chosen, applicable with the improvement of public buying power.

1.3 Background of the Problem

The aim of development is to increase the well-being of the people, measured not only by an increased supply of goods and services, but also by health, social and cultural indices. Over time, new uses or new technologies can increase or deplete the available stock of resources.

Recently, rapid industrialisation, urbanisation and other technological developments have exploited the available resources to a larger extent. This has caused serious scarcity of important natural resources. For example, industrialisation has contaminated air, water and soil quality, and therefore has interfered with the basic needs of society.

It is also equally true that this development satisfies some of the basic needs of society such as employment, comfort and usable products. However, the damage is felt on a larger scale, while the benefits remain local. This situation had happen in Taiwan whereby in 1970s and 1980s, the country achieved an impressive development. However, it had been painfully paid back with the extent of environmental degradation which taken the entire national reserve to be clean up (Koh, 1997).

One more example that can be discussed here is China. Being the largest developing country, China has undergone rapid changes since adoption of the reform and opening policy in 1978, and is now one of the 10 largest economies. Meanwhile, China has paid a great cost for its rapid development: severe environmental deterioration including overexploitation of ground water, generation of solid and industrial wastes, destruction of the ecosystem, and other problems related to land, water, and air; and become one of the most endangered urban and rural environments in the world (Wang, 1999).

From these two situations, we could learn not to take things for granted. Food manufacturing usually being ignored by the people who assuming that this industry does not contribute too much to environmental degradation as compared to other heavier industries. This perception will make the environmental problem become worse as the food industries grow rapidly day to day. If one industry contributes small amount of pollutant, the load and accumulation will be higher when there are many industries involved; thus serious environmental degradation will occur.

Due to less expectation of their probability in polluting the environment, food manufacturers might pay less attention towards environmental management. In fact, there are many examples of environmental violence that occurred in Malaysia. One of the situations is a case involving a food manufacturing industry, which happens in June 2005. Ramly Food Processing Sdn. Bhd had been fined RM70, 000 for discharging untreated effluent into Sungai Batu, Batu Caves, Selangor. This is a serious problem and actions should be taken to assure that it would not happen again.

From this scenario, it is essential to incorporate the Environmental Management System (EMS) using ISO 14001 as the model within food industries. By using this approach, “sustainable development” is no more a dream.

1.4 Statement of Needs

One of the nine challenges in achieving Vision 2020 is the challenge of establishing a prosperous society, with an economy that is fully competitive, dynamic, robust and resilient. However, Tun Dr. Mahathir Mohamad has claimed that Malaysia should not be developed only in the economic sense. It must be a nation that is fully developed along all the dimensions: economics; politic; social; spiritual; psychological;

and cultural. We must be fully developed in terms of national unity and social cohesion; economy; social justice; political stability; system of government; quality of life; social and spiritual values; national pride; and confidence.

The above statement clearly shows that sustainable development is very important to bring us achieving the vision. The commitment from the nation's leader embarking sustainable development can be seen through the development of the National Policy on the environment.

However, the efforts to promote environmental consciousness could not be one-way, which is equivalent to dictatorship, for the dictatorship would not be long lasting or correct. As oppose to that, a democratic process involving many organisations would be the right move (Koh, 1997).

Thus, this study looks into the potential of manufacturers in achieving sustainable development by adopting Environmental Management System (EMS) to enable them managing the environment systematically.

1.5 Aim and Objectives of the Study

Sustainable development is the final goal, which is targeted to be achieved at the end of the day. In order to make it a reality, EMS emerges as a very useful tool to be implement by the manufacturers.

The aim of this research is to study the overall concept of EMS within food industries in achieving sustainable development. To achieve this aim, there are a few objectives have been identified as follows:

1. To identify the level of awareness towards achieving sustainable development among local food manufacturers;
2. To evaluate the environmental management applied by local food manufacturers especially in management practice and legal compliance;
3. To find out the problems encountered by local food manufacturers in achieving sustainable environmental management.

Survey in the form of questionnaire is done to identify the level of awareness among the food manufacturers towards achieving sustainable development. The questions based on some important criteria related to environmental management will be asked to the manufacturers. From their respond, the assessment of understanding towards EMS and sustainable development can be done.

For the second objective, questions on management practices and legal compliance are stated in the questionnaire. This is to evaluate the level of EMS being incorporated by the manufacturers through industrial practices and compliance action level towards regulations.

For the third goal, the manufacturers will be asked on problems encountered in achieving sustainable development. From the feedbacks of the respondents, some recommendations to improve the current practices can be proposed.

1.6 Scope of the Study

A survey to the food manufacturing industries was conducted, focusing on the following scopes:

1. The respondents will be among the food manufacturers in the State of Johor;

2. Surveys will be conducted in the form of questionnaires and observations;
3. The contents of the questionnaire will cover:
 - a) The background of the company;
 - b) The background of environmental management system;
 - c) The company's environmental management system;
 - d) The industrial waste management;
 - e) The industrial compliance action's level towards regulations;
 - f) Industrial roles in achieving sustainable environmental management;
 - g) Problems in achieving sustainable management.
4. The population taken is 200 food industries. Ten percent out of the figure is targeted as the sample.

1.7 Importance of the Study

According to Tilman *et al.*, (2002), food production requires the input of natural capital, such as land and water, also the energy provided by the natural capital. A doubling of global food demand is expected in the next 50 years. This poses huge challenges for the sustainability of food production.

Malaysia will also have to face the challenge and it is even tougher. The 9th Malaysia Plan, which had been presented by Datuk Seri Abdullah Bin Hj. Ahmad Badawi on 31st March 2006 has also stressed on the aim to bring Malaysia as one of the biggest country that involve in export of food products during 2010. Although food manufacturing is not the biggest industries in Malaysia nowadays, there will be a huge expansion from time to time. If there is no systematic management applied, more environmental problems will occur.

Considering that ‘prevention is better than cure’, this study was conducted. It is very important to look into the real situation that happen within the food industries. The findings from this study will be used to evaluate the level of EMS incorporated among the manufacturers besides providing guidelines to recommend some improvement of the current practices.