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Review

The past, present and future of critical aspects of global ethics and corporate social responsibility in agriculture and food technology industry

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The technological advancements in agriculture and food technology industry have created many controversial ethics and social responsibility areas. The aim of this paper is to discuss the past, present and potential future trends in ethics and corporate social responsibility in agriculture and food technology industry. It also seeks to identify the ethics and corporate social responsibility gap generated by the rapid technological advancements in this industry. The factors that need to be taken into account by corporate as a part of its ethics and social responsibility when introducing new technology were discussed in this paper. The discussion revealed that new technologies have generated great ethics and social responsibility. These concerns are in regard to consumers and workers health, environment, economic, over use of natural resources and the impact on future generation life. Based on this discussion it was established that in the current situation and with regard to the advancements in agriculture and food technology, the industry has ethical and social responsibility towards the general consumers. This paper reasons that corporations working in agriculture and food technology are required to actively consider their responsibility and adopt ethical and social responsibility policy. Moreover, this paper has predicted the future trends on light of the past and present technological advancements. Based on the discussion, the paper concluded that there is an ethical and social responsibility gap due to the advancements in agriculture and food technology. Thus, it is the responsibility of corporation to address this gap when evaluating new technology. The evaluation should consider several suitable means such as environmental impact analysis as well as social impact analysis. It was also concluded that the current risk assessment of genetically modified food has its limitation due to the availability of limited long term scientific evidence. In order to align the corporate practice with its ethics and social responsibility a list of recommendations were formulated by the authors. These recommendations included but not limited to: 1. The integration of consumer health impact with other relevant factors such as economical and environmental impacts; 2. Adequate labelling of genetically modified ingredient; 3. Adopting an ethic and social responsibility policy; 4. Implementation of post-marketing surveillance and monitoring strategy to assess the long term effects of genetically modified food on human health, and 5. The implementation of a suitable system to control the release of unauthorized genetically modified crops from research laboratories into the food chains and the environment.

Key words: Agriculture, ethics, food technologies, genetically modified food.

INTRODUCTION

Over the past few years, agriculture and food technology industry has been developed rapidly. This rapid technological advancement in this industry has not only contributed to human by providing food but also it

contributed to other industries including but not limited to biotechnological and therapeutic industries, an example of this contribution is the application of Chitosan in drug delivery systems (Chan and Lai, 2009). These new technologies are considered to be potentially controversial as they are areas of public concern and issues for public debate. The potentially controversial new food technologies introduced in the past few years, have raised a wider social and socio-economic concerns. These concerns are clear indication of the need to include corporate ethics and social impact along-side the environment and economic impacts when evaluating these new technologies (Dreyer et al., 2010). There are many basic theories that focus on consequences, actions or motives when dealing with these ethical issues (Macer, 2005). Moreover the United Kingdom Food Ethics Council has stated that 'Ethics' has two common meanings. It can refer to the standards and values that define what is 'good' or 'right' or it can also be a term used to describe the study of those norms (Council, 2004).

However, this fast development of agriculture and food technology, have generated gap between corporate ethics and social responsibility and the agriculture and food technology process. The consequences of this gap, are chronic health risks, farming crises, food safety concerns, and the over use of resources including land and water. These consequences have resulted in wide consumer mistrust for these new technologies (Lowe et al., 2008). This has greatly influence consumer choice, acceptance and purchase behaviours towards these new agriculture and food products (Cardello et al., 2007).

In this paper, the past, present and future of ethics and corporate social responsibility in agriculture and food technology will be investigated and discussed. The discussion in this paper will transcend the scientific bases of the new agriculture and food technology to reach a realm of workers health, ethics, environment, over use of natural resources, impact on future generation and economic. These factors should be considered together when introducing new innovations in agriculture and food technology to the market (Wagner and Walchli, 2002).

AIM AND PURPOSE

The purpose of this paper is to discuss the past, present and future of ethics and corporate responsibility in agriculture and food technology industry. It also aims to identify the ethics and corporate social responsibility gap created by the technology advancement in agriculture and food technology industry.

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FACTORS SHAPING CORPORATE ETHICS AND SOCIAL RESPONSIBILITIES IN AGRICULTURE AND FOOD TECHNOLOGY

Corporate ethics and social responsibility in consumer and workers health

The idea of genetically modified food has been around for the past 8000 years. Yet, only in the past two decades the advancements in science and technology have enabled researchers to transfer a gene from one micro-organism to another, this technological process is termed recombinant DNA or Gene technology. This technology has gained a wide application in agriculture and food technology industry (O'Fallon et al., 2007).

However, the global commercialisation of genetically modified food has resulted in great debate among the scientific community and consumers with regards to the potential long term health effects on humans (Hlywka et al., 2003). Consumers perceive genetically modified food as unnatural, that is, interference with nature. Consumers believe that there is safety mechanism in nature and hence this interference with the nature of food constitutes a safety risk as genetically modified food bypassed this safety mechanism (Frewer et al., 2004). Also consumer argue that the current risk assessment of these food products is based on limited scientific knowledge that is not capable of detecting long term effects on human health (Madsen et al., 2002).

This is one of the ethics and corporate social responsibility gaps in agriculture and food technology industry, which is created by the fast technological advancement and by not allowing enough time for further investigation on the long term health effect on human. The question here, is it ethically and socially responsible for corporation working in this industry to produce technology with unknown long terms effects? This question leads to the obligation of scientists as they are essential part of the ethics in science and technology (Renzong and Prawitz, 1995). The long term health effect of genetically modified food can be compared to the effect of potassium bromate on human health. Potassium bromate has been used for some 70 years as bread improver that increases bread volume by oxidizing some flour constituents (Fisher et al., 1979). Yet in 1996, the Association of Official Analytical Chemists (AOAC) committee declared potassium bromate as carcinogenic potential (Ketai et al., 2000). From ethical and social responsibility point of view and based on this discussion, some consumers prefer not to consume genetically modified food and they requested that genetically modified food to be labelled. Moreover, there is real need for post-marketing surveillance and monitoring strategy to assess the long term effects of genetically modified food on human health (Brent et al., 2003). These consumers' concepts constitute the most important elements of the food (Frewer, 2003).

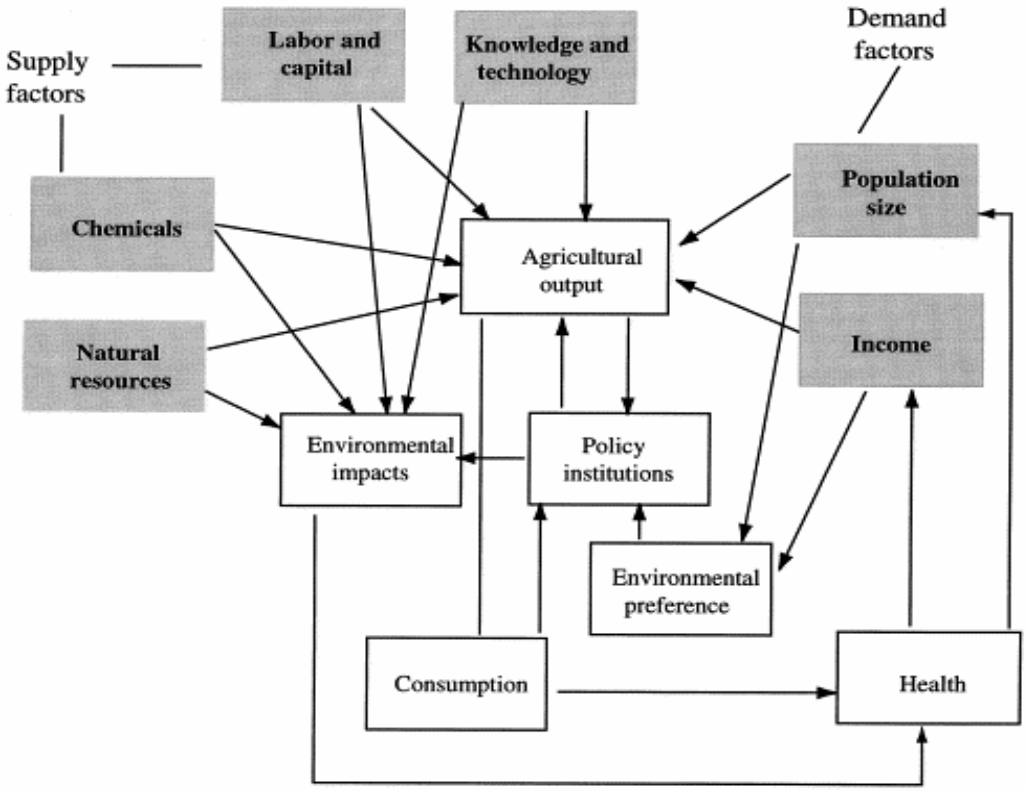

Figure 1. Forces governing the relation between agriculture and the environment (Adapted from Zilberman et al., 1999).

In future, the major ethical and social responsibility challenge that will face corporations working in this area is the release of unauthorized genetically modified crops from research laboratories into the food chains and the environment (Holst-Jensen, 2009). In addition, the health of workers in agriculture and food technology corporations is another ethics and social responsibility challenge. Globally, there is growing concerns regarding the impact of exposure to pesticides and chemicals on workers health in the agriculture and food technology industry (Cross et al., 2009).

Corporate ethics and social responsibility and the impact of corporate practices on the environment

The relationship between the environment and the agriculture and food technology industry is governed by many biophysical and socioeconomic factors (Zilberman et al., 1999). These factors are illustrated in Figure 1.

The advancement in agriculture technology has resulted in the discovery and the formulation of many different types of pesticides. The adverse health effects of these pesticides on humans and the eco-system are of great ethical and social responsibility concerns. The biological control can be used as a replacement for pesticides, although it has its own ethical issues that need to be taken into account (Delfosse, 2005).

Another area of ethics and social responsibility is that corporations need to take into account the contamination of ground water with agriculture fertilizers. Agriculture practices in particular overuse of fertilizers can accelerate the nitrate leaching process into ground water. Elevated levels of nitrate in drinking water can cause many health problems including cancer (Almasri and Kaluarachchi, 2004). The alternative to chemical fertilizers is the application of sludge from municipal waste water treatment stations onto agriculture lands. This will reduce the accumulation of waste in the environment and provide safe and cost effective nutrients to plants. However, this application has raised health concerns with regard to the potential trace of heavy metals including cadmium, which can pass to human food supply chain (Ryan et al., 1982). The significant environmental and economical benefit of this new technology is not an adequate proof of ethics, considering other social factors including consumer health can further indicate good practice (Cross et al., 2009). Evaluating this technology from ethics and social responsibility point of view, it can be concluded that it is very important to include not only the environment impact analysis, but also social impact analysis when evaluating a new technology.

Corporate ethics and social responsibility and the economy

Agriculture and food technology industry plays a vital role in the economic of many countries around the world. For example in Southern African Region (SAR), it considered an important economic sector; this is measured by the value it added to the Gross Domestic Product (GDP) and its contribution to the employment (van Rooyen and Sigwele, 1998). Based on the increase in the figure of world population and the increase in the income level in some countries, the demand of food has doubled. Genetically modified food has the potential to assist in meeting these huge global food demands (Engel et al., 2002). However, there are great concerns that the new technology used to produce Genetically Modified Herbicide Tolerant Crops (GMHT) could possibly transfer the introduced gene to wild plant resulting in highly invasive weeds (Vergragt and Brown, 2008; Graef et al., 2007). This can cause great damage to the economy of many countries around the world.

Corporate ethics and social responsibility and the impact of its practices in the natural resources and future generation

Conservation of land and water is another ethic and the social responsibility issue needs to be taken into account by corporations working in agriculture. In Europe for example, agriculture practices have resulted in accumulation of heavy metal in the soil, microbial biomass is very sensitive to heavy metal and as a consequence the function of microbial biomass in the soil will be lost (Kirchmann and Thorvaldsson, 2000).

Corporate ethics and social responsibility in marketing

Corporate working in agriculture and food technology should have ethic and social responsibility policy; especially in the area of marketing where individual interact with other people. The policy should state clear to the staff that no acceptance of bribes, gifts, no unfair competitive practice, no dishonest advertising, no price discrimination or unfair pricing, no dishonesty in getting or retaining contacts (Chonko and Hunt, 1985). Companies operating in the agriculture and food industry should adhere to the relevant corporations law, guideline, standard and regulation in their relevant country. In addition, it is the ethical and moral responsibility of corporations not to enhance their financial performance by exploiting the need for food through illegal and unethical means such as briberies. However, it is also the responsibility of the governments and international community to adopt and implement a tough uniform regulation to compact such ethical and social responsibility dilemma

CONCLUSIONS

Advancements in agriculture and food technology industry have created many ethical dilemmas and social responsibility gaps. These gaps need to be addressed and taken into account by corporations working in this industry. In addressing this gap, it is very important to include not only the environmental impact analysis, but also social impact analysis when evaluating a new technology. Moreover, it is evident that the risk assessment analysis performed on genetically modified food is based on a very limited scientific knowledge. Hence, this assessment is not capable of detecting the long term effects on human health.

RECOMMENDATIONS

1. It is recommended that corporation evaluating a new technology should combine together into an integrated package the impact of consumer health, economic, environment, ethics and social responsibilities.
2. All foods which contain genetically modified ingredient should be labelled to enable consumers to make an informed decision about these controversial products.
3. Post-marketing surveillance and monitoring strategy should be implemented to assess the long term effects of genetically modified food on human health
4. Corporate working in agriculture and food technology should have ethic and social responsibility policy
5. Staff education programs in ethical issues including acceptance of bribes, gifts, unfair competitive practice, dishonest advertise and corporation act should be organized.
6. The public should be involved in the ethics and social responsibility debate.
7. Implementation of system to control the release of unauthorized genetically modified crops from research laboratories into the food chains and the environment.
6. Governments should establish a tough regulation and auditing system of companies working in the agriculture and food industry; similar to that currently apply to the pharmaceutical industry.
9. Harmonised and uniform international regulations and guideline that deals with agriculture and food.

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