

# Food Facilities Mapping and Profiling: Basis for Sanitary Inspection and Health Education

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**Abstract** - *Food safety and sanitation is assumed to be one of the aspects of quality service that a food establishment can offer to its diners. It is the process of purchasing, handling, storing, and preparing food thru hygienic procedures in order to avoid potential health hazards. Health education, on the other hand, is a program that promotes various interventions for hygiene improvement. This study aimed to create a Geographical Information System (GIS) - based map with a profile to easily locate food facilities within the vicinity of one State College in Sagay City, Negros Occidental which need sanitary inspection. The descriptive method was used in this research study through survey and observation. There were a total of 43 food facilities involved in this study. Among them were 3 Bakeries, 1 Restaurant, 3 Mobile Vendors, 2 Coffee shops, and 34 Confectionery facilities. After a series of surveys and deliberate observations, findings revealed that 38 out of 43 food facilities has acquired health cards only for their food handlers from the city health center while the other 5 has not. Findings also revealed that all 43 of them has never acquired Sanitary Permit to Operate and has not undergone inspection and monitoring on food preparation. This study recommends that persons in authority should conduct a sanitary inspection of all food facilities which were patronized and often visited by the students of this state college. It is further recommended that health education program will be conducted to train food facility managers and food handlers the essentials of food safety and sanitation.*

**Keywords:** *Food Safety, GIS, Health Education, Sanitation*

## INTRODUCTION

Sanitation is the science of bringing about general health conditions. Maintaining high standards in sanitation should be treated as a way of life in the foodservice industry because any laxity can result in illness, business loss, and financial bankruptcy [1].

Guests of any eating establishment have certain expectations regarding the food that is prepared for and served to them. Minimally, they expect it to be pleasing to the eye, flavorful, satisfying and priced at a fair value. Patrons select dining facilities based on these and other aspects of quality [2].

One aspect of quality that is simply assumed is that of food safety. It is the responsibility of the food service manager to ensure that these expectations are met every time food is served. To accomplish this, the manager needs the knowledge and skills to build, implement, and maintain a program of food safety that is consistent with the unique features of a given foodservice preparation [2]. Sanitary inspection must be conducted in the actual place of food preparation and should not be treated as a mere ministerial practice for compliance of business permit only.

On the other hand, the Accrediting Agency of Chartered Colleges and Universities of the Philippines (AACCUP) mandates that all state colleges and universities should initiate in conducting a sanitary inspection for food facilities inside and outside the school premise. Health education program must be part of the calendar of activities of the Student Affairs and Services (SAS). These procedures are some of the benchmarked statements of AACCUP in support to students is to ensure that every food served to them are prepared safely and healthy. In Northern Negros State College of Science and Technology main campus, there were a total of forty-three (43) food facilities within the vicinity that are patronized by its students. Every school opening, additional food facilities sprout just like mushrooms anywhere within the area. However, most of these didn't undergo thorough inspection as to food safety and sanitation. Neither foodservice managers nor their crew members understand that the Sanitary Permit and a Health Card are two different requirements needed to operate a food establishment because the implementer of food safety regulation was not the local health unit but the business licensing

office of the city. Every owner and or operator of business, industrial, commercial, or agricultural facilities, accessories, buildings or houses for rent shall secure a sanitary certificate or permit for the purpose of supervision and enforcement of existing rules and regulations on sanitation and safety of the public upon payment to the City Treasurer of an annual fee [3]. In the city of Sagay, sanitary permit and health card are both required for business permit applications and renewals [5]. There were many existing studies that integrate GIS mapping technology. Mostly, for plotting vegetation, population density, and disaster management. However, in this study, GIS mapping is intended for locating and profiling of every food facilities that cater the students of Northern Negros State College of Science and Technology. The data collected is specifically intended for the use of the said State College and for the City Health office of Sagay.

### OBJECTIVES OF THE STUDY

This study aimed to create a GIS-based map to easily locate, classify and identify food facilities which need sanitary inspection. Geographic Information System (GIS) is a computer-based tool that analyzes, stores, manipulates and visualizes geographic information, usually on a map [4].

This study also determined the need for a re-orientation on complying requirements for business permit application and coming up a health education program for food handlers, owners, and managers.

### MATERIALS AND METHOD

This study used the descriptive method of research. The participants on the survey were the owners, managers, and food handlers within the school vicinity.

The result of the data collected has paved the way for the researcher to be able to profile and categorized the different facilities according to the kind of food that they serve to the students. Each establishment was carefully plotted through Latitude(Y) and Longitude(X) coordinates using Google map's address converter, GPS Tracker, and Javascript. The map was then designed using QGIS software. The accuracy of the location on the map was duly verified and validated by the three (3) IT experts, three (3) Personnel from the Office of the Building Official (OBO), and five (5) residents of the said Barangay using the researcher-made instrument. The map will serve as an accurate guide for the Joint Inspection Team to easily locate and identify food facilities which need sanitary inspection. Those facilities identified will undergo re-orientation

on the business permit application, the importance of proper sanitation in the workplace, and health education.

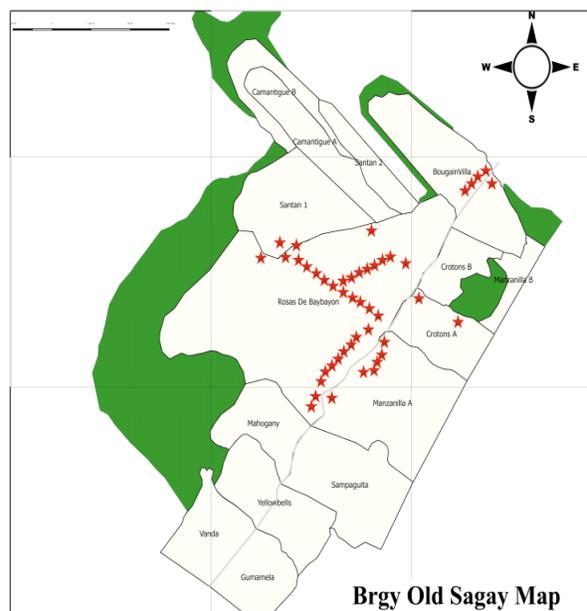


Figure 1. Location of Food facilities in need for a Sanitary Inspection

### Data Gathering Procedure

The researcher addressed a letter to the College President thru the Economic Enterprise office of Northern Negros State College of Science and Technology and also to the Health Officer of Sagay City asking permission to conduct survey and personal observation on every food facility. The researcher gathered the data using researcher-made questionnaire duly validated by experts using Good and Scates validation tool. The questionnaire was distributed to a total of forty- three (43) food facilities using purposive sampling technique. The participants on the survey were the owners, managers, and food handlers within the school vicinity of 10-meter radius. After the survey, interview, and personal observation, the data collected were tabulated, treated, analyzed, and interpreted.

### RESULTS AND DISCUSSION

The map that was created showed the exact location of the food facilities by garnering a grand mean of 4.8 from the experts which is interpreted as Very Accurate. Thru mapping, the researcher was able to clearly count the total number of food facilities and classified them according to the food that they serve to the students.

**Table 1. Food Facilities Profile**

No. of Food Facility	Classification
3	Bakery
1	Restaurant
2	Mobile Vendor
3	Coffee Shop
34	Confectionery
<b>Total 43</b>	<b>Food Facilities</b>

Table 1. presents the classifications and the total number of food facilities within the 10-meter radius of Northern Negros State College of Science and Technology main campus. These 43 food facilities were patronized and frequently visited because of their proximity and accessibility.

The researcher was able to validate the actual status of each food facility and the compliance of their food handlers to health requirements.

**Table 2. Food Facilities where Food Handlers has Acquired Health Cards**

With Health Cards	Without Health Cards	Total
38	5	<b>43</b>

Table 2. shows that food handlers and crew members of thirty-eight (38) food facilities have acquired health cards as one of the requirements in applying for a business permit. While the other five (5) has not complied because they didn't apply for a business permit but still continues to operate.

Likewise, the researcher was able to prove that food facilities primarily those within the school vicinity may be jeopardizing the health of the students due to the absence of sanitary inspection since all 43 has not been granted with the Sanitary Permit to Operate by the City Health Office.

**Table 3. Food facilities which Need Sanitary Inspection**

With Sanitary Permit	Without Sanitary Permit	Total
0	43	<b>43</b>

Table 3. reveals that all of these food facilities has never acquired sanitary permit to operate. During the interview, the owners and food handlers assumed that once they had the health card, sanitary permit is not necessary. They were never oriented and clarified that these two (2) are both required upon the start of business operation [5].

All the details that were gathered and collected by the researcher were sufficient enough to support the baseline data needed by the Joint Inspection Team. They may be able to conduct a comprehensive sanitary inspection to these food facilities on how they prepare their food, how they segregate waste, and how they manage the cleanliness in their respective areas. Through these, food poisoning, food mishandling, and food contamination will be avoided. The data will also be used by the school particularly by the Student Affairs Services to come up with a health education program that emphasizes food safety and proper sanitary measures.

**CONCLUSION AND RECOMMENDATION**

Sanitation is very important to ensure food safety and good health for our students. Without it, the food taken by them may be contaminated or mishandled. The result of this research study clearly showed the grass root reason why there's an absence of the Sanitary Permit to Operate; is that owners and managers of food facilities were not clearly informed that Health Card and Sanitary Permit to Operate are two (2) different requirements in business operation. It was noticeably an eye-opening for the Local Government Unit (LGU) of Sagay City because there are still food facilities that operate without complying to the standards of the city health office. Considering the number of food facilities that didn't undergo sanitary inspection will greatly affect the students and other patrons by consuming food that is not safely prepared thus, putting their health at risk. Another thing is that it is the responsibility of the local health unit and the business licensing office the education and re-orientation of the food facility owners and managers the requirements and processes of acquiring business permit by giving emphasis to the importance of sanitary inspection. Likewise, Northern Negros State College of Science and Technology, being an educational institution must extend its service to the community by assisting local officials in conducting a sanitary inspection and by providing an avenue for health education programs that will train food handlers the essentials of food safety and sanitation. The city health officials recommended that the College will serve as a role model by ensuring that all the canteen tenants are compliant and has been issued with the sanitary certificate. The Economic Enterprise office of the College also ensured and recommended to make sanitary certificate as one of the major requirements needed prior to the renewal of the contract of lease of every school canteen tenants.

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