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RESEARCH ARTICLE

An Evaluation of the Hygiene and Sanitation Practices Among Street Food Vendors Along Far Eastern University (FEU)

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Abstract

Street food vendors along Far Eastern University (FEU), specifically on the streets of R.Papa, C.M.Recto, and P.Campa, were investigated in order to assess the hygiene and sanitary practices of street food vendors under which these food stalls operate. The total number of street food vendors included in the study was 15 in the three locations mentioned. Data were collected using a validated questionnaire on Food Hygiene and Sanitation and direct interview among street food vendors. The findings showed that generally, street food vendors were not aware of hygienic conditions and they lack training on food preparation and management. The same percentages of 74% were computed on the criteria which includes the following: (1) the vendors obtained food preparation skills through observation, (2) they prepare street foods just in the stall or working area, (3) the place is untidy, greasy and insects are seen and (4) they store leftover foods at ambient temperature which is the Temperature Danger Zone (TDZ) for all foodstuffs. Then, this street food is sold to unsuspecting students who are likely to get foodborne diseases due to Salmonella typhi, E.coli and Staphylococcus aureus bacteria. Only 40% of the vendors had garbage and waste bins beside the food stalls. Personal hygiene like handwashing and proper attire was not also observed, as the vendors never covered their heads, handled money and food at the same time and not everyone wears aprons. This study recommends the establishment of street food center headed by the city council of Manila, the training of street food vendors on hygiene, sanitation and the establishment of code of practice for the street food industry and the empowerment of the local government and the private sector surrounding it.

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INTRODUCTION

In the Philippines, the preparation and handling of street food by a typical vendor can result in potential significant health risks for the consumer. According to report (Department of Health-Philippines,2011), as much as 70% of diarrhoea diseases in developing countries are believed to be of foodborne origin. The foods are often prepared under unsanitary conditions and stored for long periods in unsuitable conditions before selling. Experience has shown, however, that with proper training and control of street vending, the potential health hazards of street foods are minimized.

Many people are patronizing street foods since it is the easiest way to meet their energy needs. For instance, many working people take their breakfast and lunch away from their homes. The same applies to many students along the university belt like Far Eastern University (FEU), who take their breakfast and lunch while going to school or just outside the school premises. Street foods also provide a source of employment and income to the unemployed even with just a small capital.

According Bryan (1995), street foods have been defined as "ready-to-eat foods and beverages prepared

and/or sold by vendors, especially in the street and other similar public places". The street food trade has grown to meet the need for affordable meals for ever-growing urban populations in countries in all regions of the world. The variety and form of food sold depend largely on local eating habits and the socio-economic environment.

Many studies cited in the Ministry of Health and Quality of Life issued year 1999, have been carried out to discern the characteristics of the street food sector. These studies have documented its social and economic importance. Surveys have shown that large proportions of urban dwellers rely heavily on street foods to obtain meals on a daily basis and that the overall volume of the street food trade in many cities, particularly those in Asia, is considerable, amounting to several millions of dollars annually. Poor food hygiene, fouling of the environment as well as obstruction of pedestrian and vehicular traffic are widely cited as important negative facets of street food vending.

Food hygiene consists of several principles adopted to ensure food safety and to protect food from any chemical, microbiological or other type of contamination that can render it unfit for human consumption, to prevent the spread of communicable diseases associated with food and food processing and also to ensure that consumers of food are not fraudulently treated. It also ensures that food when purchased is of a nature, composition and quality as demanded by the purchasers. Proper food hygiene should ensure that food is handled, stored, prepared and served in such a way and under such conditions so as to prevent, as far as possible, the contamination of the food (WHO, 2011).

The large number of urban consumers who rely heavily on street food, the perishable nature of the products being vended and the fact that the foods are in a state that is ready for consumption, make adequate control of the street food trade imperative for protecting public health. The fact that the foods are "*ready-to-eat*" means that under normal circumstances the consumer does not subject the food to further treatments that could serve to reduce levels of contamination prior to consumption.

A number of additional factors further challenge the ability of local authorities and district councils to ensure that unsafe street food is not offered for sale. These includes the large number of small street food units; the low educational level of many street food vendors and their generally poor knowledge of good practices in food hygiene; and, the crude conditions under which the street vendors often operate.

The street food industry has an important role in the cities and towns of many developing countries in meeting the food demands of the urban dwellers like students, professionals and laborers. According to the website DoH-Philippines (DOH,2011), there have been noticeable increases of food vendors along Manila particularly the university belt, who sell both raw and cooked food items. They are not regulated, at the same time they operate haphazardly without any monitoring of what they prepare and how they do it. This research was conceptualized to determine hygienic and sanitary practices of vendors of street foods along FEU, it was carried out using a descriptive survey design.

The hygiene and sanitation practices of street food vendors were determined by the use of structured interview and through observations. Practices such as acquisition of cooking skills, place of preparation, environmental conditions, methods of washing utensils and preservation methods were studied. Qualitative data was transcribed to themes and patterns that addressed the objectives of the study. The conceptual framework can be described as follows:



This street food enterprise can be characterized as small-scale, requiring relatively simple cooking and administrative skills, a small amount of initial capital to start the business and only basic facilities at home for storage of raw materials and preparation of sauces.

Safe and quality foods have strong potential for addressing not only health concerns but also poverty in the Philippines. Local experience reveals a strong connection between health and poverty. Poor health conditions decrease human potential for productivity by limiting one's socio-economic activities.

Due to this increased demand for food, the present study was carried out to determine the hygienic and sanitary practices of vendors selling street foods along Far Eastern University (FEU). This paper sought to addresses various aspects of hygienic practices like food preparation skills, place of preparation, location of street food vendors, handling and storage uncooked food, personal hygiene and storage of leftover foods. The aim of the present research is to assess the hygiene and sanitation practices among street food vendors operating along FEU. The following research questions are hereby stated:

- 1. What is the level of knowledge of street food vendors along FEU about proper hygiene and sanitation practices?
- 2. What are the observed hygiene and sanitation practices of street food vendors along FEU based on the ocular visits of the faculty-researcher and students?

METHOD

Research Design

In Bryan (1995), a food handler was defined as "any person in the food business that handles or prepares food whether open or packaged". Prior to administration of the validated questionnaire survey, information about the street food vendors operating along FEU were gathered by the faculty-researcher regarding the operation of their business like time of opening and closing, the peak hours of their sales, and nature of their customers. The objective is for the researcher to gather more important data during the most convenient time of the street vendors.

A descriptive survey design was used to answer questions concerning the current status of food hygiene and sanitation practiced by vendors of street foods. Hygiene and sanitation were determined by the use of structured interview and through observations. Practices such as acquisition of cooking skills, place of preparation, environmental conditions, methods of washing utensils and preservation methods were studied. Location of the street vendor, utensils used, environment surrounding the street food vendors, general processing of the food and hygienic practices were observed and recorded through an observation checklist.

Participants

The faculty-researcher conveniently selected 5 street food vendors selling in each area of R.Papa, C.M.Recto, and P.Campa for this study. The total number of street food vendors included in the study was 15, in the three locations mentioned. Street vendors for each area with the same kind of food being sold were considered only as one (1) to avoid redundancy of data, like egg-based and seafood products.

The students were given extra caution not to force the vendors to answer the questionnaire or interview to avoid conflicts. Here are some of the pictures taken in the three locations (R.Papa, C.M.Recto, and P.Campa) intended for this study.

Each stationary food kiosk or food stand was visited individually by the faculty-researcher and selected students of FEU enrolled in Culinary Arts and Sciences during the Summer period of 2011 and were asked to complete the Food Hygiene and Sanitation Questionnaire (Annex 1). These students have already finished the subject on Food Safety, Hygiene and Sanitation and they have a thorough background on handling food. Participants were assured that anonymity and confidentiality of responses will be strictly maintained. All duly filled in questionnaires was collected on site of the same day.

Instrument

The first part of the Food Hygiene and Sanitation Questionnaire (Annex 1) was designed to seek openended responses from the food vendors regarding their knowledge about proper hygiene practices and food safety in view. The selected students and the faculty-researcher started by asking the respondents to describe the working condition occurring at their workplace, like proper garbage disposal, water supply, storage of left-over foods, and personal hygiene. The remaining part of the questionnaire was designed to collect quantitative data in the form of closed questions regarding issues such as the actual implementation of their knowledge on food preparation and management, handling, cooking and serving of these street foods before selling.

Data Analysis

It was important to know the characteristics of the vendors like their age, gender, educational background, food being sold and peak hours of the business, in order to link the relationship to good hygiene practices and sanitation. The target sample is consist of only street food vendors along FEU, vendors selling only cigarettes, beverages, candies and raw foods were not considered.

Most street food vendors are ambulant and do not stay at the same place at all times, it was difficult to carry out survey of the given number of street food vendor at one go (Freese et al., 1998). But here along FEU most vendors are stationary because they are paying a certain rent for them to stay. Therefore, surveys were carried out among different groups of street food vendors in three different areas along FEU whereby an interview of different street food vendors was done to gather more data. Also found below are the street foods being prepared by the vendors based on its major ingredient like meat products, eggs, fish and seafoods. There are commonalities among this street foods being sold in three different locations near FEU, like siomai, kwek-kwek, tokneneng, calamares, bananaQ, kamoteQ, fishballs and squidballs.

RESULTS

	R. Papa Street	P.Campa Street	C.M. Recto Street
a. Meat based	hotdog, siomai,hamburger	siomai, barbeque,isaw	hotdog, siomai, isaw, Chicken's feet (adidas), Pork's blood (betamax)
b. Egg based	kwek-kwek, tokneneng	kwek-kwek, tokneneng	kwek-kwek, tokneneng
c. Rice / noodle based	Rice-in-a-box	Dried noodles	plain and fried rice
d. Fish and seafood based	Calamares, fishballs,squidballs	Calamares, fishballs, squidballs	Calamares, fishballs,squidballs kikiam,fish and chips
e. Others	Tokwa, turon, BananaQ, kamoteQ	BananaQ, kamoteQ, turon, Lumpia prito	Tokwa, nuts, grilled sweetcorn



Vendors along R.Papa facing the FEU Gym



Vendors along P.Campa across FEU



Vendors along Recto upon exit in FEU-Gate 2

Socioeconomic-cultural Profile

As shown in Annex 2 majority of the street food vendors were male at 73%, while less than 30% were female. Most of them are self-employed while some are working for someone else and practice street food vending as a part time job. The educational level was very low as more than 50% of food vendors have reached primary education only. Most of the vendors are above 31 years old with 40% and followed by 26-30 years old with 33%.

Out of the 15 interviewers, 95% said that this was the only job they did for living and the remaining 5 % worked as general workers. Then about 90% of street food vendors said their peak hour of business was concentrated towards lunchtime and snacks.

Street food vending has an important tradition in most countries of the world. Because of socio-economic changes, many countries have experienced the growth of this sector (Freese et al., 1998). Therefore, street foods are often attractive for their own unique taste and convenience, "*street vended foods are essential to some communities, especially in some developing countries as they provide ready-to-eat foods which are accessible and affordable for even the poorest*".

Street food vendors can be found anywhere in here in Metro Manila especially within the University belt area. These street food vendors who usually sell 'ready-to-eat' foods on streets with or without a license to do it.

They are part of almost any distribution chain, often though at the lower end of the spectrum. Street food vendors link urban and rural economies through movement of traders and of commodities; they serve a highly varied clientele and play an important role in the marketing of consumer goods to poorer customers. These vendors can be found in clusters around places of work, schools, hospitals, bus terminal, industrial sites and market places.

Personal hygiene plays an important role in the prevention of food poisoning. An attempt should always be made in order to protect ourselves and our environment from bacteria so as to prevent contamination of the food that we consume (WHO, 2011). If each individual will practice a good personal hygiene, this will decrease the probability of propagation of bacteria which already exists in our surroundings. These bacteria are *Staphylococcus aureus* (found in meat and other processed foods), *Bacillus cereus* (found in rice and cereals), *Clostridium perfringens* (found in canned goods), *Escherichia coli O157:H7* (found in water), *Salmonella typhi* (found in chicken) and *Shigella toxins* (found in seafoods).

Acquisition of Knowledge on Food Preparation and Management

It is important to know how the vendors acquired their cooking skills to establish their knowledge in handling street food. Mostly (74%) of the vendors acquired cooking skills from observation, 13% were taught by their parents or relatives. Also 13% were gained from skills through seminars and trainings like the rice-in-a-box and dried noodles. Annex 3 shows how vendors along FEU acquired their food preparation and management skills.

Place of Preparation of Street foods

Findings showed that vendors prepared the foods either at home or at the stalls or kiosk, which were located by the streets of FEU. Most of the stalls were made of wood and thin metal alloys. Some have big plastic umbrella to protect them from the heat or rain, while others used recycled "*tarpaulin*" as a shade.

Vendors selling egg-based products and fish and seafoods, banana-Q, prepared their foods in the stalls about seventy percent of them. While around 20% of street vendors prepared it at home like siomai, barbeque, precooked hamburger, and even there sauces. The results are shown in Annex 4.

Garbage Disposal

Based on the result of the survey found in Annex 5, most of the vendors interviewed prepared their foods in unhygienic conditions given that garbage and dirty waste were conspicuously close to the stalls. Of the vendors interviewed, 60% did not have garbage bins; hence they disposed their garbage just near the stalls. Also, 74% of the vendors threw waste water and solid waste just beside the stalls making the environment surrounding the eateries quite filthy. They are not aware of proper cleaning area and waste segregation. Grease was also evident on the floor of the stalls due to spills of oil and sauces.

Handling of Street foods

Hygiene during handling and cooking of street foods was observed both by the selected students and faculty-researcher. During the observation, it was found that vendors did not wash fresh foods (fruits) properly and even worst are they just wipe the eggs before beating. An egg naturally has *Salmonella typhi* on the shell so it needs to be washed and dry before using. Vendors who sold fish and seafoods like calamares and fish and chips washed their raw foodstuff only once because they did not have enough water. Vendors selling hamburger which is accompanied by chopped cabbage, sliced tomato and cucumber prepared the ingredients without washing them.

According to McSwane (2006), *Salmonella typhi* is one of the most common bacterial problems when working with foodstuffs. The bacteria can be spread both through direct and indirect contact and the bacteria can multiply at an astonishing rate, especially in uncooked food, specifically poultry and eggs, when it is kept at room temperature. It is one of the leading food-borne illnesses and is even responsible for death in some cases. The existence of such bacteria is a proof in itself for the need for basic food hygiene standards.

In the article of FAO (*Food and Agriculture Organization*,2011), handwashing and correct storage of poultry and eggs is all it takes to ensure that this bacterium doesn't spread, and can save a huge amount on healthcare and provide customer satisfaction in the process. Keeping raw meats at room temperature is a ridiculous policy that leaves the food open to the spread of a multitude of different bacteria. All raw meat should be kept refrigerated at temperatures below 5 degrees Celsius to minimize the multiplication rate of the bacteria that can cause Salmonella.

Storage of Prepared Street foods Before Selling

Cooked foods were kept in different ways before they were sold. Egg-based food vendors placed them openly on their stalls, while keeping their food in cupboards next to their stalls. The fishball and other seafood products were kept in open plastic bowls on the wheelbarrows in which other foodstuffs were carried. Most of the foods were not covered and were exposed to flies, food flies, and smoke from the vehicles' engine and dust.

Results also showed that vendors, after preparing their foods, kept and served them at ambient temperatures. Food was not heated at high temperatures before serving. This is especially true of meat and egg based food vendors, who must ensure proper practices at all times to prevent the possibility of cross contamination between raw and pre-cooked foodstuffs, as well as doing all they can to ensure clean and decontaminated workspace to reduce the risk of disease due to *Salmonella typhi* and *E.Coli*.

Water Supply

Water was carried from homes of the street food vendors because no potable water was available at their areas of operation. Most of the vendors also sells beverages like gulaman, pineapple juice and buco juice because it is an added income on their part. Vendors carried water to their business premises containers of 5 gallon capacity, usually each vendor has 3 to 5 pieces of it. It was observed that most of the containers are unsealed and quite unclean looking. However, this water was not enough for dish washing and food preparation. Like for dishwashing, they have two (2) buckets of water, one (1) for washing and the other is for rinsing. They don't sanitize the utensils using boiled water after using it, they just let it air dry and prepare for the next user.

Cooking and Serving Utensils/Materials

Food service utensils used by the vendors were made from plastic, metal, enamel or were disposable polyethylene plastics. Based on observation, most of the vendors washed the utensils with tap water from a container. But there are cases where they use sauce cup with polyethylene plastic so that there's no need for washing. This is evident on the foods like tokneneng and kwek-kwek. The problem with this kind of practice is that plastic is considered non-biodegradable.

Personal Hygiene of the Vendors

Personal hygiene of the vendors was observed by the researcher while the vendors are preparing, selling and cleaning in their respective stalls. It was found that most of the vendors did not use aprons, handled food with their bare hands, had long and dirty nails, which were not polished and had their hair not covered. All the vendors handled money while serving food and most of them had worn jewelry and other accessories. In Annex 7 it clearly shows the vendor's perception and how they observed various aspects of hygiene.

Methods for Packaging and Storage of Leftovers

Mostly of the vendors interviewed said that they usually have leftovers before closing. And majority of them also reported consuming them and the rest stored street foods for the following day's sale. Vendors stored left-over food open place (74%) and inside a refrigerator (26%) for sale in the next day.

Most of the vendors stored their leftovers in ambient temperatures; this is quite risky because safety from contamination by pathogenic microorganisms was not assured and the maintenance of optimal qualities of color, texture and nutritive value were not put into consideration.

DISCUSSION

Observations on Food Hygiene of Street food Vendors

This study has shown that street food vending along FEU is very rampant and popular. The facultyresearcher agreed upon interview and ocular observation that most of the street food vendors neither underwent any form of formal training in food preparation nor did they attempt to seek it. According to FAO (*Food and Agriculture Organization,2011*) food handlers should have the necessary knowledge and skills to enable them to handle food hygienically. Systems should be put in place to ensure that food handlers remain aware of all procedures necessary to maintain the safety and suitability of food. The institution also recommends that every vendor or helper of food should undergo a basic training in food hygiene before licensing.

In addition, food should be prepared properly on a clean and sanitize place to prevent foodborne diseases (Kidiku,2001). A foodborne disease is any illness that results from ingestion of contaminated foods. These diseases are classified as follows:

a. infections caused when bacteria in the food are ingested and multiply in the intestinal tract e.g. Salmonellosis;

b. infections caused by bacteria that produce toxin in the intestinal tract, e.g. *Clostridium perfringens* food poisoning;

c. intoxications caused by eating food containing toxin produced by bacteria or poisonous chemicals, e.g. bacterial type *Staphylococcus aureus* food poisoning.

It was also mentioned in this paper that greater part of food served in street food vending is safe for consumption; however, there is ample evidence to indicate potential risks of foodborne diseases. One needs to observe the activities taking place in a street food vending, handling operation and the potential health hazards will be noted at many stages while the food is prepared until served to the customer. There are a number of factors that could contribute to occurrence of an outbreak of foodborne disease . These include:

- Failure to cook food thoroughly;
- Holding food at ambient temperature (optimum for bacterial growth danger zone);
- Poor handling or storage of cooked food;
- Cross contamination of cooked food from raw foods, especially of animal origin;
- Lack of hygienic practices; and
- Inadequate cleaning of utensils.

Stalls were poorly constructed. They could not give proper protection of the street foods from dust and smoke from vehicles. The same results were formed by the study conducted on street foods in a near university in Quezon City (Arambulo, 2004) that found that the stands were crude structures.

The material used for the construction of the stalls was not able to protect the food from dust, given that all the stalls was built on the roadsides, which were dusty and prone to smoke from cars. Dust carries many microbes that may be pathogenic if left to settle on prepared foods. The report of FAO (*Food and Agriculture Organization, 2011*) noted that foods should be prepared in a place set aside exclusively for that purpose, while the place of preparation should be kept clean at all times and should be far from any source of contamination which includes rubbish, waste water, dust and animals. Vending stalls should be designed and constructed so that they are easily cleaned and maintained. The local government of Manila and the schools concerned should design an appropriate food vending stalls and standards.

Observations on Sanitation Practices of Street food Vendors

It was observed that the preparation surfaces used by the vendors had remains of foods prepared earlier. More than one food types were prepared at the same surfaces and these could promote cross contamination. Observation revealed that the oil used for deep fat frying fish, and bananaQ, camoteQ, tokwa and hotdogs was reused more than once. The color of the oil was dark brown to black with many small food particles and "*specs*"; according to the vendors they just refill the used oil with fresh oil if the amount is already short. The use of the recycled oil made the street foods to have an unusual dark color and unpleasant odor. It is also noticeable that the oil used for cooking is reaching its smoking point. This is a stage in the hydrogenation of oil where in it starts to be carcinogenic, which is bad for the health.

Water for street food preparation was not enough. This resulted in vendors using little water for washing utensils hence hygiene was compromised. This study is in agreement again with a study done by Arambulo (2004) on the safety of street food, which found that running water was not available. Without enough water, hygiene and sanitary practices cannot be met. The study also asserts that safe water is an essential pillar for health. The organization also emphasizes that personal hygiene can only be achieved if adequate water is available. Therefore, vendors should have sufficient potable water for drinking, preparation of all kinds of foods and sufficient running water for all washing operations.

The faculty-researcher also observed the cooking and serving utensils and materials used by the street vendors if it is clean and if they handle it properly. Almost all of them uses metals in cooking but mostly are

Aluminum based only, which is very thin and can be scratched easily resulting to chemical hazards. Then plastics and paper based products are the most widely used material for serving of cooked food.

The utensils used for cooking like ladle, cups, and pots were washed using water in buckets, it was rinsed only once and the water was used repeatedly before it was replaced. The water for washing and rinsing the utensils was observed to be dirty.

In some cases like the vendor of siomai, the kitchen tongs was used interchangeably in frying of hotdogs, kikiam and tokwa, then getting the siomai from the steamer. Another alarming observation is that the serving spoon used for sauces was just wipe-off with a piece of cloth after a group of flies feast on it.

It is essential, therefore, that food hygiene principles are applied continuously at all points along the food chain if the consumer is to receive the protection he is entitled to. Thus all street food handlers must be trained in basic food hygiene and the training programs should be a continuous exercise to cover as many food handlers as possible. Also, it should be made a requirement that before certificates of acceptability are issued to food vendors, all food handlers must first be trained and obtain a certificate of basic food hygiene course. This will definitely avoid or reduce the number of untrained food handlers in street food vending.

In addition, cooked food and utensils were not covered, which could result in food contamination due to dust and microbes. The utensils in which the food is displayed for sale must be kept clean, covered and protected as they easily become contaminated if left dirty or unprotected. The faculty-researcher recommends that street foods of all kinds should be kept covered as much as possible to prevent contamination from dust and flies. Proper methods of storing leftover food were not used; hence this could promote the sale of stale food.

CONCLUSION

Street food vendors practiced minimal hygienic and sanitary practices. The hygienic practices in question included food preparation, handling of utensils, place for food preparation, personal hygiene and methods of storing cooked food. Due to lack of proper knowledge and guidance on street food vending, vendors prepared their foods in explicitly unhygienic and sanitary conditions.

In addition, with current projections for public health and environmental problems, the street food sector can only worsen if adequate planning is not effected soon. As a conclusion, a holistic approach is therefore urgently required to prevent outbreaks of severe food poisoning along FEU and the university belt area.

This paper recommends that every vendor, helper or food handler should undergo a basic training in food hygiene. This is to ensure that they follow the required rules for proper hygiene and sanitation.

The government should invest in street food industry as it provides employment, cheap food, and wide variety of foods for the urban dwellers. Through the Department of Health, legislation should be developed to recognize the street food industry by developing code of practice for street food vending.

The local government here in Manila should consider establishment of street food center with adequate facilities and utility services. Such centers will provide an environment for storing, preparing and serving safe food. They will provide the necessary utilities such as potable water, adequate light, and drainage and solid and water disposal, provide conducive environment for consumers to be served with safe food and provide good setting for the relevant authorities to conduct information, education and training programs for vendors and consumers.

The provision of continuous food safety education by the national government, some financial assistance through social services affiliations, and basic water and waste management utilities is generally recommended to diminish the gap between knowledge and practices of safe street food vending in school campuses.

REFERENCES

Alvarez, H. and Cabuhal, G. (2010). Food Safety and Sanitation. Manila: Mindshapers Inc.

- Arambulo, A. (2004). Food hygiene practices of food vendors in near-by university In Quezon City. Journal of Food Safety, 12, 48-50.
- Bryan, F.L. (1995), "*Hazard analyses of street foods and considerations for food safety*", Dairy, Food and Environmental Sanitation Journal, Vol. 15 No. 4.
- Freese E, Romero-Abal ME, Solomons NW (1998). The street food culture of Guatemala City: A case study from a downtown, urban park. Arch Latinoam Nutr.1998; 48(2):95-103.
- Kidiku, M.A. (2001). Training manual for environmental health officer on safe food handling. FAO Journal of United Nations, Series 89-24.

McSwane, et.al (2006). Essentials of food safety and sanitation. Singapore: Pearson Prentice Hall

- Ministry of Health and Quality of Life (1999), "Food act, ministry of health and quality of life in Mauritius", Access on May20, 2011
- Mosupye FM, Von Holy A (2000). Microbiological hazards identification and exposure assessment of street food vending in Johannesburg, South Africa. Int J Food Microbiology 61; 137-145.

Food and Agriculture Organization (FAO- Codex Alimentarius 1997). Accessed on May 2011

Department of Health-Philippines. Accessed on May 2011

Department of Science and Technology/Food and Nutrition research Institute. Accessed on May 2011

WHO. Food borne diseases outbreaks: Guidelines for investigation and control. Accessed on: May 2011 diseasesfdbmanual/en/index.html.>

Annex 1 HYGIENE and SANITATION PRACTICES QUESTIONNAIRE

Name of premises / owner (optional):	Age:	Gender :
Highest Educational Attainment:	Employment status:	
Do you prepare any foods, if so please detail:	Peak hours:	

1. Structure	_
 Are the walls, floor and ceiling in good condition and enable you to 	Observed / Not Observed
clean and disinfect them where necessary?	
2. Cleanliness and Disinfection	
 Do you have a cleaning schedule? 	Observed / Not Observed
*If YES, how often does the premises receive a :	
Deep clean General cleaning	
3. Waste Disposal	
 How do you dispose of your waste materials/packaging? 	
How do you dispose of any food waste?	
4. Pest Control	
Do you have a pest control contract?	Observed / Not Observed
If Yes who provides the service	
If No what pest control practices do you carry out	
5. Personal Hygiene	
Do you have a toilet on the premises?	Observed / Not Observed
 Do you have a wash hand basin with a supply of running hot water, soap, 	Observed / Not Observed
and hygienic hand drying facilities?	
6. Food Deliveries	
 Are food deliveries checked for damage/contamination? 	Observed / Not Observed
 Are the temperatures of chilled foods checked on arrival? 	Observed / Not Observed
 Are date codes checked on receipt of delivery? 	Observed / Not Observed
7. Storage	
 Are all foods always covered or wrapped at the premises? 	Observed / Not Observed
 Are raw and ready to eat foods stored separately? 	Observed / Not Observed
 Is there a system of stock rotation for stored foods? 	Observed / Not Observed
 Are chilled / high risk foods stored below 52 C? 	Observed / Not Observed
• Do you keep records of the temperature of any fridges etc?	Observed / Not Observed
8. Food Hygiene Training	
How many employees do you have that handle food?	
How many of these handle UNWRAPPED foods?	
 Do you have food hygiene training, 	Observed / Not Observed
* if YES please specify	
*If NO Food Handlers have been formally trained, please state how you	
ensure they handle food hygienically?	
9. Food Safety Management System	
• Do you have a documented Food Safety Management System? (such a	S Observed / Not Observed
"Safer Food, Better Business")	
 Have you considered what food safety problems (hazards) could occu 	Observed / Not Observed
- have you considered what food safety problems (hazards) could occu	

within your business? e.g. bacterial, chemical or physical contamination.	Observed / Not Observed
 Have you put safe methods of working and good hygiene practices 	
(controls)	Observed / Not Observed
 in place to stop the hazards you have identified from causing food 	
poisoning or food contamination?	Observed / Not Observed
 Are you making regular checks (monitoring) to make sure your controls 	
are working?	
 Do you keep monitoring records? (such as "Safer Food, Better Business" 	
 diary or temperature record sheets) and regularly review the safe 	
methods of working?	
10. Food Handling Practices and Cleaning	
 Do you have a wash hand basin that is easy for food handlers to get to? 	Observed / Not Observed
• Do wash hand basins have hot water, soap and do you have something	Observed / Not Observed
hygienic to dry hands with?	
• Do you and your staff follow good personal hygiene, including frequent	Observed / Not Observed
hand washing?	
 Do your staff tell you if they are suffering from sickness and / or 	Observed / Not Observed
diarrhea?	
Do you and your staff use clean protective over-clothing?	Observed / Not Observed
 Do you have controls in place to prevent cross-contamination occurring 	Observed / Not Observed
during delivery, storage, preparation, cooking and service?	
 You should have separate chopping boards for raw and cooked foods, 	Observed / Not Observed
separate cloths for cleaning work surfaces used for raw or cooked foods,	
use an anti-bacterial cleaner.	Observed (Net Observed
 Do you and your staff clean as you go? 	Observed / Not Observed
 Do you regularly clean hand contact surfaces, such as taps, door, drawer 	Observed / Not Observed
and fridge handles and light switches?	Observed / Not Observed
 Are floors, walls and ceilings kept clean? 	Observed / Not Observed
11. Temperature Control	
 Do you make sure food is thoroughly cooked? (e.g. by using a probe 	Observed / Not Observed
 thermometer) 	
 Do you use sanitizing wipes with your probe thermometer? 	Observed / Not Observed
• Do you keep foods at the right temperature? i.e. chilled foods kept	Observed / Not Observed
below 5°C. Hot food is cooked and/or reheated to a centre temperature	
above 75oC or stored above 63°C.	