

Review

Harmonisation of food labelling regulations in Southeast Asia: benefits, challenges and implications

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In the globalised world of the 21st century, issues of food and nutrition labelling are of pre-eminent importance. Several international bodies, including the World Health Organisation and World Trade Organisation, are encouraging countries to harmonise their food and nutrition regulations with international standards, guidelines and recommendations such as those for Codex Alimentarius. Through harmonisation, these organisations envisage fewer barriers to trade and freer movement of food products between countries, which would open doors to new markets and opportunities for the food industry. In turn, increased food trade would enhance economic development and allow consumers a greater choice of products. Inevitably, however, embracing harmonisation brings along cost implications and challenges that have to be overcome. Moreover, the harmonisation process is complex and sporadic in light of the tasks that countries have to undertake; for example, updating legislation, strengthening administrative capabilities and establishing analytical laboratories. This review discusses the legislation and regulations that govern food and nutrition labelling in Southeast Asia, and highlights the discrepancies that exist in this regard, their origin and consequences. It also gives an account of the current status of harmonising labelling of pre-packaged foodstuffs in the region and explains the subsequent benefits, challenges and implications for governments, the food industry and consumers.

Key Words: food industry, packaging, consumers, health claims, nutrition

INTRODUCTION

Issues of food and nutrition labelling are becoming more and more important globally in view of diet-related diseases, such as diabetes, coronary heart disease and cancer, which are fast becoming a burgeoning threat to public health. Besides this, the labelling of pre-packaged foodstuffs is key to foreign food trade. As such, debates are progressive, ongoing and inconclusive regarding what goes into the label, the format, verifiability, size, impact and authority. Indeed, different groups have argued for their concerns to be labelled: ingredients, residues, animal welfare, allergens, environmental impact, nutrition, ethics and more.^{1,2} At the moment, many international, scientific and research organisations are working harmoniously to try to eliminate the differences in interests and food regulations among countries. These organisations include, among others, the Codex Alimentarius (a joint United Nations and World Health Organisation (WHO) Commission), the World Trade Organisation (WTO), the International Standardisation Organisation (ISO) and organisations such as the Global Harmonisation Initiative (GHI) and the International Union of Food Science and Technology (IUFoST).^{3,4} Best efforts by international organisations to enhance global harmonisation of food standards are of unprecedented importance in public health and world food trade. This review discusses the current status of food and nutrition labelling regulations in Southeast Asia and the discrepancies that exist in this regard. It also describes the Common Principles and Guidelines for harmonising food labelling regulations, which food ex-

perts in the region have drafted and finalised, and highlights the benefits, challenges and implications that lie ahead for member states, the food industry and consumers.

SOUTHEAST ASIA REGION

Southeast Asia is a sub-region of Asia, consisting of the countries that are geographically south of China, east of India and north of Australia. These countries include Laos, Malaysia, Vietnam, Singapore, Cambodia, Thailand, Brunei, Myanmar (Burma), Philippines and Indonesia. The region covers a geographical area of approximately 4.5 million square kilometres and has a population of over 580 million people: 8.7% of the world population.⁵ All of the aforesaid countries are members of the Association of Southeast Asian Nations, commonly abbreviated as ASEAN. The ASEAN is a cooperative organization established on 8 August 1967 (in Bangkok, Thailand) in order to accelerate economic growth and social development, and to promote peace and stability in the Southeast Asia region.^{6,7}

The original members of the cooperation are Indonesia, Malaysia, the Philippines, Singapore and Thailand.

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Later, these countries were joined by Brunei Darussalam in 1984, Vietnam in 1995, Laos and Myanmar in 1997, and Cambodia in 1999.^{6,7} Currently, member countries are working towards the elimination of import duties on different products to achieve a free-trade area by 2015 for the six original founding members, and by 2018 for the other members.⁸ In order to broaden the free-trade area, the region has concluded free trade agreements with China, Korea, Japan, Australia, New Zealand and most recently India. Moreover, negotiations are underway for a free trade agreement with the European Union.⁹ On the whole, ASEAN is considered the second most successful regional alliance in the world after the European Union.¹⁰

REGULATORY STATUS OF FOOD LABELLING IN THE REGION

Sound legislation provides a framework for ensuring that food, whether imported or otherwise, complies with the regulations and standards for a particular country. For this reason, food regulatory agencies in the Southeast Asia region have evolved regulations to govern food and nutrition labelling in their countries. Most countries have followed the Codex Guidelines in preparing their regulations, namely Indonesia, Singapore, Malaysia, Brunei Darussalam, Laos, Vietnam and Cambodia.¹¹⁻¹⁷ Conversely, to some extent, Thailand and Philippines have adapted the US nutrition labelling guidelines.^{18,19}

Among the countries that follow Codex, only Malaysia makes nutrition labelling mandatory for energy, protein, carbohydrate, fat and total sugars for foods that are commonly consumed, such as bread and milk, canned meat, fish, vegetable, fruit and fruit juices, salad dressing and mayonnaise as well as various types of beverages.^{13,20} Nutrition labelling is voluntary in the other countries in Southeast Asia, unless nutrition or health claims are made on food packaging or if the food is for a special purpose; for example, diabetic and fortified foods.

When nutrition labelling is applied in the countries that follow Codex Guidelines, the manufacturer must declare the energy value, and the amounts of protein, carbohydrate and fat, along with the content of claimed nutrients and any other nutrients of relevance, as required by the national dietary guidelines.²¹ Energy values must be given in kcal, while the amount of protein, carbohydrate and fat should be in grams. Vitamins and minerals should be expressed in metric units and/or as a percentage of the Nutrient Reference Value (NRV). The quantities of energy and all the nutrients must be expressed per 100g or 100ml, and may be given also per portion, provided the number of portions in the package is stated, or per quantified serving.²¹ A portion is either a division of a package as a whole (e.g. half a quiche, a sausage, two biscuits), or a complete package, while a quantified serving means a measured amount which may or may not be a division of the whole package; for example, a spoon of mayonnaise.²²

NUTRITION LABELLING IN THAILAND AND PHILIPPINES

The format of the Nutrition Facts panel in Thailand is very similar to that for USA, but not identical.^{18,20} For example, the nutrition facts panel in Thailand provides information as follows:

- The serving size and number of servings in a package, which are given on the top part of the label. Serving sizes must be provided in common household measures, such as cups or pieces, followed by the metric amount: the number of grams (g) or millilitres (mL). A serving of a food would read "1 cup (212 g)".
- The amount of energy (kcal) per serving, including the energy from fat, are presented next.
- The amounts, in grams or milligrams, of nutrients on the immediate right of the nutrients, and their percent Recommended Daily Intakes (%RDIs), on the far right side, follow the calorie category. The % RDIs are based on a 2,000 kcal diet for Thais aged six years and upwards
- A footnote that gives the RDIs for total fat, saturated fat, cholesterol, total carbohydrate, fibre and sodium
- A footnote that provides the number of calories per gram of fat (9 kcal), and carbohydrate and protein (4 kcal), which are used in the calculation of total energy

Nutrient declaration involves listing total energy (including energy from fat), and the following nutrients: total fat, saturated fat, cholesterol, protein, total carbohydrate, dietary fibre, sugars, sodium, vitamin A, vitamin B1, vitamin B2, calcium and iron.¹⁸ As with the US percent Daily Values (%DVs), the %RDIs show how food fits into overall daily nutrient needs. For instance, if the %RDI of food for fat is 18%, the remaining 82% can be obtained from other foods eaten throughout the day. Conversely, like in Thailand and the US, the Philippines requires the serving sizes to be given in common household measures or metric units. Nevertheless, the energy value and amounts of macronutrients must be declared in a quantitative manner as required by Codex Guidelines. Micronutrients, such as vitamins and minerals, must be expressed in milligram (mg) or microgram (μg) along with their percent Recommended Energy and Nutrient Intakes (%RENI) which are different from the US %DVs and the Codex %NRVs.^{19,21,23}

DISCREPANCIES IN FOOD REGULATIONS AND THEIR CONSEQUENCES

As seen above, the regulations that govern food and nutrition labelling vary widely across countries in the region. These variations may be attributed to the use of different International Guidelines when preparing national regulations, and varying administrative systems which are based on many factors including, but not limited to, historical, political, cultural and economic. Table 1 summarises the discrepancies that exist in nutrition labelling legislation, profiling and formatting in Southeast Asia countries.

Due to the differences in regulations between nations, food products are tested and re-tested as they move from one country to another. The time and costs involved at least delay the availability of desirable products and, in worst cases, products do not reach the market at all.^{3,8} Universally acceptable manufacturing and marketing of products would simplify import and export procedures and, therefore, reduce hurdles in cross-border trade of food. This requires that food legislation and regulations have to be harmonised regionally and internationally. Knowing this, the food experts in the Southeast Asia re-

Table 1. Differences in food and nutrition labelling in Southeast Asia countries

Discrepancy	Country	Description
Legislation	Malaysia Singapore, Laos, Vietnam, Cambodia, Thailand, Brunei, Myanmar, the Philippines and Indonesia	Mandatory labelling of nutrition information Nutrition labelling is voluntary unless nutritional claims are made on products
Use of international guidelines	Indonesia, Laos, Vietnam, Cambodia, Malaysia, Brunei, Singapore and Myanmar Thailand The Philippines	Codex Guidelines US nutrition labelling guidelines Codex and US nutrition labelling guidelines
Serving sizes	Indonesia, Laos, Vietnam, Cambodia, Malaysia, Brunei, Singapore and Myanmar Thailand and The Philippines	Energy and nutrients are expressed per 100 g/ml of the food Serving sizes are presented in terms of household measures and metric units
Nutrient declaration	Malaysia Indonesia, Laos, Vietnam, Cambodia, Brunei, Singapore, Myanmar and The Philippines Thailand	Energy, protein, carbohydrate, fat and total sugars declared in a quantitative manner Energy, protein, carbohydrate and fat listed quantitatively when nutritional claims are made Quantitative and percentage labelling used to declare 14 nutrients, namely total calories, fat, saturated fat, cholesterol, protein, total carbohydrate, dietary fibre, sugars, sodium, vitamin A, vitamin B1, vitamin B2, calcium and iron
Nutrient reference values (NRVs)	Malaysia Thailand, Indonesia, Laos, Vietnam, Cambodia, Brunei, Singapore, Myanmar and The Philippines	Codex %NRVs used in the expression of vitamins and nutrients Local reference values used in the declaration of micronutrients
Health claims	Singapore, Indonesia, The Philippines and Laos Thailand, Vietnam, Cambodia, Brunei, Myanmar and, Malaysia	Reduction of disease risk claims are allowed Reduction of disease risk claims are prohibited
Language	All countries	Different local languages used on food packaging in addition to English

gion have drafted and finalised *the Guiding Principles for Food Control Systems*, which include the regional requirements for the labelling of pre-packaged foodstuffs.^{24,25} Member countries are encouraged to follow these Guidelines when preparing or modifying their national food and nutrition regulations. The Guidelines are based on Codex Alimentarius standards, codes and related texts which are recognised and endorsed in WTO's Agreements on the application of Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT). In this context, when a country employs Codex standards, its measures are presumed to be consistent with the provisions of WTO's SPS and TBT Agreements.^{26, 27}

HARMONISATION OF FOOD LABELLING REGULATIONS IN THE REGION

The *Common Principles and Requirements for the Labelling of Pre-packaged Foodstuffs*, which experts have established, provide the scope, definitions and rules for the labelling of processed food. The clearer and simpler the rules, the more likely they are to be properly implemented in all member countries. The generic labelling requirements are adopted from the Codex General Standard for the Labelling of Pre-packaged Foods (Codex Stan 1-1985; Rev. 1-1991).²⁸ They include the name of the product, a list of ingredients, the net contents or net weight, the name and place of business of the manufacturer, packer or distributor, date marking, instructions for storage and use, and nutrition information as elaborated below.

1. *The name of the food* means a specific designation or description of the foodstuff to indicate its true nature to the consumer. If the food has undergone processing

or its physical condition has changed, this information should be added to the name of the food product to avoid confusion. A coined, fanciful brand name or trade mark that is not false or misleading may be given next to the name of the food in the principal display panel. Nevertheless, these should not be used to replace the name of the product.

2. *A list of ingredients.* Food ingredients and other substances that can cause allergies or intolerances in some consumers. For this reason, all ingredients, including those obtained through genetic modification and ionizing radiation, must be listed on the label. The ingredients must also be identified by their common or usual names to help consumers identify the ones that they are allergic to or want to avoid for other reasons. The ingredient that is present in the largest amount, by weight, must be listed first. Other ingredients must follow in descending order according to weight as recorded at the time of their use in the manufacture of the food. In general, the following ingredients, known to cause allergies in some people, should always be declared: cereals containing gluten (e.g. wheat, rye, barley, oat, spelt or their hybridized strain), crustaceans, eggs and egg products, fish and fish products, peanuts and soybeans, milk and milk products (lactose included), tree nuts and nut products, and Sulphites (SO₂) in concentrations of 10 mg/kg or more.
3. *Net contents and drained weight.* The net quantity of food should be expressed in metric units of mass, namely weight for solid foods, volume for liquid foods and weight or volume for semi-solid or viscous foods.

For solid foods sold in liquid media, the drained net weight must be declared.

4. *Name and address of the manufacturer.* The name and address of the manufacturer, or packer or distributor or owner of rights of manufacture or brand owner, should be given in the case of food of local origin. For imported food, the name and address of local importer and/or distributor and the country of origin are required. When a food undergoes processing in the second country, which changes its nature, the country in which the processing is performed shall be considered to be the country of origin for the purposes of labelling.
5. *Date marking.* The manufacturing date and the date of minimum durability of the food (best before or use-by date) must be clearly marked on the label. "Best before" means the date which signifies the end of the period under any stated storage conditions during which the product will remain fully marketable and will retain any specific qualities for which claims have been made. Beyond the "Best-before" date, the food may still be perfectly satisfactory. Conversely, Use-by Date, or Recommended Last Consumption Date or expiration date, connotes the date which signifies the end of the estimated period under any stated storage conditions, after which the product probably will not have the quality attributes normally expected by the consumer. After this date, the food should not be regarded as marketable. Depending on how long the food can keep, the Best before or Use-by date can be expressed by the day and the month, the month and year, or the year alone.
6. *Storage instructions.* Any special conditions necessary for proper storage of the food must be clearly stated on the label.
7. *Instructions for use, including reconstitution.* They are required when it would be impossible to make appropriate use of the food in the absence of such instructions.
8. *Nutrition information.* This information is equally important on food packaging as elaborated below.

REGIONAL REQUIREMENTS FOR NUTRITION LABELLING

The Regional Requirements for nutrition labelling are formulated based on the Codex Guidelines for Nutrition Labelling (CAC/GL 2-1985), and the Codex Guidelines on Use of Nutrition and Health Claims (CAC/GL 23-1997).^{21,29} Under the Regional Guidelines, nutrition labelling is voluntary, although it becomes compulsory when a nutrition or health claim is made in the labelling, presentation or advertising of a foodstuff or when vitamins or minerals are voluntarily added to food. In general, the regional requirements for nutrition labelling are as follows:

- The energy value and the amounts of protein, fat and carbohydrates must be declared when nutrition or health claims are made on food packaging.
- Information about energy and nutrients must be presented clearly, legibly and indelibly.
- Energy values must be expressed in kJ and kcal, and the amounts of protein, carbohydrate and fat in grams, while the amounts of vitamins and minerals should be

expressed in metric units and/or as a percentage of the Codex NRVs.

- Energy values and the amounts of all the nutrients should be given per 100 g or per 100 ml or per package, if the package contains only a single portion, or per serving as quantified on the label or per portion provided that the number of portions contained in the package is stated.
- Food intended for export should be labelled in English and/or in a national language for the country to which the food is marketed

Aside from voluntary nutrition labelling, the Regional Guidelines allow nutrient content, nutrient comparative and nutrient function claims to be made on food packaging in member countries, provided they meet the minimum criteria set by the Codex Alimentarius. In addition, claims indicating food grading or quality, such as "organic" or religious and ritual preparation of food (halal or kosher), may be used on the label. In this regard, a symbol or logo for organic, halal or kosher, recognised by food safety and quality authorities, should be included on the label. The Regional Guidelines put emphasis on meaningful claims. To give an example, any comparative claim must clearly indicate the foods being compared. In addition, such a claim should not imply that a product is superior to any other existing product of the same kind without giving scientific substantiation for the claim.

Where possible, the food manufacturers are required to state the importance of a diversified and balanced diet, and never imply that ordinary foods are nutritionally inadequate. Misleading claims are prohibited; for example, claims about the absence of beef or pork or lard or their derivatives, or added alcohol when the food does not contain such ingredients or when such ingredients are not permitted. Moreover, reduction of disease risk claims and medicinal and/or therapeutic claims, which imply that a food can prevent, treat or cure a human disease, are prohibited. Currently, four countries permit reduction of disease risk claims in the region, namely Indonesia, Singapore, the Philippines and Laos.^{12,15,20} Conversely, all countries allow nutrient content, nutrient comparative and nutrient function claims to be made on the food label.

BENEFITS AND CHALLENGES OF HARMONISING FOOD STANDARDS

Currently, harmonisation of food standards on basis as wide as possible – delete this please is seen as an effective way of promoting public health and international food trade. For example, through harmonisation, FAO, WHO and WTO envisage fewer barriers to trade and freer movement of food products among countries.^{26,27} In other words, harmonisation of standards enables food companies to adhere to one set of international regulations instead of adjusting to a diverse array of national standards for importing countries.³⁰ Subsequently, the food companies gain access to new markets and opportunities for trade, while governments benefit from the economic gains which flow to the food industry from increased trade.

Moreover, global harmonisation of food legislation provides many benefits to consumers. For example, it adds to the variety of food available in many parts of the

world; thus contributing to the pleasure of eating and food security. It also makes nutrition information on product packaging uniform which allows easy comparison and choice of products. In this way, harmonisation of food legislation contributes toward better diets and a reduction in diet-related diseases, such as coronary heart disease, diabetes, stroke and cancer. Generally, the benefits of reduced morbidity are two-fold. First, it reduces medical costs and deaths, which free up household expenditures, and help families redirect resources to other problem areas. Second, it boosts the labour supply and productivity, and subsequently contributes to family incomes and economic growth.^{31,32} As an example, the United States has recorded a significant reduction in cardiovascular diseases since 1970's as a result of better diets (low fat and salt intake) and healthier lifestyles owing to reading of product information by consumers.³¹ Consequently, for every dollar of income saved through prevention of death from these diseases there is an economy-wide gain of \$1.92.³¹

In reality, however, embracing harmonisation of food labelling regulations brings along new challenges to many countries and regions of the world. These include legislation which needs updating, establishment of sufficient and efficient accredited laboratories, redesigning food packaging, strengthening administrative infrastructures and human resources, ensuring effective collaboration and information sharing among stakeholders, and, ultimately, efficient monitoring, surveillance and enforcement of the adopted standards.³³ Keep in mind that the extent of the compliance costs to be borne by the food industry depends on the timeframe given to make the necessary adjustments. The impact of such costs is smaller over the medium term than if the manufacturers had to comply immediately.³¹ This is because there is a natural evolution in food product lines and changes in packaging as manufacturers develop new products to target trends in the market. Inevitably, some (perhaps nearly all) of these costs are ultimately passed forward to consumers.³¹ For this reason, consumer

participation in issues of food standards is critical.

Aside from higher food prices as a result of costs incurred in harmonising food regulations, globalisation of the food trade may result in food safety problems being globalised. In other words, as food may be a vehicle for food-borne pathogens, globalisation of food trade may be a mechanism for the spread of food-borne illnesses to consumers in far-flung markets. Indeed, new hazards are continually being identified and many outbreaks have been traced to imported foods, including in countries with sophisticated food control systems. For example, 80-90% of cases of Salmonellosis, acute diarrhoea as a result of food contamination, have been shown to be imported cases.³⁴ Similarly, the import of beef products was implicated in the outbreak of Bovine Spongiform Encephalopathy in Europe in 1999.³⁴ Table 2 summarises the benefits and challenges of global harmonisation of food labelling legislation to all the stakeholders, namely the governments, food firms and consumers.

Lessons learned in other regions, such as European Union and North America, show that the harmonisation process is complex and sporadic. Countries are confronted with differing levels of development, capacities and determination which hamper the progress of harmonisation. Moreover, harmonisation of standards, such as labelling of pre-packaged food, applies to a plethora of products and is meant for a heterogeneous population of consumers (e.g. over 580 million people in Southeast Asia region). Therefore, those reviewing food and nutrition regulations must do so in the light of a future scenario driven by innovations in the food industry and the changing purchasing habits of the modern consumer.³⁴ For example, many consumers now buy their food via the internet. These consumers have the same need for clear, essential information as those who shop in their local supermarket. As such, the aim of internationalising food standards should primarily be to create legislation which is flexible enough to be easily adapted as consumer trends evolve, and wide-

Table 2. Benefits and challenges of global harmonisation of food regulations

Stakeholder	Benefits	Challenges
Consumers	Nutrition information which is uniform and easy to use Increased variety of safe and nutritious food products Better food purchasing habits and an improvement in family diets A reduction in chronic diseases, medical costs and deaths Higher labour supply and an increase in family incomes	Cost of harmonising regulations in terms of higher food prices An increased risk of globalizing food safety problems such as food-borne illnesses
Food companies	Consistent nutritional profiling criteria and presentation Access to new markets and opportunities for trade Higher product quality as a result of increased competition Simplification of import and export procedures and, therefore, a reduction in trade costs An increase in revenues and profits	Costs associated with familiarization with harmonised regulations Compliance and implementation costs Monitoring and administrative costs
Governments	Growth in food trade and good economic performance Improvement in public health and safety	Expenditure in establishing global labelling standards and accredited laboratories Increased costs of enforcement, monitoring and surveillance of compliance with adopted standards Costs associated with consumer education

reaching in its approach to ensure that there is consistency in the approach to providing information on food.³⁵

CONCLUSION

Food and nutrition labelling regulations are varied in Southeast Asia region. The existing variations are of pre-eminent concern in cross-border food trade and access. For this reason, experts in the region have drafted and finalised Guiding Principles for Food Control Systems, which include the Common Guidelines for the Labelling of Pre-packaged Foodstuffs. These Guidelines are based on Codex Standards and are meant for member countries to use as benchmarks when preparing or updating national standards. International harmonisation of standards allows freer movement of food products among countries and, therefore, helps to open doors to new markets and opportunities for the food industry. Ultimately, increased food trade benefits the governments and consumers. Inevitably, however, international harmonisation of food standards brings about several challenges that have to be overcome.

These challenges have cost implications that are somewhat unbearable, particularly to developing countries such as those in Southeast Asia. In spite of this, however, the latent challenges should not negate the benefits that can be drawn from increased trade. There is plenty of scope for meeting the challenges which includes, among other things, embracing a culture of participating in the work of Codex, involving consumers and all stakeholders in issues of food standards, defining clearly the complementary roles of different stakeholders, exploring the experiences of other regions, sharing of information among countries, and taking a step-by-step approach in the implementation of the adopted standards. Similarly, international cooperation, particularly assistance of the industrialised countries to developing countries, is crucial in the globalisation of food standards and trade. Most importantly, such assistance needs to be carefully designed and coordinated.

AUTHOR DISCLOSURES

We have no conflicts of interest.

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東南亞食品標示規範的一致化：利益、挑戰及關聯

在趨向全球化的 21 世紀，食品及營養標示的議題是非常重要的。一些國際組織，包括世界衛生組織(WHO)和世界貿易組織(WTO)，都鼓勵各國的食品和營養規範與國際標準、準則和建議(例如 Codex Alimentarius)一致。透過一致化，這些組織預計可減少國家間貿易的壁壘、增加食品的自由移動，這有助於食品產業打開新的市場和機會。結果是，促進食品貿易有助於經濟發展，以及讓消費者有更多的選擇。然而，在一致化的過程中，不可避免地有成本支出及挑戰必須克服。此外，國家必須負責這些過程中複雜及零碎的任務，例如：制定新法、加強行政管理能力及建立分析實驗室。本文討論東南亞地區食品與營養標示的立法和規章，舉出不一致的地方及它們的來源和後果。同時也敘述這個地區當前對未包裝食物標示一致化的情形，並解釋對政府、食品產業和消費者的後續利益、挑戰和關聯。

關鍵字：食品產業、包裝、消費者、健康宣稱、營養