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Food safety in the Philippines: problems and solutions

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REVIEW ARTICLE

Abstract

This is a review of the challenges that are faced by the food safety control and regulatory systems in the Philippines. The components of the national Food Safety Network, namely agriculture and fisheries (fresh produce), the food industry (food manufacturing, distribution and retail outlets), the food service sector (restaurants, caterers, street vendors) and the consumers (household consumption) are described. The corresponding responsible regulatory agencies/bureaus and services and regulatory tools (laws) for each of the components are characterised. The national food safety strategy is being implemented by several government agencies and bureaus and is therefore highly fragmented with plenty of overlap and gaps. This has resulted in more often reactive rather than pre-emptive government response to food borne illness outbreaks and recalls of substandard quality products in the market. A firm declaration of national policy on food safety and the creation of a single authority mandated with a focused integrated and comprehensive plan of action will ensure the delivery of safe food to consumers in the country. An overview of the food safety situation is presented highlighting major problems, and possible solutions are discussed.

Keywords: food safety, Philippines, agriculture and fisheries, food poisoning, street foods, food safety capacity, regulations

1. Introduction

Food safety contributes significantly to the prevention and control of non-communicable diseases and undernutrition. Through the development of food standards and the strengthening of food inspection and enforcement, national food control systems can reduce the extensive public health, social and economic consequences of these diseases (WHO, 2011). As in many other developing countries, the Philippines food safety program is considered by its own government agencies to be far from ideal, with regulatory agencies having poorly defined mandates, leading to duplication of services as well as gaps in regulation (Angara, 2011). This often results in lack of accountability, wherein no one takes full responsibility (WHO, 2004).

The Philippines is an archipelago of 7,100 islands found in Southeastern Asia, between the Philippine Sea and the South China Sea, east of Vietnam. It has a total area of 300,000 km^2 consisting of a land area of 298,170 km^2 and inland water area of 1,830 km^2. It has a tropical marine climate with two main seasons: the wet season and the dry season. The annual rainfall is 1000 to over 1,500 mm. The temperature ranges from 25 to 35 °C which is well within the danger zone conducive to the growth and multiplication of spoilage and pathogenic microorganisms that cause food borne illnesses. Travel advisories to the Philippines warn of high risk for food and water borne disease such as bacterial diarrhoea, hepatitis and typhoid fever (http://www.indexmundi.com/philippines/).

There were an estimated 98 million people in the Philippines (2012), making it the 12th most-populous country in the world, and population growth rate remains rapid. The average annual family income in Philippine pesos is Php 206,000 (US$ 4,863) (NSO, 2009). Exports and imports amount to US$ 4.4 billion and US$ 4.9 billion, respectively, with food (processed and unprocessed) amounting to 7-10% of trade (NSO, 2012). The main food exports are coconut, pineapple, banana and mango and the main food imports are maize, rice and wheat. Food is a basic necessity for the population as well as a major source

of income through its agriculture, business and trade. The Philippines is rapidly becoming industrialised and is in a transition from an agricultural base to a services and manufacturing base. It is estimated that 33% of the labour force is in agriculture while 15% is in industry and 52% is in service (http://www.indexmundi.com/philippines/). Remittances from overseas workers have a major stabilising effect on the economy.

2. The food sector in the Philippines

Food and beverages, including tobacco, comprise 44.1% of household purchases (Table 1). Total revenue earned by Food and Beverage Service Activities amounted to Php 162 billion (NSO, 2009). Food manufacturing – including food and beverage processing – remains the Philippines' most dominant primary industry accounting for some 40% of total manufacturing output. The industry contributes a gross added value of more than US$ 2 billion. It is estimated that Filipinos spend approximately 12% of total income eating out and the sector is valued at US$ 3 billion, with a growth rate of 10-15% in the last decade (Roache, 2009). Restaurant and fast food chains have rapidly increased their presence in metropolitan areas and are driven by price and convenience.

The major fast food players, Mang Inasal (roast chicken), Jollibee, McDonald's and Chow King utilise value-for-money strategies to compete for patronage from their customers. Eating out has really taken a deep root in the Philippine urban culture. Fast food chain performance is expected to grow steadily alongside a positive economic outlook (Euromonitor, 2011). High end restaurants and hotels are found in metropolitan Manila and service wealthy local and expatriate consumers. Both of these segments are heavily reliant upon imported foods consisting of fruits and vegetables, meat and poultry, flour and bakery, dairy products, fish and marine, beverages, confectionery, food condiments and seasonings, food supplements, bottled water, snack foods, fats and oils. This sector is heavily reliant on both domestically produced and imported agri-food products (Roache, 2009). The Philippines is still perceived by international markets as having a positive outlook, and total food consumption, alcoholic drinks and mass grocery retail increases of 3.8 to 7.4% until 2016 are expected (Companies and Market, 2012).

Table 1. Household expenditure weighted according to specific consumer concerns and needs (NSO, 2009).

Category	Percentage of total household expenditure
Food, beverages, and tobacco	44
House rent and maintenance	13
Transport and communication	8
Fuel, light, and water	7
Education	4
All other expenses	24

3. The food safety in the Philippines

'Food safety' implies absence of, or acceptable and safe levels of, contaminants, adulterants, naturally occurring toxins or any other substance that may make food injurious to health on an acute or chronic basis. Food safety is a major concern in the Philippines for locals as well as for tourists. Indeed, food-borne illness is a major health problem in the country, and is a leading cause of diarrhoea. For the past 20 years, diarrhoeal disease ranked as the number one cause of morbidity in the Philippines, and is among the top ten causes of death. The World Health Organization (WHO) estimates that diarrhoea kills around 10,000 Filipino children every year (Angara, 2011).

Here are some examples of recent food poisoning incidents. At least 39 individuals were taken to hospital after eating 'suman' (sweet rice cake) bought from the public wet market in Palawan (http://tinyurl.com/qzhjqe2). In Sagrada Elementary School, Buhi, Camarines Sur, 32 students got sick after eating 'namu' rootcrop cooked with coconut milk (http://tinyurl.com/nufsu8k). In 2011, the food poisoning of nine Boracay tourists was reported after eating seafood dishes (Philippine Star, 2011). A more serious incident happened in Calumpit, Bulacan where 200 residents were hospitalised after eating spaghetti at a birthday party (Bolado, 2011). These are just some of the incidents that were featured by local news agencies and many more remained unreported.

Another issue repeatedly featured in the news is the sale of 'double dead' or 'botcha' in wet markets in Metro Manila. About 600 kg of 'botcha' carabeef meat were confiscated in Pasay City Public Market (http://tinyurl.com/kd62ytj). 'Botcha' (hot meat) is a Filipino appellation for meat taken from a diseased animal. The sale of double-dead meat is against the law in the Philippines as stipulated in the Republic Act 9296 (also known as the Meat Inspection Code) and the Consumer Act of the Philippines (http://www.dtincr.ph/files/LawsAndPolicies-ConsumerAct.pdf). Stiffer penalties are now being imposed on traders of 'hot meat' upon approval of House Bill 5490, an amendment by Congress to the Meat Inspection Code (Lopez, 2011). This also holds true for selling 'botcha' fish from the massive fish kill that happened in Batangas and Pangasinan (Aurelio, 2011) which had been attributed to depletion of oxygen in water, overstocking, pollution and/or a sudden change in temperature (Buenaventura, 2011).

Advisories from the Food and Drug Administration (FDA) are announced in news bulletins and FDA website (FDA-Philippines, 2014). Recently, advisories from FDA included holiday food safety tips for the Christmas season, Enfamil Premium Newborn formula implicated in the death of an infant from *Cronobacter sakazakii*, the list of soy sauce brands that conform with standards for 3-monochloropropane-1,2-diol (3-MCPD), safety standard for 3-MCPD being set at 1 mg/kg, use of non-certified therapeutic claims for the promotion and advertising of water purifiers, and the list of selected brands of products from Taiwan with packages contaminated with di(2-ethylhexyl)phthalate (FDA-Philippines, 2014).

Most food borne disease outbreak incidents are gradually forgotten until another incident arises. Other than repeating warnings and reminders to take care in the preparation and consumption of food at home and in food service outlets, government cannot give assurance that incidents will not happen again. For a long time violations by food business operators of provisions listed in the prohibited acts in Republic Act 3720, were subject to no less than six months but not more than five years imprisonment, or a fine of one thousand pesos, or both. In practice with the imposition of such a small fine alone, the law has always been considered toothless and was not perceived as a deterrent to violations of 'Food Drug Devices and Cosmetics Act' until it was amended in 2012 imposing stiffer fines for violations.

4. Responsibility for food safety in the Philippines

Since 2003, the Department of Health (DOH) has been urging the cooperation of several agencies to coordinate and integrate their activities in a National Food Safety program. The aim is to lead to an effective and comprehensive food control system which will enable the formation of a 'Philippine Food Safety Framework' headed primarily by the Department of Agriculture (DA) and DOH. Different regulatory and control mechanisms are employed, including licensing, accreditation, inspection, investigation, monitoring, surveillance, research and management processes utilising training, and disease management, depending on the areas of concern to each component. The responsible government agencies and their respective concerns are shown in the Philippine Food Safety Framework (Table 2), which summarises the components, areas of concern, sub-component regulatory tools, and the government agencies responsible in safety assessment in the Philippine Food Safety Network (FAO/WHO, 2004). The four components are described and responsible agencies for food safety are characterised.

5. The four components of the food safety framework

Agriculture and fisheries

DA is the focal agency of the Philippine government accountable for the progressive growth of agricultural and fishery industries. It lays the policy structure that encourages public investments and, in partnership with the local government units (LGUs), gives the support services necessary to make agriculture and fisheries, and agri-based enterprises benefit the poor especially those in the rural areas. DA (its different bureaus/services and their specific commodity/product mandates are listed in Table 3) seeks to ensure not only security in food but also food safety from the production and harvesting processes of the food supply chain.

The present administration under president Aquino promotes green policy and is clearly embodied in Republic Act 10068 also known as the 'Organic Act of 2010'. It envisions promotion of sustainable organic agriculture in the Philippines. This should cumulatively condition and enrich the fertility of the soil, increase farm productivity, reduce pollution and destruction of the environment, prevent the depletion of natural resources, and further protect the health of farmers, consumers and the general public (DA-Philippines, 2010). Organic agriculture provides opportunities to improve food safety at the production level. Organic agriculture has been shown to not only provide higher yield for certain crops as compared to conventional agriculture, it also promotes agro-biodiversity, can mitigate climate change, improve food quality, has nutrition and health benefits, improves water quality (especially of ground water), and promotes local biodiversity (Prabhakar *et al.*, 2010). Organic farming presents food safety challenges that need to be addressed in accordance with its distinct issues as compared to conventional farming technology.

The food industry

The lead agency for food safety in food manufacturing and distribution is the FDA previously known as Bureau of Food and Drug Administration (BFAD) (FAO/WHO, 2009). It should ensure the safety and purity of foods, drugs and cosmetics being made available to the public as provided for in Republic Act 3720, the 'Food and Drug Cosmetic Act' which was passed into a law in 1963. The food laws and regulations governing food processing and distribution are listed (Table 4). FDA is mandated to provide quality control and laboratory testing standards and facilities, licensing and inspection, product registration, marketing surveillance, advertisement and promotion control, enforcement of compliance to standards and stakeholder information dissemination. Compliance to good manufacturing practices (GMP), hazard analysis and critical control points (HACCP)

Table 2. Philippine Food Safety Framework (FAO/WHO, 2004).

Component	Areas of concern	Sub-component regulatory tools[1]	Safety assessment process/responsibility[2]		
			Risk assessment	Risk management	Risk communication
Agriculture and fisheries	animal and animal products - animal and animal health - meat and meat product - fish and fishery products - milk	meat inspection; SPS, CODEX, GAP, HACCP; laboratory testing; accreditation andtechnical assistance; issuance of import/ export permit of fish and fisheries products; surveillance of imported fish; laboratory testing for *Vibrio cholera*; formulation, enforcement and research on product standards on fish and agricultural products	BAI-DA; NMIC-DA; BFAR-DA; BQIHS-DOH; BAFPS-DA; NDA-DA	National Meat Inspection Board created by RA 9296 chaired by DA secretary with DOHAs member; joint BFAD-DOH, BFAR-DA, FDC-NFA Management Committee (MOA)	PIA
	plant and plant products - plant and plant health - grains - coconut products - sugar and sugar products	CODEX, HACCP, GAP; pesticide residue; establish MRL; establish GAP; laboratory testing; research; pest management; training	BPI-DA; NPAL-DA; FPA-DA; NFA-DA; PCA-DA; SRA-DA	executive order no. 430 dated Oct. 15, 1990 National Committee on Biosafety of the Philippines; chair DOST, member-DOH, DA, DENR, practicing scientists, biological, environmental, physical and social scientists + 2 community representatives appointed by the office of the president	
Food industry processing and distribution	food manufacturers distributors outlets	GMP, HACCP, CODEX; licensing; inspection; product registration; post marketing surveillance; advertisement; promotion control; enforcement of/and compliance; stakeholder information dissemination	FDA-DOH; LGU	FDA/CHD-DOH; LGU	FDA/CHD-DOH; LGU
Food Service	restaurants caterers - sea and air vessels, seaport and airports caterers street foods	NCDPC-DOH; BQIHS-DOH	NCDPC/CHD; BQIHS-DOH	NCDPC/CHD; BQIHS-DOH; LGU	NCDPC-DOH; BQIHS-DOH
Household food consumption	consumer	advocacy and education; environmental health disease prevention; disease surveillance and investigation; disease management	NEC-DOH; RITM-DOH; NCDPC-DOH	NCDPC-DOH; National Center for Health Facilities	NCHP-DOH; NCDPC-DOH; Dep. Ed-SHNC, BEE, BSE, TESDA,CHED
Enabling mechanisms; monitoring/linkage/collaboration: other agencies including academe, FNRI, DOST, NNC-DA, technical working groups; league of provinces, cities, municipalities			policy development; capability building; resource mobilisation; research monitoring and evaluation		
Oversight/coordination Provided per request form importing countries			DA/DOH Food Safety Committee		

[1] GAP = good agricultural practices; GMP = good manufacturing practices; HACCP = hazard analysis and critical control points; MRL = maximum residue limit; RA = republic act; SPS = sanitary and phytosanitary.
[2] Acronyms of bureaus and services listed in the Philippine Food Safety Network and DOH Food Safety Committee are as follows:
BAI = Bureau of Animal Industry; BEE = Bureau of Elementary Education; BFAD = Bureau of Food and Drugs; BAFPS = Bureau of Agriculture Fisheries and Product Standards; BFAR = Bureau of Fisheries and Aquatic Resources; BPI = Bureau of Plant Industry; BQIHS = Bureau of Quarantine and International Health Surveillance; BSE = Bureau of Secondary Education; CHD = Center for Health Development; CHED = Commission on Higher Education; DA = Department of Agriculture; Dep Ed = Department of Education; DENR = Department of Environment and Natural Resources; DOH = Department of Health; DOST = Department of Science and Technology; FDC = Food Development Center; FPA = Fertilizer and Pesticide Authority; FNRI = Food and Nutrition Research Institute; LGU = Local Government Unit; NCHF = National Center for Health Facilities; NCHP = National Center for Health Promotion; NCDPC = National Center for Disease Prevention and Control; NDA = National Dairy Authority; NEC = National Epidemiology Center; NFA = National Food Authority; NMIC = National Meat Inspection Commission; NMIS = National Meat Inspection Service; NNC = National Nutrition Council; NPAL = National Plant and Animal Laboratory; PCA = Philippine Coconut Authority; PIA = Philippine Information Agency; RITM = Research Institute for Tropical Medicine; SRA = Sugar Regulatory Administration; TESDA = Technical Education and Skills Development Authority.

Table 3. The current regulatory agencies of the Department of Agriculture.

Regulatory agency	Acronym	Mandates
Bureau of Animal Industry	BAI	Live animals
National Meat Inspection Service	NMIS	Safety of meats
Bureau of Fish and Aquatic Resources	BFAR	Safety of fish and aquatic products
Bureau of Plant Industry	BPI	Food plants
Fertilizer and Pesticide Authority	FPA	Pesticides
Philippine Coconut Authority	PCA	Coconut
Sugar Regulatory Commission	SRC	Sugar
National Food Authority	NFA	Rice and maize

BAI = Bureau of Animal Industry; NMIS = National Meat Inspection Service; BFAR = Bureau of Fisheries and Aquatic Resources; BPI = Bureau of Plant Industry; FPA = Fertilizer and Pesticide Authority; PCA = Philippine Coconut Authority; SRC = Sugar Regulatory Commission; NFA = National Food Authority.

Table 4. Food and drug laws and regulations in the Philippines governing food manufacture and distribution (FAO/WHO, 2012).

Regulation no.[1]	Title/date of created	Regulation no.[1]	Title/date of created
RA 9711	Food and Drug Administration Act 2009	RA 8172	Act of Salt Iodization Nationwide (ASIN) 1995
RA 9211	Tobacco Regulation Act of 2003	RA 8203	Special Law on Counterfeit Drugs 1996
RA 3720	Food, Drugs, Devices and Cosmetics Act 1963	RA 8976	Food Fortification Law 2000
EO 175	Amendment of the Food, Drugs, Devices and Cosmetics Act 1987	RA 9165	Comprehensive Dangerous Act 2002
		PD 881	Household Hazardous Substances Act 1976
RA 5921	Pharmacy Law 1969	EO 303	Adaptation of Philippine Pharmacopoeia as official book of standards 2004
RA 6675	Generic Act of 1988		
RA 7394	Consumer Act of the Philippines 1992	EO 51	Milk Code 1986
RA 7581	Price Act 1991		

[1] RA = republic act; EO = executive order; PD = presidential decree.

plans and CODEX, is enforced through its inspection system delegated to the LGUs in charge of the issuance of business permits at the place of food business operation.

In 2009, Republic Act 9711 also known as the 'FDA Act of 2009' was promulgated. It is aimed at strengthening and rationalising the regulatory capacity of the FDA by establishing adequate laboratory facilities and field offices, upgrading its equipment, augmenting its human resources complement, giving authority to retain its income, and amending sections of Republic Act 3720. A new provision of this act is the creation of four centres for each major product category such as drug, food, cosmetics and device regulation/radiation research. Each of the centres shall regulate the manufacture, importation, exportation, sales, distribution, transfer, promotion, advertisement, sponsorship of, and where appropriate conduct testing of health products. The centres should likewise conduct research on safety, efficacy and quality of health products and institute standards. The amendments to Republic Act 3720, also pertain to stiffer penalties for violations of prohibitions in the FDA Act (which increased from imprisonment of not less than six months and one day or a fine of one thousand pesos (Php 1,000) to one year to ten years or penalties of a minimum of fifty thousand pesos (Php 50,000) to not more than five hundred thousand pesos (Php 500,000) or both at the discretion of the court). Additional penalties of 1% of value or cost of violation shall be imposed for continued violation. This move is perceived to give teeth to a law that has failed to assure consumers of food safety.

Food service

The food sector covers restaurant and caterers including sea and air vessels, seaport and airport caterers. Street food vendors are also considered a part of this sector. The main regulation that applies to this sector is the Code of Sanitation of the Philippines (Presidential Decree 856; http://tinyurl.com/ovokuub) which was promulgated in 1975. Implementation involved the close coordination of DOH and LGU through inspections before business permits to operate are issued. The code provides standards and

procedures for water quality and inspection of worker's sanitary permit, facilities and infrastructure. Violation of the Sanitation Code and incidences of food borne diseases are closely monitored by the National Center for Disease Prevention and Control, National Epidemiology Center and the Bureau of Quarantine and International Health Surveillance for regulation and monitoring of international flight caterers and food service establishments at ports.

Perhaps the most difficult to regulate sector of food service is that of street foods. The term 'street foods' describes a wide range of ready-to-eat foods and beverages sold and sometimes prepared in public places, notably streets. Like fast foods, the final preparation of street foods occurs when the customer orders the meal which can be consumed where it is purchased or taken away. Urban population growth has stimulated a rise in the number of street food vendors in many cities throughout the world. Migration from rural areas to urban centres has created a daily need among many working people to eat outside the home. Demand for relatively inexpensive, ready-to-eat food has increased as people have less time to prepare meals. Unhygienic preparation of food provides ample opportunities for contamination, growth, or survival of food borne pathogens. Regulations can make street food safer. Policy-makers must realise that street foods are here to stay and that there are innumerable small ways by which both vendors and inspectors could ensure that food is made safer for the consumer. Realistic, attainable and properly enforced regulation can be designed through cooperative efforts recognising basic facts that street food vending is the livelihood of a significant legitimate sector of the economy catering to the urban population. Fair licensing and inspections, combined with educational drives, are the best long-term measures to safeguard the public. Prohibiting the street food trade or setting impossible requirements drives vendors to practice unsanitary measures secretly, thus lessening control even more. It has been suggested that safety controls would be more attractive and better implemented if vendors who exercised particular care were rewarded. Small credit funds could help vendors renew or improve their stalls. For example, aluminium table tops could replace wooden boards which are very difficult to clean (Winarco and Allain, 2000). It is always possible to create a 'win-win' situation wherein all stakeholders can co-exist comfortably.

Household food consumption

The contamination of food can occur at any stage of the food production, a high level of food borne disease is caused by foods improperly prepared, or mishandled at home. Through the 'Consumer Act of the Philippines', the state is able to protect the interest of the consumer, promote his general welfare and to establish standards of conduct for business and industry. Towards this end, the State shall implement measures to achieve the following objectives: (1) protection against hazards to health and safety; (2) protection against deceptive, unfair and unconscionable sales acts and practices; (3) provision of information and education to facilitate sound choice and the proper exercise of rights by the consumer; (4) provision of adequate rights and means of redress; and (5) involvement of consumer representatives in the formulation of social and economic policies. It contains provisions on the formulation and adaptation of product standards (Republic Act 7394, 1992; http://tinyurl.com/dyzqrf).

A National Consumer Affair Count was created in 1992 through the Republic Act 7394 also known as the Consumer Act of the Philippines, bringing together a well-organised team from different government departments, representatives from the private sector, non-governmental organisations, consumer advocates and business leaders. The team brought greater coordination of consumer policies and programs, recommended new policies and legislation or amendments to those existing, monitored and evaluated implementation of consumer programs and undertook consumer education and information campaign. This coordination was expected to provide a more vigilant and effective enforcement of fair trade laws and facilitated the resolution of consumer complaints (FAO/WHO, 2004).

6. Problems in implementation

It was realised early on that upon the formation of the National Security Council that master plans and programs for workable and sustainable food security must be supported by an effective food safety framework. Food security truly has multiple dimensions which include not only the quantity of food that are available in the market, but also the quality of food that determines the nutritional and safety of food (Prabhakar *et al.*, 2010). The critical importance of food safety in over all food security is clearly expressed in the Declaration of World Food Security which states that food safety is one of the major challenges in achieving security (FAO, 1996).

In the Philippines, several efforts were made to force the collaboration of government and non-government agencies, academia, LGUs and other organisations to provide mechanisms for policy development, capability building, resource mobilisation, research monitoring and evaluation. Continuous efforts were envisioned for the enhancement of laboratory facilities, food and waterborne surveillance system, training programs for consumer awareness and institutionalising the sustainable mechanism for integrated food safety within DOH. In 2002 DOH created the Food Safety Committee with BFAD as lead agency recently renamed as FDA. It was tasked to address issues in safety control using a farm to plate approach in order to assure human health. The collaborating agencies are shown in

Figure 1 which still remains in effect. As such the food safety program remains departmentalised and an operational well-coordinated program is still wanting (FAO/WHO, 2004). Limited resources for food safety from the national government have oftentimes been side tracked in favour of other more urgent clear mandates of concerned agencies.

There is no single coherent national policy that imposes measures to protect food from hazards as it moves along the food chain. This has been repeatedly identified in many country reports that were made in FAO/WHO Global Forum on Food Safety Regulators. This situation is however true for many developing countries in South-East Asia Region where the problem is aggravated by the rapid population increase, particularly in the urban areas. Street foods and food service premises are essential and are an increasing part of the food supply system in nearly all countries of the region. Lacking strict control of food preparation, storage and display practices, these have become a major source of food borne diseases. The interacting factors leading to malnutrition and increasing incidence of food borne diseases are many, their interaction being extremely complex (WHO, 2004).

Food safety policy and legislation can only be strengthened by reviewing issuance of directives that clearly delineate responsibility and scope to eliminate gaps, duplication and consider fields of specialisation. Risk analysis provides food safety regulators with the information and evidence they need for effective decision-making especially in the framework of Codex Alimentarius (FAO, 2003). Developing and instituting informed policy to solve and prioritise food safety problems requires risk analysis, to ensure a systematic approach to science-based decision-making, followed by risk management and effective risk communication to all concerned stakeholders (Pan *et al.*, 2010). This is lacking in most food safety implementing agencies in the Philippines. This aspect on safety assessment process and responsibility is also identified in the Philippine Food Safety Framework, together with the responsible agencies and corresponding regulatory tools associated with safety assessment activities. Apparently there is the lack of solid implementation guidelines for risk analysis, that needs to be backed up by appropriation of government funds. This will provide resources for facilities, and for upgrading competencies of food and health officers through continuous education and training. The division of responsibility into so many agencies results in the food safety risk analysis activities being obscured among the many other clearer main mandates of each of the government agencies concerned.

The Philippines is actively involved in international food trade equally as importer and exporter of fresh produced and processed foods. Recognising the importance of harmonising with international standards, the National Codex Organization (NCO) was created under the National Food Authority (NFA). It is a body composed of representatives from Philippine government agencies, non-government organisations and the industry sector with an interest in the nature and content of Codex standards and related issues. It also serves as an advisory body to the government on issues arising from or related to the work of the Codex Alimentarius Commission. The NCO is composed of sub-committees and task forces which mirror relevant Codex subsidiary bodies and which are chaired by regulatory agencies (where feasible) from the DA or the DOH, and provides the mechanism as well as the organisation for meaningful participation of the country in Codex meetings. They are responsible for preparing the country positions for the equivalent Codex Committees and the official list of delegates to the Codex meeting. The

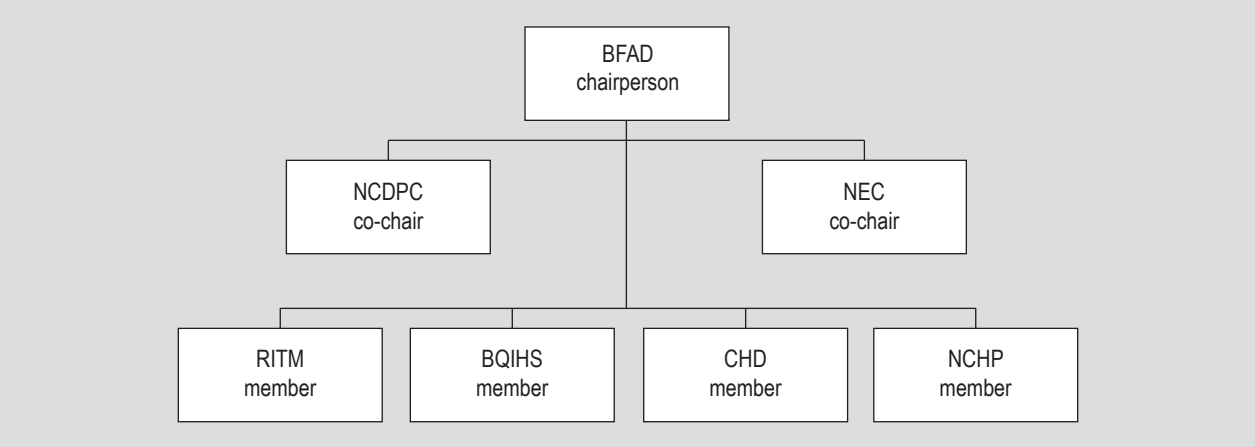

Figure 1. Organisational structure of DOH Food Safety Committee (FAO/WHO, 2004). BFAD = Bureau of Food and Drug Administration; BQIHS = Bureau of Quarantine and International Health Surveillance; CHD = Center for Health Development; NCDPC = National Center for Disease Prevention and Control; NCHP = National Center for Health Promotion; NEC = National Epidemiology Center; RITM = Research Institute for Tropical Medicine.

NCO currently has 18 sub-committees and task forces chaired mostly by a regulatory agency (NFA-FDC, 2008).

There are notable successes wherein the government through it line agencies has been able to address food hazards in the market. The rapid response of DOH with guidance from the WHO in monitoring the entry of infected individuals, the temporary bans imposed by the Bureau of Animal Industry on livestock, meat and meat products from countries known to have the new infectious diseases and the seasonal advisories of the Bureau of Fisheries on the red tide toxin in mussels, all have effectively reduced these threats. The confiscation and destruction of 'double dead meat' by the National Meat Inspection Service is often reported. The Fertilizer and Pesticide Authority sets minimum pesticide residue levels on agricultural commodities (Food Safety Act of 2013; Official Gazette, 2013). Beyond these legitimate fragmented food safety issues being addressed appropriately, there is a need for a comprehensive coordinated integrated preventive approach to food safety.

A 10-point regional strategy for food safety has been laid out by the WHO Regional Office for South-East Asia Region (WHO, 2004) (Table 5). It outlines a plan of action that can be taken by countries to address food security in parallel to food safety. WHO has long provided directions for a better integration of food safety policy which offers the concept of and mechanism for an inter-sectoral approach to address the issue of food safety along with policies on food security, quality, nutrition and participation in international trade. All sectors should be equally empowered to realise that each one can contribute through continuous improvement of food safety efforts in their particular dominion along the food supply chain. The possible causes of failures to adopt documented policies and plans has been attributed to ineffective communication, lack of awareness, and inadequate data on the cost of food borne disease, cultural habits, differing social values, and traditions. The Western Pacific Regional Priority Safety Strategy 2011-2015 (WHO, 2011) (Table 6) has emphasised the need for risk-based regulatory frameworks and improved food safety data to guide policy. It is alongside these two WHO food safety strategies (WHO, 2004, 2011), that the Philippine food safety strategy is developed and can be examined. Likewise, national food safety initiatives are applauded hoping that efforts are sustained until the desired platform is safely secured in place.

7. Need for a comprehensive national food safety strategy

The need for a comprehensive national food safety strategy has been realised and has justified the filing of a food safety act in the 15th Congress, enacted as the Food Safety Act of 2013 (RA Republic Act 10611; Official Gazette, 2013). It intends to strengthen the food regulation system in the Philippines. It has the following objectives: (1) delineate mandates and responsibilities of government agencies; (2) provide mechanisms of coordination, accountability and establishing policies and programs; (3) develop appropriate standards and control along the food supply chain; (4) strengthen the scientific basis of regulation; and (5) upgrading the capabilities of all stakeholders by training and education so they can contribute to effective food safety management. In effect it is envisioned to protect the health of the consuming public, imbue confidence in the food safety system, prevent epidemics due to food-borne diseases and empower the food industry to participate in the global food business. It is an attempt to adopt the food safety strategies laid down by the WHO (2004, 2011) for the region.

Table 5. WHO 10-points: regional strategy for food safety for countries in the South-East Asia region (WHO, 2004).

1. Development of a food safety policy integrated with policies on food security, quality, nutrition and participation in international trade.
2. Regular evaluation and revision of food legislation to ensure it best protects population.
3. Prioritised food inspection activities according to consumer risks.
4. Strong national analytical capacity for food safety by appropriate training, resources and establishment of quality assurance protocol and procedures.
5. Provision of necessary resources for most appropriate approach to food borne disease surveillance and for most appropriate level of responsiveness.
6. Provision of a mechanism of inspection and compliance to food producers, industry and trade to ensure the safety of food.
7. Provision of mechanism of inspection and compliance to the safe handling of food by retail and food service sector including street food vendors.
8. Provision of consumer awareness of the importance of access to safe and nutritious food and to encourage participation in national efforts for these concerns.
9. Recognition of the need for a short-term and long term focus on education and training for all sectors for each to carry responsibility in ensuring the safety of food.
10. Support for a coordinated approach to food safety research by giving priority to research that provide data to manage food safety.

Table 6. Western Pacific Regional Priority Food Safety Strategy 2011-2015 (WHO, 2012).

1. Improved food control and coordination throughout the food chain continuum and adequate funding.
2. Risk-based regulatory frameworks.
3. Improved availability of food safety data to better guide policy and risk analysis.
4. Inspection services.
5. Food safety training and education.
6. Capacity to detect, assess and manage food safety incidents and emergencies.
7. Enhanced cooperative planning and implementation of regional and subregional food safety strategies and action plans.

Food safety policy

The national government's commitment to food safety is embodied in its declaration of policy stating that (Food Safety Act 2013; Official Gazette, 2013):

> 'It is the policy of the State to develop and maintain a food safety regulatory system that will ensure the highest level of protection of human health in the consumption of food, fair practices in the food trade and market access of local foods and food products'

The focal body proposed in the Food Safety Act of 2013 is to be known as the Food Safety Regulation Coordinating Board (FSRCB) that has the authority to capably link the mandates, control functions and activities of the DA, the DOH and the Department of Interior and Local Government (DILG) in food safety regulation and modify these as needed in consideration of the changing requirements of markets, new technologies, new food safety risks and other emerging concerns. Government will provide the necessary resources to operationalise the multi-sectoral food safety strategy. It shall evaluate the overall effectiveness of the food safety regulatory system and research and training programs. It will also coordinate crisis management and planning during food safety incidents and monitoring through a rapid alert system. Pursuant to total quality management, a procedural manual is to be prepared within 12 months after the Food Safety Act comes into effect. This manual shall contain all operational activities of the board in relation to decision making process in line agencies concerned along the food supply chain.

Food legislation

The Food And Drug Administration Act of 2009 has been passed to rationalise the regulatory capacity of the FDA by establishing adequate testing laboratories and field offices, upgrading its equipment, augmenting it human resources complement, giving authority to retain its income, renaming it Food and Drug Administration and amending certain section of Republic Act 3720 (Food and Drug Cosmetic Act of 1963). The retention of its income will enable it to fund its own activities and have more power to hire additional personnel, upgrade facilities and improve competencies of its manpower. Another major amendment pertains to the imposition of stiffer penalties for violations of the provisions which had become ridiculously low over the years. This new law is envisioned to strengthen the regulatory capacity of FDA, but still it is not enough because it covers only a limited section of the food chain which is processing and distribution, but not production and harvesting of local and imported fresh produce which is largely under DA covering so many bureaus and services for specific fresh produce concerns. A unified body like the FSRCB is essential to oversee the food continuum along the food supply chain.

It is proposed through the Food Safety Act of 2013, the creation under DA, an office of undersecretary for Policy and Planning that shall supervise Codex activities, the development of food safety standards, management of testing laboratories and the implementation of research and training activities in the production and harvest portion of the supply chain. This office will also be the Codex Contact Point. In effect international standards are adopted into the national law by following the standards of Codex Alimentarius Commission. NCO, which is currently under the Food Development Center (FDC), which is also under NFA. The FDC will be transferred to DA and renamed as Food Safety and Quality Development Center (FSQDC), which will provide technical services to DA and its food safety regulatory agencies focusing on standards on fresh produce coordinating all bureaus and services concerned with specific commodities and crops. And any changes on regulations, standards and implementation will have to be coordinated with FSRCB.

Food control system

An effective control system is dependent on adequately trained inspectors of ensured competence to undertake their regulatory function. In the proposed Food Safety Act, the DILG shall be responsible for the enforcement the Code of Sanitation, the food standards developed by DA and DOH and enforcement of the food safety regulation at the municipality level. Official control includes routine surveillance checks of food establishments and more intensive checks involving inspection, verifications,

audits, sampling and testing of samples. It shall be based on appropriate techniques, implemented by an adequate number of suitable qualified and experienced personnel and with adequate funds, facilities and equipment to carry out their duties properly. DILG shall support the DOH and DA in the collection and documentation of food-borne illness data, surveillance and research.

The frequency of official controls shall be proportionate to the severity and likelihood of occurrence of the food safety risks, in effect setting a risk-based regulatory framework of the control. A risk analysis based framework provides a structured way of examining and incorporating the wide variety of factors that impact on the decision-making process and enables regulators to identify, assess, manage and communicate food-related health risks. Information on food contamination from food monitoring can be linked with food borne disease data, and can lead to early warning and appropriate risk-based food control policies. Only through a sound scientific risk assessment can effective risk reduction measures be identified. Additionally, the data can also be used to monitor the effective implementation and impact of such control measures (WHO, 2011). The implementing rules and regulation of the pending Food Safety Act must include the mechanism by which an effective risk analysis and communication can be done on food-borne illness including all the funding for resources to effectively carry out this responsibility. Data collected will support informed decision making process for improving policies and programs along new and emerging food safety concerns. The credibility of a national food control system depends largely on the quality of data and on the capabilities of those within the system. Being able to make the most of limited data by performing trend analysis, modelling and forecasting has become equally important in reducing the currently large burden of food borne disease and facilitating an increasingly global food trade. (WHO, 2011). A continuous upgrading of analytical capability is therefore an important component of a strong national food safety program.

Analytical capability

Regulatory authorities must have access to laboratories with the capacity to analyse for the common cause of food borne disease as well as emerging pathogens. Food testing shall be carried out by laboratories accredited to international standards. They shall work in accordance with internationally approved procedures and methods of analysis (WHO, 2011). The laboratories shall be responsible for providing evidence of credibility of test results from submitted samples. The agencies through the FSRCB shall minimise duplication to achieve efficiency in laboratory operations. Under the Food Safety Act, the fresh product will be under the technical supervision of FSQDC under DA while the processed food will be under FDA through the DOH.

Training, consumer education and research

Farmers and fisher folks and micro, small and medium scale food business operators as well as government personnel shall be trained on the requirements of food safety regulations. Food industry personnel and agricultural workers shall be trained on the codes of good practices. Government personnel shall be further trained on the scientific basis or the provision of the law. Training program shall be developed by FSQDC or FDA or their accredited agencies to provide training. A consumer education program shall be developed by DA, DOH and DILG as appropriate. Department of Science and Technology in collaboration with DA and DOH in cooperation with FSRCB shall establish the mechanism of the conduct of research in these areas. In the long term, the Department of Education must also contribute to consumer awareness. Food safety should be incorporated into the formal education curricula from primary school to university (Angara, 2011). The multi-sectoral overseeing food safety policy development should ensure that appropriate expertise is involved in curriculum development especially for primary school (WHO, 2004).

Review and international collaboration/cooperation

In the Food Safety Act of 2013, FSRCB is mandated to evaluate the effectiveness of standards, conformity assessment activities, the performance of food testing laboratories and their accreditation to international standards, and oversee the overall effectiveness of the food safety regulatory system and of the research and training programs. The evaluation of effectiveness of programs as it is implemented in the many agencies under its jurisdiction will have to be done annually or more frequently as needed, as incidents and emergency situations arise. The international distribution of food and global travel are commonplace in today's society; therefore food safety must be tackled, not only at the national level, but also internationally through the sharing of information among national food control authorities. The International Food Safety Authorities Network, a FAO/WHO initiative, facilitates sharing of such information (WHO, 2011). The Philippines can only contribute effectively on sharing information if it develops its own science based capacity on risk analysis done by competent professionals and well equipped laboratories.

8. Conclusions and recommendations

Food safety in developing countries like the Philippines is specially challenging in view of its complex interaction with economic, social and political factors that affect equally important issues of food security and nutrition. As shown in the statistics available from DOH, there are no comprehensive data on food borne diseases. The mandate

for ensuring food safety in the food supply chain is spread over many agencies mainly DA, DOH and DILG, but also a number of other bureaus/services, all of which have many other concerns and responsibilities. As such there are always overlap and gaps in functions and implementation of food safety control and regulation. The concern for food safety is oftentimes brought to consumer attention, in the event of food-borne disease outbreak or advisories on products being recalled in the market with quality issues. The government response to food safety issues such as food poisoning incidences and substandard fresh and processed foods in the market are reactive rather than pre-emptive. There is a need for nationally coordinated program on food safety for more integrated and effective food safety.

There had been several international initiatives by the WHO and FAO to lay down strategies for food safety at the regional level. The intention is consistently to motivate governments of concerned countries into a commitment to food safety. It was already identified that the main stumbling block to action is the lack of a clearly articulated policy on food safety and the absence of a focal authority for all activities in food safety. The lack of a national policy can be attributed to the lack of data on the economic burden of food borne disease from which informed policies and decision making processes can be based and prioritised. The collection of these data rests on competence of health officers down to the municipality level, capability of food professionals along the food supply continuum, facilities and maintenance of laboratories for chemical, physical and microbiological hazards. This is further complicated by globalisation of foods and new emerging food pathogens that require more upgraded competencies and facilities. The allocation of limited resources from government for such efforts will always have to be carefully justified, and priorities will be decided based on the economic cost and potential benefits of any activity that needs funding.

How can an integrated food safety policy addressing food security, quality and nutrition consistent with standards required in international trade be put in place? A national law that has a clear declaration of policy on the commitment to food safety must be passed with provisions on creating a single authority which will focus on food safety control, regulation, improvement and communication. A single authority with one main function can concentrate on integrating the ill-defined food safety mandates currently distributed across several agencies. The single authority can cut across the entire continuum of the food supply chain, making it more effective in the delivery of safe food to the consumer. It can easily examine the bureaucracy to eliminate overlaps and fill in gaps to make the food safety system more efficient in its use of resources. Continuous evaluation and assessment of the operation of the programs under its overall supervision, but being conducted by different front-line agencies, will have to be done to ensure that continuous improvement is attained.

The filing of Senate Bill no. 2805 also known as the 'Food Safety Act of 2011' is a move in the right direction. It provides for the creation of the FSRCB which will ensure a coordinated approach to food safety regulation and oversee the overall effectiveness of the system and of the research and training programs for food safety. It also will establish a rapid alert system and emergency measures in cases of direct or indirect risk to human health from food. It will not only allow for compliance to standards in international trade but will also enable valuable sharing of among national food control authorities. This bill had its first reading by senator Edgardo Angara in 10 May 2011 and is now in the Senate Trade and Commerce Committee and Health and Demography Committee. It has been a year but committee report has not been filed. The hope for an effective food safety program in the Philippines now lies with of the 'Food Safety Act of 2013'.

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