



The Impact of Regulations on Genetically Modified Food Acceptance among Malaysian Food Manufacturers: A Proposed Framework

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ABSTRACT

The aim of this paper is to conceptually propose the elements that constitute the acceptance of genetically modified food (GMF) among food industries in Malaysia. One of the crucial elements which imparts the acceptance of GMF is regulatory system which is governed by Malaysian authority bodies. This paper is the outcome of a thorough review of the literature undertaken by previous studies in regards to the regulation of food manufacturers as well as regulation of GMF itself. In this review, those literatures were comprehensively studied and rigorously discussed from the perspective of Malaysian food industry. This paper contributes to law, rule and guideline that have to be complied by Malaysian food industries, especially for the food industry which adapted the use and commercialization of GMF in their operation. The subject of this GMF is relatively new in Malaysia. However, in accordance with the previous studies and support from future direction of the Malaysian government, GMF is a one of the technologies which help food industry to remain competitive in the current global market. Therefore, this paper not only focuses on the rules and regulations of food industry, but it also explores the regulatory system of GMF in Malaysian food industry.

Keywords: Genetically Modified Food, Food Manufacturers, Malaysian Food Industry

JEL Classifications: F13, L66

1. MALAYSIAN FOOD INDUSTRY

In Malaysia, manufacturing sector which emphasized on food industry is divided into two types of group namely multinational companies as well as small and medium industries (SMI), with the majority of SMI contributing to the annual sales turnover of RM 25 million to the Malaysian economic growth (MyGovernment, 2015; Malaysian Investment Development Authority, 2014). Besides that, it is reported that a total of 5565 food manufacturers are actively operating in the Malaysian food industries (Jinap et al., 2008). These manufacturers enabled Malaysia to export more than 200 countries such as Singapore, Indonesia, United States of America, Thailand and Republic of China, in which contributes to more than RM 13 billion of annual export value (MyGovernment, 2015). Consequently, the total manufacturing

output raised up to 7.3% as expected and postulated in Third Industrial Master Plan 3, 2006 to 2020 (Ministry of International Trade and Industry Malaysia, 2014). These figures show how huge the impact of food industry sector to the entire economic development of Malaysia. This sector continues to drive this nation's economy forward through food industry augmentation of 8.4%, which directly contributed to 5.2% of Malaysia's gross domestic product in the third quarter of 2014 (Malaysian Department of Statistic, 2014). In addition, there is no denying that with the manufacturing sector emphasizing on food industry is one of the most crucial propellers towards Malaysian economic growth. It employs 644,267 workers include food technologist, chemist and food-skilled workers. All these figures specifically on food industry impart to the expansion of income as well as development of Malaysia.

2. DEFINITION OF REGULATION

There are several distinguished definition of regulation. As defined by Oxford Dictionaries (2015), regulation is a rule, law or daily operation's process that has been regulated, monitored and controlled by the authorities. One of the pioneer researchers in regulation, McIntosh and Turnbull (2006) defined regulation as an official procedure or guideline regulated by the government and related authorities. In this research, regulation is defined as a law, rule, concept, and a basic tool in ensuring whether the business' operation can be executed or no longer be implemented. In the context of this paper, the Malaysian Food Act and genetically modified food (GMF) regulation are thoroughly discussed.

2.1. Regulation of Food Manufacturers in Malaysia

In Malaysian food industry, which focuses on food manufacturers or food handlers hold a very high responsibility in fulfilling the demand for food and at the same time, all of them are needed to comply with the regulatory system that has been fixed by the government authorities (Stephensons and Arujan, 2011). Those government authorities are Ministry of Health (MOH) and the Local Authorities, which enforce that all manufacturing activities are compulsory to comply with the guideline such stated in the Food Act 1983 as well as Food Regulation 1985. For instance, food manufacturers are deemed necessary to guarantee that all foods are restrained from additive and contamination, carrying out labeling in exposing the real picture and food content as well as ensuring the importation and exportation activities are definitely complied to the fixed regulation and guideline (The Canadian Trade Commissioner Service, 2015; Food Safety and Quality Division, 2015).

On the other hand, the food manufacturers need to follow on the obligatory of standard and requirement enforced by Malaysian External Trade Development Corporation (MATRADE) while undertaking food processing (Malaysian Biotechnology Corporation, 2010; Talib et al., 2008). Therefore, there are two standard and requirements that must be followed by food manufacturers namely good manufacturing practice (GMP) and Hazard Analysis Critical Control Point (MATRADE, 2015). GMP is one of the mechanisms that allocates rule, code and guideline; which ensuring the operational activities of food processing are properly managed in order to validate the entire food production is out of hazard instead of making sure the hygiene and security of food at every level of food production. Meanwhile, HCCP is located under the scope of GMP, which works as a system that identify, evaluate and control the hazard of food production include processing, packaging, storage as well as food distribution (Department of Standard Malaysia, 2014). By applying and practicing those standard and requirement, the development of manufacturing activities would be increased which directly beneficial to the food industry in many aspects. Consequently, credibility and reputation of the food industry would be improved and retained in recent intensified business competitiveness.

2.2. GMF Regulation in Malaysia

GMF regulation comprised of trade, manufacture as well as license are developed and enforced in order to ensure all the

Malaysian food manufacturers comply to the regulatory system that has been figured (Shrestha and Shrestha, 2002). In Malaysia, GMF is one of the components in modern biotechnology, recognizing as the most stringent regulatory system and it is required to be followed by the food industry (Quah, 2007). This is mainly due to GMF regulatory system is tremendously important mechanism, which oversees by government authorities (Quah, 2007).

Therefore, all GMF transaction involving initialization, importation and exportation are allocated under Biosafety Act 2007, which implemented by Ministry of Natural Resources and Environment (Amin et al., 2013). In fact, all GMF regulation has been drafted and introduced by MOH. This is proven when Genetic Modification Advisory Committee (GMAC) undertaking risk assessment towards GMF approval process. This circumstance happened due to GMF products are required to be tested and approved by GMAC before it is released and commercialized in local market of Malaysia. Nonetheless, before GMF commercialization takes place, marketing approval of GMF will be released once the requirement related to the GMF assessment has been fulfilled as it is being fixed (FAO, UN and WHO, 2004). In addition, the activities concerning on GMF importation require food manufacturers to get the import permit from Director General of Agriculture Department (Foster et al., 2003). Hence, an implementation of those regulations led GMF manufacturing could be implemented efficiently.

Labeling is also one of the crucial elements in GMF regulation. Thus, there are several advantages of the implementation of GMF labeling. Firstly, the detection and effective prevention steps can be implemented if any GMF contamination happened. Secondly, the distribution of GMF from entering into countries that against GMF can be restrained through GMF labeling. Thirdly, the heavy process of making separation between GMF and non-GMF product during exportation transaction would be reduced. Fourthly, through labeling implementation, it shows Malaysia supportive towards GMF regulation since it is one of the CODEX Committees (Arshad, 2011). Hence, in 2004, the mandatory labeling of GMF has been regulated, which was carried out by Food Safety and Quality Department (FSQD). Later than that, on July 8, 2010, mandatory labeling of GMF was announced by MOH and they also stated that the enforcement of GMF labeling will be commenced in July 2012. Surprisingly, the implementation of GMF labeling was postponed due to several reasons. First and foremost, there is uncertainty of enforcement towards labeling regulation. Secondly, number of GMF product to be excluded from labeling was unsure. Thirdly, determination of specific language and place to implement the labeling is not clear (Langtree, 2014; Wahab, 2012). However, it is an eye-opener when the GMF labeling which supposed to be carried out in Malaysia was claimed as non-mandatory. Meanwhile, the labeling process is still under the stage of reviewing at this far (Amin et al., 2013). As a consequence, those uncertainty phenomenons of GMF labeling governed by Malaysian government exhibits that, food industry which use and commercialize GMF would have to be faced with the most complex and hardest regulatory in this nation.

3. PROPOSED FRAMEWORK

Past studies have indicated that there is a relationship between regulation and IA. Finding from past studies suggested that regulation determines the acceptance of GMF in industries (Mitra et al., 2011). Hence, regulation framework in the aspect of approval process will influence an acceptance or rejection of GMF (Kothamasi and Vermeylen, 2011) and the proposed framework in this study is shown in Figure 1. During the approval process, if the GMF does not meet the standards and requirements in terms of quality, safety and efficacy as being set up by the regulatory system, that particular GMF will create a very long lead time of product development and cannot be marketed (Tait and Chataway, 2007; Tait and Williams, 1999). Hence, those complex and stringent regulations will inherently influence IA towards GMF. Therefore, the hypothesis 1 (H₁) is presented:

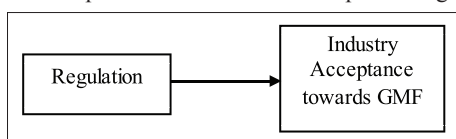
H₁: There's an increase acceptance among the food industries through the implementation or support of systematic regulatory system.

4. DISCUSSION

This paper elaborates what are the rules or regulations involved in accepting GMF among food industries in Malaysia. Such being explained in the aforementioned sections, there were various rules, guidelines and also regulations need to be fulfilled food industry, which emphasized on food manufacturers that contribute to the acceptance of GMF commercialization as well as usage in their production. Hence, due to an extensive commercialization of GMF, the government from all over the world have established the regulatory system for food industry production which comprised of assessment of risk, approval process, labeling and traceability as a tool in the food industry to ensure the safety of GMF products in the production.

Although the regulation of GMF is properly designated, scholar observed that there is an issue when the approval process of GMF usage and commercialization have remained vague in most of the Asian countries (Teng, 2008). In exemplifying that, the stringency of regulation which has been set up by the government caused the food industry to be unsure or reluctant either to accept or reject GMF in their food production. This circumstance happened due to the regulation of GMF provides risky condition to the food industry's operation in case that particular food industry failed to meet the standard and requirement such being governed by the authority bodies. Therefore, those GMF products will be filtered out and also create a very long lead time of product development thus, dragging period of time for product approval into several years. High cost incurred while struggling in getting license agreement have also led food industry refused to follow the stringency and complexity of regulatory system.

Figure 1: Proposed framework of the impact of regulation



In accordance with these challenges, it is directly shown that the government regulatory system is not well-organized and complicated, lack in providing a very clear policy and insufficient regulatory tools instead of amenities. This is mainly due to the amendment of Food Act and GMF regulation just being done by a few years back. It is for this reason Malaysia needed to come up with a proper regulatory system pertaining to the rules, procedures and policies of GMF which enables the food industry to accept GMF commercialization and usage without having any difficulties to survive in the current competitive global market.

5. CONCLUSION

Although the regulatory system of food industry is seen as complicated, the food manufacturers are tightened to comply with those rules and guidelines that have been governed by Malaysian authority bodies. These stringent rules and guidelines are also enforced to the food industry which adapt, use as well commercialize GMF in their food production and operation. Hence, the acceptance of food manufacturers towards GMF in Malaysia might be affected by the regulation framework. On the other hand, another element with contributes to the acceptance of GMF among Malaysian food industries would also require to be consider. However, this regulatory approach should be tested empirically in future studies in order to provide validation towards this proposed study.

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