METHODOLOGICAL STUDY IN THE CONDUCT OF FOOD STORES SURVEY

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INTRODUCTION

Researches on food environment seek to address questions pertaining to the who, what, when, where, why and how of food acquisition and consumption (Source: Food Environment Working Group Technical Brief).

Based on the 8th National Nutrition Survey (NNS), only 10\% of Filipinos grow their own food while the remaining 90\% are basically food consumers who depend on what is available in the market to buy their food. The same survey also shows that Filipinos with non-communicable disease (NCD) risk factors are on the rise. Consistently, their diet shows a decreasing intake of fruits and vegetables and an increasing intake of processed foods.

The DOST-FNRI conducts a regular Food Consumption Survey but only collects information on food intake at the level of the household and individual and not at the level of food stores and establishments. Although food stores and establishments are also great sources of information, the sampling methodology of NNS limits the data collection away from food stores and establishments. Thus, there are research gaps on what are the food choices available, and the affordability and quality of foods in different food stores in different community settings in the Philippines. In order to respond to these gaps, there is a need to develop a method for the conduct of Food Stores Survey.

This study aimed to pilot-test a methodology for mapping and characterizing the different food stores in Pulilan, Bulacan; Baler Aurora; Biliran Province; and Malita, Davao Occidental in 2016 and in Batanes Province in 2017.

MATERIALS AND METHODS

Pre- Pilot Survey Activities

- Academic experts in Food Environment Survey
- Literature search on previous works on food environment

Selection of sample areas

- 2 provinces
- 3 municipalities
- 1 highly urbanized city

Pre-survey coordination with LGUs

- Coordination visit to respective offices of the LGUs selected for the study

Field Data Collection

Preparation of electronic program

- Entry of questionnaires in the electronic data collection system (eDCS)
- Geographical Information System

Pretesting of survey tools

- Review, pretesting and refinement of questionnaires

Preparation of study protocol

- Identification of manpower requirement
- Training of researchers and team leaders
- Assignment of researchers, field movement and schedule, and overall planning

Training of researchers and team leaders

Open-ended questions on:

- Food store mapping
- Checklist of food items and other variables
- Perceptions and practices of household meal planner

Pre- Pilot Survey Activities

- Operational definition of food stores & type of food stores
- Questionnaire on: food store mapping
- Checklist of food items and other variables
- Perceptions and practices of household meal planner

Consultation

Review of related literature

- Literature search on previous works on food environment

Pre- Pilot Survey Activities

- Academic experts in Food Environment Survey
- Local Government of Taguig City
### Pilot areas/Number of sampled barangays

<table>
<thead>
<tr>
<th>Province</th>
<th>Municipality</th>
<th>No. of barangays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batanes</td>
<td>All municipalities</td>
<td>29</td>
</tr>
<tr>
<td>Biliran</td>
<td>All sampled municipalities</td>
<td>83</td>
</tr>
<tr>
<td>Aurora</td>
<td>Baler</td>
<td>13</td>
</tr>
<tr>
<td>Davao Occidental</td>
<td>Malita</td>
<td>30</td>
</tr>
<tr>
<td>NCR</td>
<td>Taguig City</td>
<td>10</td>
</tr>
<tr>
<td>Bulacan</td>
<td>Pulilan</td>
<td>19</td>
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</tbody>
</table>

### The Questionnaires

- **Form 1.1** Questionnaire on mapping, locating and identifying the type of food stores
- **Form 1.2** Questionnaire on food store checklist to determine food items available, quality and price

### Field Data Collection

1. Identifying all operational food stores in the sampled barangay with the help of barangay officials
2. Asking permission and consent from the store owners/staff to participate in the survey
3. Mapping and getting store coordinates through the GIS
4. Sampling for food store type with more than 50 representative stores
5. One-time accomplishment of Form 1.2
6. Encoding of data collected in the e-DCS

### RESULTS

#### Food store mapping

- **Baler, Aurora:**
  - **1,216 Total Food Stores**
  - Sari-Sari Store: Big (63.3%), Small (30.0%), Single Item Store: 4.7%
- **Brgy. Sabang:**
  - **150 Total Food Stores**
  - Sari-Sari Store: Big (63.3%), Small (30.0%), Single Item Store: 4.7%

Food store mapping can be further presented in smaller areas such as barangays. In Brgy. Sabang, Baler, Aurora, sari-sari store is also the most common type of food store. There are few areas with high food store density whereas there are areas without food stores.

From the coordinates collected from the field, location of food stores in a study area can be mapped and food store density can be visually determined. Areas with few or without food stores can easily be identified.

In this example, it can be easily observed that sari-sari store is the most common type of food store in Baler, Aurora. There are also areas in Aurora with few or without food stores.

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**Figure 1.** Sample map of different types of available food stores: Baler, Aurora, 2016

**Figure 2.** Sample map of different types of available food stores: Brgy. Sabang, Baler, Aurora, 2016
The methodology for characterizing and mapping the food stores in the sample area through the GIS was implemented successfully.

Challenges:

The need for capacity building in the analysis of food environment survey using GIS information to maximize the information.

To further improve the Food Store Pilot Survey Questionnaire and field survey operations for possible inclusion in the ENNS, the following are recommended:

- To provide operational definition of ‘operational food store’ to determine the comprehensiveness of the list of candidate food store.
- To change ‘food stores’ to ‘food retailers’ because food stores, as used in literature, also include stores selling dry and cooked food.
- To reconsider the basis for food store classification. The number of cash registers could be the basis for classification at the individual store level. Food stores can then be further classified according to variety of offerings, time of operations, frequency of operations and day of operations.
- To have a clear criteria to identify and describe when a food store and food establishment co-exists.
- To reconsider the sampling protocol for food stores. Provide details on how the sampling will be conducted specifically on determining the number of food stores in each survey area and on conducting the random sampling.

![Figure 3. Food store distribution by type by food store classification in pilot areas in the Philippines, 2016](image)

- Sari-sari store is the most common type of food store. About 8 in 10 food stores are sari-sari stores, regardless of geographic location.

![Figure 4. Proportion of stores selling selected food items in selected areas in the Philippines, 2016 & 2017](image)

- In all study sites, snack chips and candies were the food items most commonly sold, followed by sugar-sweetened beverages and alcoholic beverages. Fruits, vegetables, and fresh fish, meat, and poultry were less available.

### RESULTS

<table>
<thead>
<tr>
<th>Icon</th>
<th>Type of Food Store</th>
<th>Pulilan, Bulacan</th>
<th>Taguig City</th>
<th>Baler, Aurora</th>
<th>Malita, Davao Occ</th>
<th>Biliran</th>
<th>San Jose, Occ. Min</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Proportion (%)</td>
<td>Proportion (%)</td>
<td>Proportion (%)</td>
<td>Proportion (%)</td>
<td>Proportion (%)</td>
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<tr>
<td>All Sari-Sari Store</td>
<td>1,683</td>
<td>85.6</td>
<td>82.6</td>
<td>78.5</td>
<td>90.6</td>
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<td>Sari-Sari Store (Big)</td>
<td>1</td>
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<td>5.7</td>
<td>50.7</td>
<td>53.3</td>
<td>59.1</td>
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### CONCLUSIONS AND RECOMMENDATIONS