Assessing equity in access to healthy diets in Ecuador following the addition of food sovereignty to the constitution

by

Kelly Garton
B.A., McGill University, 2010

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE
in
The Faculty of Graduate and Postdoctoral Studies
(Population and Public Health)

THE UNIVERSITY OF BRITISH COLUMBIA
(Vancouver)
April 2014
© Kelly Garton, 2014
Abstract

**Background:** Ecuador shows high and increasing rates of diet-related non-communicable diseases, attributed in part to a nutrition transition toward more animal-based and processed foods. In 2008, Ecuador introduced the right to food sovereignty to its constitution in an effort to improve diets and protect local agricultural production. However, this has not yet translated to evidence of improved nutrition at the community level.

**Objective:** This thesis examines whether the promotion of food sovereignty has contributed to improving access to healthy diets for marginalized populations in Ecuador; if so, it asks how and to what extent, and if not, it explores the barriers to achieving change and opportunities for improvement. This project thus seeks to provide suggestions of entry points for policies and programs to improve access to and consumption of healthy foods.

**Methods:** Complementary qualitative methods were used to examine geographic access, food prices, nutritional knowledge and dietary preferences, and priorities for food policy improvement in three low-income neighbourhoods in the city of Machala, El Oro.

**Results:** Access to affordable healthy foods is still an issue as perceived by the study neighbourhoods. Poor nutritional knowledge, high relative cost of fruits and vegetables, and inequitable geographic access to affordable healthy foods were the main barriers to healthy eating. Price was the primary factor influencing food purchasing and consumption behaviours. Knowledge of the concept of food sovereignty and its inclusion in the constitution was nonexistent, as was the awareness of any new policies or programs implemented to improve access to healthy foods since 2008.

**Conclusions:** As there are no food sovereignty policies in place so far that address price, the affordability of healthy foods could be addressed either by improving the linkages between producers
and consumers to reduce intermediaries, or by adopting fiscal policies that subsidize healthy foods and tax unhealthy foods to help make healthy options more affordable and viable. These policy initiatives fall within the potential scope of a commitment to food sovereignty, but greater focus is needed as the government advances in the development of specific policies and programs in order to have an impact on population health.
Preface

This thesis contains the work from a study conducted by the candidate, Kelly Garton, under the supervision of Dr. Jerry Spiegel with guidance from Dr. Patricia Spittal and Dr. Hannah Wittman. The study used primary data collected by the candidate, with the assistance of Carlos Cabrera. The study design, data analysis, and writing of the manuscript were primarily the work of the candidate.

Sections of this thesis will be submitted for publication in peer reviewed journals. This research will also be published in the form of a policy brief by the International Development Research Centre, Ottawa, Canada.

Ethics approval for this study was provided by the University of British Columbia Behavioural Research Ethics Board (certification number H13-00625).
Table of Contents

Abstract ............................................................................................................................... ii
Preface .............................................................................................................................. iv
Table of Contents ............................................................................................................. v
List of Tables .................................................................................................................... vii
List of Figures ................................................................................................................... viii
List of Symbols and Abbreviations .................................................................................. ix
Acknowledgements ......................................................................................................... xi
Dedication ......................................................................................................................... xii

Chapter 1: Introduction .................................................................................................. 1
  1.1 Overview of the problem ......................................................................................... 1
  1.2 Literature review .................................................................................................... 2
    1.2.1 NCDs globally and the four main risk factors .................................................. 2
    1.2.2 Overweight, obesity, NCDs and unhealthy diets in Latin America & Ecuador .......... 4
    1.2.3 Obesogenic environments and the drivers of obesity ........................................ 7
    1.2.4 Food policy interventions for improving diets .................................................. 10
    1.2.5 Food security and food sovereignty ............................................................... 12
    1.2.6 Past & current food policies in Ecuador ......................................................... 14
  1.3 Framing the research ............................................................................................. 18
    1.3.1 Importance and rationale ................................................................................. 18
    1.3.2 Conceptual framework ..................................................................................... 19
    1.3.3 Specific research questions addressed by the study ........................................ 21
  1.4 Organization of the thesis ...................................................................................... 23

Chapter 2: Methods ..................................................................................................... 24
  2.1 Positionality ............................................................................................................ 24
  2.2 Ethics ...................................................................................................................... 25
  2.3 Justification of methods ........................................................................................ 26
    2.3.1 Participatory research ..................................................................................... 27
    2.3.2 Complementary qualitative methods .............................................................. 27
    2.3.3 Data analysis .................................................................................................... 30
  2.4 Setting ..................................................................................................................... 30
  2.5 Selection of study participants .............................................................................. 34
    2.5.1 Sources ........................................................................................................... 34
    2.5.2 Sampling method, recruitment, and sample size ............................................. 34
    2.5.3 Inclusion and exclusion criteria ....................................................................... 35
  2.6 Data collection procedures .................................................................................... 35
    2.6.1 Sources ........................................................................................................... 35
  2.7 Data analysis procedures ....................................................................................... 38
List of Tables

Table 1. Focus group questions………………………………………………………………………………..37
Table 2. Focus group characteristics…………………………………………………………………………..40
Table 3. Most common sources of salt, fats, and sugars among participants…………………………..46
List of Figures

Figure 1. Conceptual framework to categorize the determinants of and solutions for obesity .................8
Figure 2. Conceptual framework for the determinants of and solutions for obesity, and the role of Food Sovereignty as a policy intervention .................................................................20
Figure 3. Map of Machala and study neighbourhoods .............................................................................32
Figure 4. Study neighbourhoods and surrounding areas ...........................................................................33
Figure 5. Living conditions in Luz de America .........................................................................................34
Figure 6. Participatory map of food access points ...................................................................................42
Figure 7. Graph of most common food access points by distance from home, perceived quality, and relative price of products ........................................................................................................45
Figure 8. Supermarket cooking oil prices .................................................................................................50
Figure 9. Bundling of unhealthy products in TIA supermarket .................................................................501
Figure 10. Promotion and marketing of SSBs to children in TIA supermarket ...........................................51
Figure 11. Revisiting the conceptual framework for the determinants of and solutions for obesity, and the potential role of food sovereignty policies .................................................................61
List of Symbols and Abbreviations

BMI: body mass index

COPISA: Conferencia Plurinacional e Intercultural de Soberanía Alimentaria

ENSANUT: Encuesta Nacional de Salud y Nutrición

FG(s): Focus group(s)

GIS: Geographic Information Systems

IDRC: International Development Research Centre

INTI: Intervención Territorial Integral

KI#: Key informant

KII(s): Key informant interview(s)

LMIC(s): Low- and middle-income country(ies)

MIES: Ministerio de Inclusión Económica y Social (Ministry of Economic and Social Inclusion)

NCD(s): Non-communicable disease(s)

OW/OB: Overweight and obesity

P#: Participant

SES: socioeconomic status

SSB(s): Sugar-sweetened beverage(s)

TBT: Technical Barriers to Trade (Agreement)

TEG3: Think, Eat and Grow Green Globally research program
TFA(s): Trans-fatty acid(s)

UROCAL: Unión Regional de Organizaciones Campesinas del Litoral

WHO: World Health Organization

WTO: World Trade Organization
Acknowledgements

I would like to express my gratitude to the following people:

First and foremost, to my thesis supervisor Dr. Jerry Spiegel as well as my committee members, Dr. Patricia Spittal and Dr. Hannah Wittman, for their guidance throughout this research project; to Dr. Jaime Breilh for providing valuable insight and contacts during my field work; to Dr. Marcelo Lopez, for providing institutional support through the Universidad Tecnica de Machala, helping to open the necessary doors to carry out this project, guiding the selection of study sites, and generally being a valued ally throughout my field work; to my research assistants, Carlos Cabrera and William MacLeod, for their helpful contribution to this work; to Alberto Almeida, for his help with transcription and translation; to Dr. Kendra Mitchell-Foster, for introducing me to Machala and connecting me with a number of wonderful people; to all the faculty and staff of SPPH who helped to support my learning and development through this process, but especially to Beth Hensler for her tireless devotion to improving our program and encouraging its students; to my fellow SPPH students for providing a challenging and enriching learning community; to my friends and peers, Alden Blair, Caitlin Frame, Laura Dale, and Rabia Khan, for making my time at UBC fun and for always being there to share the highs and lows; and to the Non-Communicable Disease Prevention program team (in particular, my mentor Wardie Leppan) at the International Development Research Centre for converting me to the fascinating and important field of policy research for NCD prevention, and for providing me with the funding and mentorship that allowed me to carry out this research project to the best of my abilities.
Dedication

This thesis is dedicated to my parents, who have been the most influential supporters of my developing career. They have not only instilled in me the values and ethics that I bring to my work today, but also facilitated the exploration of the many adventures and exciting opportunities that ultimately led me to my current field.
Chapter 1: Introduction

1.1 Overview of the problem

Unhealthy diets are a growing problem globally, with significant consequences for public health, especially in the occurrence of non-communicable diseases (NCDs). There has furthermore been evidence assembled suggesting that social gradients are affecting healthy food choice (Cummins & Macintyre, 2005; Jeffrey & French, 1996). Achieving equity in access to healthy foods is not only important from a human rights perspective, but also key for reducing the burden of NCDs on health systems. It is becoming increasingly clear that interventions aiming to motivate individual behaviour change through education alone are not effective in improving dietary habits (Swinburn et al., 2011). Instead, broad based policies and programs are needed to modify the environments that drive unhealthy eating by regulating markets, controlling the food and beverage industry, and promoting a fairer distribution of healthy foods (Ceccini et al., 2010; Friel, Chopra & Satcher, 2007; Haddad, 2003).

Faced with a growing epidemic of obesity, persistent poverty, increasing gaps between rich and poor, and the inevitable stress of climate changes on global food systems and livelihoods, we are now at a crucial point for developing, implementing, and evaluating policies to improve food systems in terms of health, sustainability, and their ability to meet global population needs. Food sovereignty is a concept that aims to respond to this need by challenging how power is exerted in the global food system, moving away from the neoliberal status quo. However, despite its prominence as a rhetorical rallying cry, there has been limited study of whether changes have produced desired effects. Even in a country such as Ecuador that has formally embraced this ideal, there has not been an evident improvement in dietary outcomes – or clear identification of changes to pathways that promise to produce these effects. Thus, it is likely that there remain gaps in policy.
In this chapter, I will review key areas of literature relevant to the problem that has motivated this study, then present the specific research questions that oriented my thesis research. Finally, this chapter will conclude with an explanation of the organization of the thesis.

1.2 Literature review

1.2.1 NCDs globally and the four main risk factors

According to the World Health Organization (WHO) and a growing body of scientific literature, the incidence of NCDs is rising globally, especially in low- and middle-income countries (LMICs) (Alwan & WHO, 2011). NCD mortality also occurs at a younger age in LMICs, where nearly thirty percent of NCD deaths occur among people under the age of 60, compared to 13 percent in high-income countries (Alwan & WHO, 2011). There is a general consensus that the major risk factors for NCDs are i) tobacco use; ii) alcohol misuse; iii) unhealthy diets (high in saturated and trans fats, salt, and sugar, and low in fruits and vegetables); and iv) physical inactivity (Ezzati & Riboli, 2013).

Unhealthy diets and physical inactivity may manifest in a person becoming overweight (body mass index (BMI) > 25) or obese (BMI > 30) (OW/OB). This has the potential to contribute to serious health problems, as the risk of heart disease, strokes, and diabetes increase steadily with increases in BMI (WHO, 2002), as well as the risk of certain cancers (cancer of the breast, colon/rectum, endometrium, kidney, oesophagus, and pancreas) (World Cancer Research Fund & American Institute for Cancer Research, 2007). Even without an elevated BMI, an unhealthy diet poses health risks. High salt consumption is an important determinant of high blood pressure and cardiovascular risk (WHO, 2010), and high consumption of saturated fats and trans-fatty acids (TFAs) is associated with heart disease (Alwan & WHO, 2011). Such ingredients are often found in highly processed foods. Adequate consumption of fruits and vegetables, however, can reduce the risk for cardiovascular diseases (Bazzano, Serdula, & Liu, 2003), stomach cancer, and colorectal cancer (Riboli & Norat, 2003).
Furthermore, there is growing evidence of a social gradient in vulnerability to unhealthy diets. An inverse association between socioeconomic status (SES) and obesity has been observed in the United States, raising the hypothesis that this social class gradient could be explained by differential access to healthy foods (Jeffrey & French, 1996). Low SES is thought to reduce educational opportunities, leading to lower levels of the knowledge and behavioural skills needed to control weight; economic constraints, in turn, may limit behavioural options such as access to healthy foods, safe exercise, and to rewarding activities other than eating (Jeffrey & French, 1996). There seems to be a price incentive to eat unhealthier foods, as energy-dense foods tend to have lower cost (Drenowski, 2004). In terms of environmental influences, there is solid evidence that, in North America, there are neighbourhood-level environmental influences on diet and obesity, with healthier foods being generally more expensive and less readily available in poorer than in wealthier communities (Cummins & Macintyre, 2005).

According to the WHO, unhealthy diet is becoming more pervasive in lower-resource settings, with fat intake rising rapidly in LMICs since the 1980s (Alwan & WHO, 2011). The global “nutrition transition” is such that, in lower-income populations that historically have suffered from food shortages, undernutrition is increasingly being replaced—and in some cases accompanied by—overnutrition as economic development occurs (Kennedy, Nantel & Shetty, 2006). In a review of recent studies of OW/OB worldwide and new nationally representative surveys, Popkin and Slining (2013) report an increase in OW/OB across LMICs since the 1990s that is especially acute in Latin America and the Caribbean as well as the Middle East and North Africa. They observe that, not only is OW/OB rapidly increasing across most LMICs, there is a shift to increasingly high BMI levels among those who are overweight and also to increases in waist circumference at each BMI level—trends that indicate the growing potential for increased cardiometabolic problems (Popkin & Slining, 2013). Furthermore, the burden of sedentary lifestyles, nutrient-dense poor diets and obesity in LMICs is increasingly shifting to the poor (Popkin, 2004). Hawkes (2006) states that as high-income
groups in developing countries receive the benefits of a more dynamic marketplace, lower-income
groups may experience a convergence toward poor quality obesity-causing diets. Indeed, Monteiro,
Moura, Conde, and Popkin (2004) found that, in LMICs, the shift in the burden of obesity towards
people of lower SES tends to occur as the country’s gross national product increases, but that this
shift happens at an earlier stage of economic development among women than among men.

1.2.2 Overweight, obesity, NCDs and unhealthy diets in Latin America & Ecuador

In Latin America and the Caribbean the prevalence of OW/OB has steadily increased, at a rate of
approximately 0.31% per year between 1990 and 2010 (Popkin & Slining, 2013). This epidemic is
fuelled by high levels of consumption of energy-dense, nutrient poor foods and low levels of physical
activity, and is associated with rising rates of various NCDs such as diabetes, hypertension,
cardiovascular diseases, and some cancers (Rozowski, Castillo, & Moreno, 2005; WHO, 2012). The
rise in OW/OB prevalence in Latin America has been accompanied by a shift in diets (Rozowski et
al., 2005; Uauy & Monteiro, 2004). In this regard, nutritional habits generally show a tendency of
increased consumption of fats, saturated fats, and animal proteins, and of decreased consumption of
fruits and vegetables (Rozowski et al., 2005; Uauy & Monteiro, 2004).

In Ecuador, NCDs are estimated to account for 65 percent of all deaths, and approximately thirty
percent of these NCD deaths occur before the age of 60 (WHO, 2011). In particular, Ecuador has
shown an emerging trend toward higher levels of OW/OB, attributed in part to this nutrition transition
(Bernstein, 2008). In 2008, an estimated 50.8 percent of men and 59.2 percent of women were
overweight, and 15.2 percent of men and 27.4 percent of women were obese (WHO, 2011). Waters
(2006) found that the urban poor are at greatest risk because of factors related to urbanization,
including changing diets and lifestyles. Particularly in urban areas, the typical low-calorie diet from
predominantly plant-based sources has been replaced with high-calorie diets from animal sources and
rich in fat, sugar, and refined grains (Bernstein, 2008). The higher rates among women compared
with men, especially those living in cities, have been linked to cultural traditions, exposure to
extensive food advertising, greater physical inactivity, social marginalization, and lack of financial independence (Bernstein, 2008). A study of OW/OB in urban Ecuadorian adolescents found higher prevalence in coastal than highland cities, and higher levels in private schools than public schools, indicating that it is not simply a problem of the urban poor (Yepez, Carrasco, & Baldeón, 2008). This variation, moreover, suggests that differences may well relate to the uneven but sustained penetration of changing global food patterns to a national setting (Hawkes, 2006).

Results from the Encuesta Nacional de Salud y Nutrición (ENSA NT) survey conducted in 2012 have recently been released, providing disaggregated figures on the prevalence of OW/OB in Ecuador as well as new data on dietary consumption. Differences in prevalence were found among ethnic groups, between men and women, different age groups, and geographic regions and provinces. The indigenous population has a higher risk of stunting (a measure of chronic undernutrition), while Afro-Ecuadorians have the highest risk of OW/OB (Freire et al., 2013). OW/OB is much higher in the adult population (65.5% in women, and 60.0% in men), as the prevalence seems to increase with age (Freire et al., 2013). Being overweight is more common in men than in women, but obesity is more common in women than in men (Freire, 2013). Geographically disaggregated data shows that the El Oro province, on the southern coast, has the highest rate of adult OW/OB, at a figure above 75% (Freire et al., 2013). Results from this survey also show a troubling trend in child nutrition. The prevalence of OW/OB in children under five has more than doubled since 1986, from 4.2% to 8.6% (Freire et al., 2013). While the prevalence of stunting is still high in school-age children (ages 5 to 11) at 15%, the prevalence of OW/OB in this age group is 29.9% (10.9% overweight and 10.0% obese)—almost double the prevalence in 1986 (Freire, 2013). Furthermore, there is evidence of a “double burden” of over-nutrition and under-nutrition. The prevalence of school-age children with both stunting and obesity/overweight is 2.8% (Freire et al., 2013).

Other results from ENSANUT indicate some potential sources for the high rates of elevated BMI. The top five calorie sources in the national diet, by percent of total daily consumption, are: rice
(32.8%), bread (6.7%), chicken (6.3%), palm oil (5.2%), and sugar (4.9%) (Freire et al., 2013). Rice is by far the highest source of carbohydrates, at 47.3% of total daily consumption, followed by sugar at 8.3%; carbonated drinks rank sixth at 2.9% (Freire et al., 2013). The top sources of dietary fat in the population are: palm oil (20.0%), chicken (14.5%), bread (9.3%), beef (8.4%), cheese (7.1%), and whole milk (5.6%) (Freire et al., 2013). Consumption of processed foods (carbonated drinks and other sugar-sweetened beverages (SSBs), fast food, and sweet or salty snacks) is especially high among adolescents, with the highest levels in the top income quintile and the lowest levels in the bottom income quintile (Freire et al., 2013). Many of these foods are not part of the traditional low-calorie and predominantly plant-based Ecuadorean diet, but instead are products introduced and/or promoted by the neoliberal food regime. Palm oil, for example (one of the unhealthiest cooking oils due to its high saturated fat content (National Heart Lung and Blood Institute, 2008), is heavily produced in Ecuador. The state has played a role in the accelerated development and expansion of African palm production since before the 1970s through credit, land, and technological policies, leading the country to become the second largest palm oil producer in the Americas and the fifth largest in the world (Tiaguaro, 2011). Not surprisingly, this type of oil has the lowest market price in Ecuador. Fruit and vegetable consumption is higher among men than among women, but intake is consistently below the WHO recommended minimum daily 400g (five portions) for both genders in all age groups (Freire et al., 2013).

An increasing "supermarket culture" among the urban population may also be contributing to these increased rates of OW/OB in urban adults and children. This is partly due to international policies that increase foreign trade and extend the reach of transnational food corporations through direct and indirect pathways, bringing new, and more diversified, food products into developing markets (Bernstein, 2008). Another systemic driver of the nutrition transition is a conflict over resources between the international agribusiness industry–producing mostly for export–and small-scale farmers.
that produce food for national consumption. Marginalization of these small-scale producers decreases their economic viability and, consequently, their ability to feed local populations.

1.2.3 Obesogenic environments and the drivers of obesity

The circumstances influencing the adoption of unhealthy diets can be observed on different scales. Figure 1 provides an adaptation of the schematic representations introduced by Swinburn et al. (2011) and Friel, Chopra & Satcher (2007) to explain how influences at various scales affect energy imbalance and health. While individual behavioural risk factors are often framed as attributable for chronic disease, unhealthy diets, and OW/OB, these manifestations are increasingly being recognized as products of global trends and local environments (Swinburn et al., 2011). In the case of OW/OB, energy balance (intake through eating and expenditure through physical activity) is proximally determined by behaviours, but these behaviours are distally determined by social and physical environments. From this multi-scalar perspective, obesogenic (i.e. obesity-causing) environments are embedded within more distal systemic drivers of OW/OB (Swinburn et al., 2011).
The following factors have been observed to exert “upstream” influences on energy-balance behaviours:

- **Poverty**: reduces food choices. This is especially evident following the sharp increase in global food prices between 2006 and 2008; families have had to adapt their dietary practices, either eating less or buying foods with lower nutritional content (Eng, 2011).

- **Urbanization (rapid & unplanned)**: leads to rural-urban migration, with a decrease in the agricultural workforce. Rapid transition often means poor infrastructure for people to access healthy foods such as fruits and vegetables in urban areas. Due to the time constraints related
to increased distance between work and home, urbanization may also lead to more foods being purchased outside the home, which tend to be more processed (Haddad, 2003).

- **Globalization:** transforms the nature of agri-food systems, changing the type, quantity, cost, and desirability of foods available for consumption (Hawkes, 2006). This phenomenon therefore brings new and more diversified foods to LMICs (Waters, 2006) and alters social norms through the spread of global food advertising and promotion (Hawkes, 2006).

As the dynamics of poverty, urbanization, and globalization have intensified, policy-related trends in industry and trade domains have built up as well:

- **International and national policies, trade agreements, and Big Food:** also change the types and prices of products available (Hawkes, 2006). The neoliberal nature of the global food regime means that food is less regulated by governments and more under the control of the multinational agribusiness industry (in which a small number of corporations have a stronghold on the market) (Dixon et al., 2007; Stuckler & Nestle, 2012). Because global food consumption is increasingly determined by a few profit-driven multinational food corporations, often the cheapest and most available foods are highly processed products, high in salt, fat, and sugar content. Food processing increases palatability, shelf-life, and transportability of products, increasing their profit margin but decreasing their nutritional content (Stuckler & Nestle, 2012). “Big Food” (hereby used to refer to the multinational food and beverage industry) is a major driving force behind the global rise in consumption of SSBs and processed foods high in salt, fat, and sugar (Stuckler, McKee, Ebrahim, & Basu, 2012; Stuckler & Nestle, 2012).

The frameworks presented by Friel et al. (2007) and Swinburn et al. (2011) are similar, in that they both separate the factors contributing to obesity into different scales of influence, and distinguish the environmental from the individual-level spheres. The Swinburn et al. (2011) framework distinguishes
levels of influence into systemic drivers (policy and economic systems), environmental drivers (food supply and marketing), and environmental moderators (sociocultural, socioeconomic, recreation, and transport), behaviour patterns (high energy consumption and low expenditure) and resulting energy imbalance. It places the different types of interventions (policy interventions, health promotion programs/social marketing, and drugs/surgery) at their respective levels of influence. It also visually represents the population effect and political difficulty of potential interventions decreasing as the level of influence approaches the individual and physiological.

The Friel et al. (2007) framework focuses explicitly on the social determinants of inequality in obesity. The authors divide the greater context of drivers into the realms of socio-political, socio-cultural, socio-economic, and socio-environmental. These are shown to influence the categories of food environment, natural and built environment, and social environment, with a side-category of social stratification, each contributing to individual factors. Each of these categories is further elaborated with its specific elements. Figure 1 borrows elements of both representations and is the basis of the conceptual framework that I apply – and will use to introduce my research questions.

From Swinburn et al. (2011), it takes the overall conceptualization of scales of influence, the different interventions possible for each scale, and the decreasing population effect and political difficulty as the intervention target approaches the individual sphere. From Friel et al. (2007), it takes the subdivided “environment” categories as well as the detailed listing of the specific elements of each category that affect obesity.

1.2.4 Food policy interventions for improving diets

In light of the international agri-business industry’s control over the global food system and the global population’s decreasing agency in food beverage choices, opportunities for policies to stimulate greater equity in access to healthy diets and promote healthier eating assume particular significance as a possible countervailing force. Such policies must, of course, be cost-effective and otherwise feasible if they are to be implemented, especially in LMICs.
Population-wide “best buys” for tackling unhealthy diets, according to the WHO, include: reducing salt intake and salt content of food; replacing trans-fat in food with polyunsaturated fat; and promoting public awareness about diet and physical activity, including through mass media (Haddad, 2003) although this last strategy has been criticized for failing to produce changes in behaviour (Brambila-Macias et al., 2011) as well as having low modelled health effects and cost-effectiveness (Cecchini et al., 2010). In LMICs, population-wide dietary improvement may be achieved at a low cost through policies that reduce demand for and/or supply of foods high in fat, salt, and sugar, and increase the availability and affordability of healthy foods such as fruits and vegetables. These include: food-related fiscal policies, such as taxes on unhealthy products and targeted subsidies for fruits and vegetables; marketing regulations (advertising bans, product sales restrictions, and regulations on sales promotion); as well as food labeling regulations (Cecchini et al., 2010). Such is the focus taken by Canada’s International Development Research Centre (IDRC), an organization that supports the generation of evidence to inform the adoption and effective implementation of policies and programs in LMICs, through the work of its Non-Communicable Disease Prevention program (IDRC, 2013).

While these population-level policies targeting the systemic and environmental drivers of OW/OB are proposed to be the most cost-effective—and often cost-saving—due to their far-reaching impacts, they also tend to be the most difficult to implement politically (see Figure 1) (Swinburn et al., 2011). Pushback from Big Food is one of the major challenges in the development and implementation of such policies (“Bellagio Declaration 2013: Countering Big Food’s Undermining of Healthy Food Policies,” 2013). Industry tactics to prevent public policy initiatives include lobbying, lawsuits, promises of self-regulation, corporate social responsibility schemes that deflect criticism and draw attention away from harmful practices, and industry-funded research that confuses the evidence and keeps the public in doubt (Moodie et al., 2013). Evidence has been found that some of these tactics have been employed to counter the Mexican government’s attempts to prevent OW/OB through...
national policies (Barquera, Campos, & Rivera, 2013). It has been suggested that the promotion of food sovereignty is necessary to ensure food security by countering the processes of globalization and trade liberalization (Altieri & Toledo, 2011; Menezes, 2001). Such a commitment may result in increased opportunities for policies to stimulate greater equity in access to, and consumption of, healthy diets.

1.2.5 Food security and food sovereignty

Food security has been defined as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (Food and Agriculture Organization of the United Nations, 2002). Making adequate and safe food available and accessible (i.e. food security and safety) should be a major target, but “sovereignty” and “shareability”\(^1\) are concepts that question the ability of conventional free market-based approaches to provide all people access to adequate and safe food (Rehber, 2012). Trade liberalization, for example, often leads to the “dumping of agricultural surplus from wealthier to poorer countries in the form of food aid or through free trade agreements and extensive import/export markets”—practices that fail to support local food providers, local production, or local markets, and often result in the destruction of local seed varieties and crop diversity (Rehber, 2012, p. 360). This trend results in ever-increasing control by multinational agribusiness corporations over the food system, including the natural resources (land, water, seeds) required to produce food and beverages, and marginalization of smaller regional food producers.

Food Sovereignty is a social movement led by small producers and the international peasants’ movement La Vía Campesina, promoting:

---

\(^1\) Food shareability refers to the fair distribution of food – both between rich and poor countries, and between the rich and poor within countries (Rehber, 2012).
the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems ... [putting] those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations (Vía Campesina, 2007).

This critical alternative to the concept of food security was borne out of concerns surrounding the negative effects of an increasingly globalized and concentrated agri-food system, especially on the livelihoods, communities, and ecologies of groups such as peasant farmers, rural women, and indigenous people (Wittman, 2011). The concept of food sovereignty is rooted in the ideal of a rights-based and citizenship approach to food, and thus focuses on the right of local peoples to control their own food systems, including markets, natural resources, production modes, and food cultures (Wittman, 2011). In addition to a growing body of grass-roots and academic literature (Wittman, 2011), this conceptualization is receiving growing attention in global policy arenas, including the support of the United Nations Special Rapporteur on the right to food (Ziegler, 2004). Substantive concerns of the food sovereignty movement include trade liberalization and alternative trade regimes, agrarian reform, a shift to agroecological food production practices, protection of indigenous knowledge and intellectual property rights, and attention to gender and class relations and equity (Wittman, 2011). The movement also aims to reconnect producers and consumers through the localization of “food from somewhere” and diversify agricultural production and trade (Wittman, 2011). While originally focused on improving the relations of production, this equity- and sustainability-oriented vision for food systems that opposes the current neoliberal approach also has the potential to improve global food consumption and health (Patel, 2012).

There is sparse literature explicitly examining and testing the pathways between specific food sovereignty policies and dietary health or increased access to healthy foods for consumers, although this question is attracting growing attention (GHRP, 2013; Spiegel et al., 2012; Weiler et al., 2013). From this perspective, certain pathways can be plausibly hypothesized between a tangible political
commitment to food sovereignty and increased access and affordability of healthy foods. Resisting the take-over of natural resources—particularly land, water, and seeds—by large transnational food corporations aims to make domestic food production more diversified, viable and affordable. This could conceivably lead to improved rural development, poverty reduction, and an increase in the diversity and supply of locally produced fruits and vegetables. Connecting consumers to producers through shorter supply chains could lead to cheaper produce for consumers and greater revenues generated for producers. Reducing national dependence on volatile global commodity markets may contribute to reducing variation in food prices and avoiding the “dumping” of cheap processed foods. Greater involvement and power of the population in determining its own food system may lead to improved food production and processing practices. Finally, preserving nutritional culture—which may include restricting the advertising and marketing of processed foods and promoting traditional foods—could help to curb the consumption of unhealthy foods and increase the consumption of fruits and vegetables through more traditional plant-based foods.

1.2.6 Past & current food policies in Ecuador

When voters approved a new constitution in 2008, following a highly participatory process to address the challenges facing Ecuador at that point in time, the intent was “to bring an end to the neoliberal policies that had shifted wealth from marginalized peoples to elite corporate interests” (Becker, 2010). Notably, this debate occurred directly following the failure of a process to integrate Ecuador into a Free Trade Agreement, where small producers spearheaded resistance to this agreement that had succeeded in bordering Peru and Colombia (US Labor Protection in the Americas Project, 2007).

In the 2008 Constitution of the Republic of Ecuador, Title VI states that

*Ecuador will promote food sovereignty by transforming the national agro-food system; introduce organic and ecological technologies for sustainable agricultural production, adopt fiscal and redistributive policies to increase resources for farmers to protect the national...* 
economy from food import dependency and prohibit the use of biotechnology and genetically modified seeds harmful to human and environmental health (Peña, 2008).

The Constitutional Mandate for Agriculture – Number 16 establishes a financing model for a Food Sovereignty Program, with General State Budget money from petroleum revenues. The program would secure food sovereignty by giving agricultural subsidies to small producers and exporters (Peña, 2008). The Constitution commits to promoting several of the values brought forth by the social organizations involved in its development: i) short food supply chains and greater national self-sufficiency; ii) an agro-ecological conversion and free use of seeds; iii) establishing Ecuador as a country free of genetically-modified seeds; iv) support to peasants in accessing land, water, and credit; v) prohibition of concentration of land, and a social and ecological function for land use; vi) prohibition of monopolistic and speculative practices surrounding food; vii) the primacy of agricultural production for food sovereignty rather than agro-fuels; and viii) fair economy and a direct relationship between producers and consumers (Giunta, 2013). The Constitution also provides a guarantee of “participation of persons, communities, peoples, and nationalities” in the agri-food system and in matters of public interest through mechanisms of “representative, direct, and communitarian democracy” (Giunta, p. 13-14). The problems of this Constitution are not so much at the declarative level, but rather at the absence of any regulative component (Giunta, 2013). Furthermore, these points do not explicitly address the issue of consumer nutrition.

The government then developed and ratified the 2009 Organic Law of the Food Sovereignty Regime, aimed at establishing the mechanisms by which the State would assume the obligations and objectives outlined in the Constitution (Giunta, 2013). Again, however, this legislative development does not outline specific steps to achieve its desired outcomes, and has been called “light” by research and advocacy groups (Key Informant (KI) 3). Its general principles for a food sovereignty regime in Ecuador remain on a programmatic level rather than putting forward concrete regulations or measures and instruments (Giunta, 2013). In 2010, the government appointed the Conferencia
Plurinacional e Intercultural de Soberanía Alimentaria (COPISA) to coordinate a participatory debate for the implementation of the Organic Law of the Food Sovereignty Regime and development of nine subordinate laws, however this process was ongoing at the time of this study.

Since this constitutional change and its inclusion of the right to food sovereignty, there have been a number of related programs introduced that aim to improve food sovereignty and nutrition in Ecuador:

- The Ministry of Economic and Social Inclusion (MIES) developed a strategic plan for the program Aliméntate Ecuador in 2009. Its objectives are to improve access to food for vulnerable groups, provide learning spaces to promote healthy diets and dietary culture, prevent anemia and malnutrition in children, improve nutrition in the elderly population, strengthen the population’s capacity to organize itself with respect to its dietary and nutritional situation, and finally to promote a culture of healthy and sovereign eating, fair industry, and improved access and consumption of healthy foods through spaces called Plazas Buen Vivir (Gobierno Nacional de la República del Ecuador, 2009). The program reportedly reaches ten percent of the country’s total population, but up to 29% of the population between the ages of 0 and 14 (Almedio Consultores, n.d.).

- The program Intervención Territorial Integral (INTI) / Acción Nutrición – Desnutrición Cero was set to run from 2009 to 2015, and involves the Ministries of Health, Economic and Social Inclusion, Education, and Agriculture and Household. This initiative aims to improve health and nutrition of the population, with an emphasis on children under five and pregnant and breastfeeding women. Interventions target the determinants of malnutrition (mainly protein, iron, vitamin A, and zinc deficiencies). There are interventions in 27 cities with the highest rate of chronic infant malnutrition (mostly in rural indigenous regions of the Sierra, but also in the cities of Quito, Manta, and Guayaquil). Foci include environmental and household sanitation; nutrition and health services with special attention to children under
five, pregnant and breastfeeding women; provision of ‘el bono de salud’ (a social support subsidy); education of women and mothers in communities; family agriculture; formation of associations of small producers and peasant organizations; and food provision programs (Gobierno Nacional de la Republica del Ecuador, n.d.). The program had success in reaching a large number of the target population; more than 42,000 pregnant women and more than 74,000 children under five received nutritional monitoring, and the rate of anemia in the children reached was reduced by 21 points between 2010 and 2011 (Gobierno Nacional de la Republica del Ecuador, n.d.). However, the impact on nutritional outcomes is unclear.

- **Ferias Ciudadanas Solidarias** were initiated through the government’s Instituto Nacional de Economía Popular y Solidaria, which are new open-air markets. This initiative looks to generate spaces where food staples are brought directly from the producer to the consumer, helping to remove the intermediary step in the food system – increasing producer incomes and generating savings for the consumer. It requires the organized participation of small producers from each province (Instituto Nacional de Economía Popular y Solidaria, 2011). This initiative appears to still be in development.

- **Bares Escolares** is a program that restricts the sale of unhealthy foods to children in schools in El Oro province (and possibly a wider scale). Currently, not all schools are involved. From my own observations, even schools that have implemented this program still serve unhealthy food options.

As part of the nine supplementary laws it was charged to develop, COPISA proposed a law in April of 2013 relating to the nutritional and consumer health, which sought to further improve national food policy. This proposed law’s articles include, among others, establishing education programs on healthy nutrition, developing policies to make food prices more transparent and establishing price ranges, supporting and facilitating the direct provision of staple foods from producer and consumer through improved networks, regulating food labelling, and restricting marketing to children and
vulnerable groups (Comision Tecnica de Consumo, Nutricion y Salud Alimentaria (COPISA), 2013). This law has so far not been approved, and it may still have room for improvement in terms of its ability to address the country’s nutrition transition.

1.3 Framing the research

1.3.1 Importance and rationale

In 2008, as explained above, Ecuador became one of the first countries to introduce the concept of food sovereignty to its Constitution. This measure grants all persons and community groups the right to safe and permanent access to healthy, sufficient and nutritious food, preferably produced locally, sustainably, and in keeping with their various identities and cultural traditions. The purpose of this provision is to increase the availability and affordability of healthy foods by providing equity between urban and rural spaces, mainly through restructuring the country's agricultural sector. Such restructuring would “strengthen the development of organizations and networks of producers and consumers and the commercialization and distribution of foods” (Georgetown University Political Database of the Americas, 2011).

The circumstances being experienced in Ecuador accordingly provide a “natural experiment” for considering the feasibility and effectiveness of introducing this approach to address the challenge to NCDs being posed by unhealthy eating. If successful, this new constitution could provide a model that other countries in the region can emulate. As the government moves forward with its commitment to food sovereignty, the development of specific policies, programs, and initiatives should be informed by research on local food environments, including the knowledge, attitudes, beliefs, and behaviours of communities regarding nutrition and dietary choices. Such investigations into the food system can help to determine if gaps exist between policies aimed at strengthening food sovereignty and those they are meant to reach, in addition to opportunities and barriers for policy improvement. It is with a desire to contribute to such an orientation that this study was undertaken.
1.3.2 Conceptual framework

The theoretical basis for undertaking this study is that energy-balance behaviours (i.e. diet and physical activity) are driven by micro- and macro-environmental factors, and that this relationship is then moderated and mediated by personal factors, with opportunities for intervention at each level (refer back to Figure 1) (Kremers et al., 2006). This study focuses on the ways in which the physical, political, economic and sociocultural environments influence dietary behaviours in the study population, and the opportunities for policies and programs to modify these environments in a way that promotes healthier eating. Specifically, it examines the ability of food sovereignty legislation to contribute to this outcome. Figure 2 conceptualizes where and how food sovereignty policies and programs could ideally target the determinants of OW/OB.
Figure 2. Conceptual framework for the determinants of and solutions for obesity, and the role of Food Sovereignty as a policy intervention. Policy areas are numbered [#] and determinants that would conceivably be addressed by Food Sovereignty are denoted with an asterisk (*).

As previously noted, there is sparse literature explicitly examining the pathways between food sovereignty and improved nutrition and population health, and therefore the role of such policies in targeting the determinants of obesity have merely been hypothesized. For example, resisting the takeover of natural resources by large transnational food corporations (policy area 3) could lead to improved rural development, poverty reduction, and an increase in the diversity and supply of locally produced fruits and vegetables. Connecting consumers to producers (policy area 2) through shorter supply chains could conceivably lead to cheaper and healthier produce for consumers alongside greater revenues generated for local producers—although this is sharply contested by proponents of
agro-industrial agriculture who criticize “locavorism” (e.g. Desrocher & Shimizu, 2012), showing the importance of empirical research on such questions. Geographically connecting producers and consumers (policy area 3) could also increase market access. Reducing national dependence on volatile global commodity markets (policy area 1) may reduce variation in food prices and avoid the “dumping” of cheap processed foods. Greater involvement and power of the population in determining its own food system (all policy areas) may lead to healthier food production and processing practices. Finally, preserving nutritional culture (policy area 4)—which could include restricting the advertising and marketing of processed foods and promoting traditional foods—may help to curb the consumption of unhealthy foods and increase the consumption of fruits and vegetables through more traditional plant-based foods. Therefore, the environmental determinants that could conceivably be targeted by food sovereignty policies include: trade agreements, production, processing, distribution, labelling, advertising, and food prices; land use, and physical market access; and financial capacity to purchase healthy foods, nutritional knowledge, and social norms with regards to eating habits.

By investigating dietary habits in a sample of the study population, I aim to identify certain areas of the physical, political, economic and/or sociocultural environment that could be seen as relevant barriers to healthy eating, which could then be better targeted by policy and programs in order to achieve food sovereignty and improve diets.

1.3.3 Specific research questions addressed by the study

The overarching research question that I sought to explore in this thesis is whether or not the promotion of food sovereignty has contributed to improving access to healthy diets for marginalized populations in Ecuador. More specifically, I ask: if so, how and to what extent, and if not, what are the barriers to achieving change and what are the opportunities for improvement?
Recognizing that the inclusion of food sovereignty in Ecuador’s Constitution opened up consideration of such a question, which also has great resonance for other settings, but that there have not yet been specific measures explicitly operationalized to translate this policy orientation into desired outcomes, I conducted an exploratory qualitative study to better understand the issues at play, the possibilities for intervention, and the perspectives of key actors, especially the populations most at risk of not enjoying access to healthy diets.

This study is a situational analysis of food access in three marginalized peri-urban neighbourhoods of Machala, El Oro. It seeks to identify where gaps in food sovereignty policy currently exist, as demonstrated through the knowledge, experiences, and perceptions of community members surrounding food choices, and through discussions with key stakeholders and decision-makers.

The objectives of this study are to:

1) Describe the current food landscape in Machala, identifying the main sources of food for the study population and the most commonly purchased foods

2) Explore the issues surrounding food access and consumer choices

By addressing these objectives, I aimed to identify where and if gaps exist in policies that have sought to promote food sovereignty since the addition of this concept to the Constitution in 2008. This process should enable the identification of priorities, opportunities and barriers for developing specific food sovereignty policies to improve the local food landscape.

The study utilizes focus groups and participatory mapping as means to allow the researcher and community to collaboratively address these objectives, applying a method that may be replicated in other settings. It also applies key informant interviews and direct observation of the food environment.
In light of the literature on the drivers of the obesity/NCD epidemic in Latin America and the current state of legislation in Ecuador, my hypothesis was that there remain significant barriers to healthy eating for at least certain groups in Machala, and that there are opportunities for policies and programs to lessen these barriers and cost-effectively improve dietary habits in the population.

Furthermore, while a growing body of literature has developed to address barriers and facilitators to healthy eating (Shepherd et al., 2006; Story, Kaphingst, Robinson-O’Brien, & Glanz, 2008), this study will be one of the first to explicitly consider this topic in relation to the increasingly popular concept of food sovereignty.

### 1.4 Organization of the thesis

Following from this introduction, this study is organized in the following manner: Chapter 2 provides a description of the methods used to answer the research questions, including the study setting, selection of participants, data collection procedures, analysis plan, and steps taken to ensure the study was carried out to a maximal ethical standard. Chapter 3 presents the findings of the research. Chapter 4 provides a discussion of the results, including their relation to the current literature on policies to promote healthy diets in LMICs and potential challenges to the development and implementation of various policy measures. It will also mention the limitations of the research undertaken, and how these may affect interpretation of the results. The final chapter will conclude with a summary of important results, and implications for policy development and future research.
Chapter 2: Methods

This qualitative study followed a participatory approach in answering the research question and achieving the stated objectives. Methods used included focus groups, a participatory mapping exercise, key informant interviews, and direct observation. Data was collected over an 80-day period in the city of Machala, El Oro, following which a thematic analysis of recorded transcripts and field notes was performed.

2.1 Positionality

In conducting this study, I presented myself as a student who was working with universities with a history of conducting community-based research in the area. The feasibility of conducting the study of these neighbourhoods was especially provided by the existence of a well-established Canadian-Ecuadorian global health research collaboration linking the University of British Columbia with four Ecuadorian universities, including the Technical University of Machala (Spiegel et al., 2011) with funding support from the Canadian International Development Agency’s University Partnerships in Cooperation and Development Program. This particular research project was further supported by the presence of the multi-year “Food systems and health equity in an era of globalization: Think, Eat, and Grow Green Globally (TEG3)” research program that grew out of this partnership, with funding from the Canadian Institutes for Health Research. The undertaking of this project was additionally facilitated through funding and support from IDRC’s Non-Communicable Disease Prevention program. I also endeavoured to be sensitive to the sociocultural and power differences between the participants and myself; this was facilitated by the engagement of my research assistant, a fifth-year medical student from Machala, in the majority of community interactions as well as in the development of focus group and interview question guides. His assistance further enhanced the study by minimizing the miscommunications that could be expected in a research project undertaken by an outsider for whom the local language is not their mother tongue.
2.2 Ethics

Each potential participant was informed of the research aims, activities, associated risks and benefits, and their ability to withdraw at any time, in order to obtain informed consent. This was done in a manner that was accessible to all participants, including those who are illiterate, in which case verbal consent was obtained. Data from the participant profiles remained confidential. Because confidentiality cannot be guaranteed within focus group discussions, participants were assured that all names would be removed from transcripts and would not appear in the final results. The study data was all stored on a password-protected computer, in a locked apartment. After the field work concluded, it was moved to a locked filing cabinet. For pictures taken, oral consent was given by the subjects to include their name and image in the report.

As much as possible, the research took into account gender and socioeconomic inequities, and strove to include the most vulnerable groups. An effort was also made to ensure that the results are relevant and accessible to participants and the community. A knowledge translation session was held on July 20, 2013, at the Casa Comunal in Luz de America, to disseminate the key results and next steps, which was attended by approximately 10 participants. All participants and community members were invited, as well as other stakeholders including the director of the health sub-centre, the director of the university medical school, and representatives from an association of small-scale organic agricultural producers from the region. A presentation was also given at the local elementary school, to provide health education tailored to the specific area, based on the preliminary findings of the study. Finally, I will prepare a policy brief in English and in Spanish, to be sent back to participants, community members, and all relevant stakeholders. Connection with the TEG3 project will allow for follow-up and further knowledge translation, and the opportunity for continuity.
2.3 Justification of methods

The purpose of this research is to provide a situational analysis of food access in the study area, in order to inform consideration of how promotion of the concept of food sovereignty can or cannot contribute to improving equity in access to healthy diets. The objectives of this study are to: 1) describe the current food landscape in Machala, identifying the main sources of food for the study population and the most commonly purchased foods; and 2) explore the main issues surrounding food access and consumer choices. The specific research question that I sought to explore in relation to these objectives was whether or not the promotion of food sovereignty has contributed to improving access to healthy diets for marginalized populations in Ecuador; if so, I aimed to explore how and to what extent, and if not, I sought to identify the barriers to achieving change and opportunities for improvement.

Food access is commonly conceptualized as having five dimensions, based on a definition presented by Penchansky and Thomas (1981). These include: i) availability (store density or presence, shelf-space, product availability or variety); ii) accessibility (distance, travel time); iii) affordability (price); iv) acceptability (quality); and v) accommodation (such as hours open). Based on their review of studies examining the relationship between food environment and diet, Caspi and colleagues suggest using a combination of objective measures (such as mapping neighbourhood store density with geographic information systems (GIS)) and subjective measures (e.g. surveys of perceived access or affordability of foods) to capture more dimensions of food access (Caspi, Sorensen, Subramanian, & Kawachi, 2012). However, these methods are not very participatory in nature, and also may not always be feasible in LMIC settings. Furthermore, these five dimensions of food access do not explain more exogenous and upstream influences on dietary behaviours such as advertising and government policies (Caspi et al., 2012).
2.3.1 Participatory research

Because this study is examining sovereignty in relation to food systems, by nature it should be participatory. Community-based participatory research (CBPR) has been touted as a viable approach to understanding and closing the gaps that exist in the determinants of health such as access to good-quality health care, the practice of healthy lifestyles, the quality of physical and social environments, and policies that impact these areas (Israel, Eng, Schulz, & Parker, 2005). A CBPR approach can promote equity in the research by sharing power with and engaging community members in the research process (Israel et al., 2005), seeking out the voices and opinions of the most vulnerable, and encouraging them to frame their own priorities for the outcomes of the study. True CBPR should involve the community in the formulation of research questions, in decisions surrounding the approach to study design, and in the analysis of results (Chevalier & Buckles, 2014), and therefore this type of approach typically requires more long-term engagement with the community. While this level of engagement was not viable for the current study, this situational analysis endeavoured to promote equity as much as possible by taking a participatory approach to investigating the stated research questions. The methods used in this study were therefore participatory adaptations of the commonly used methods of GIS, surveys, and store audits, following a qualitative approach.

2.3.2 Complementary qualitative methods

Qualitative methods are valuable in providing rich descriptions of complex phenomena, allowing researchers to reveal the experience and interpretation of events of different actors and to give voice to those whose views are rarely heard (Sofaer, 1999). These methods are also useful in conducting initial explorations to develop theories and to generate and test hypotheses, in order to move toward explanations (Sofaer, 1999). As is typical in case studies, a set of complementary qualitative methods was used, generating a more comprehensive set of data to address the research objectives (Sofaer, 1999). The combining of methods—or triangulation—is also a strategy used to improve the validity and reliability of the research (Golafshani, 2003). Data was collected primarily from focus groups,
key informant interviews, and a participatory mapping exercise, but also from a short participant
survey and direct observation. This election was based on the following rationale:

**Focus groups**

Focus groups are less structured than surveys; they involve bringing together a group of individuals
with a certain profile of characteristics to explore a limited number of “focus questions” (Sofaer,
1999). Participants are able to collectively voice their own opinions, concerns, and priorities rather
than the researcher dictating a narrow set of questions.

Schensul, LeCompte, Nastasi and Borgatti (1999) discuss the benefits and disadvantages of using
focus groups for data collection. On the one hand, group interviews generate a large amount of data
in a relatively short time period, and from a larger number of people than would be possible by
interviewing individual key informants only (Schensul et al., 1999). They also allow the researcher to
record and analyze group members’ reactions to ideas and to each other (Schensul et al., 1999). This
method also allows the researcher to observe any social dynamics related to the research question
(Bryman, 2012). Finally, this exercise brings out “natural language discourse” that allows the
researcher to learn local expressions terminology, and communication patterns quickly and concisely
(Schensul et al., 1999). On the other hand, focus group facilitators must be well-trained and
experienced—with a solid understanding of the conceptual framework of the study, the breadth and
scope of information to be obtained, and the ability to be flexible in finding appropriate ways of
asking questions—in order to obtain good focus group data (Schensul et al., 1999). An incompetent
facilitator can therefore limit the quality of the data to be collected. Additionally, the quality and
validity of the information can be influenced or hampered by the composition of the focus groups,
and the interaction of participants’ personalities (Schensul et al., 1999). Furthermore, the logistics of
recruiting and holding formal focus groups can be complicated, especially when participants come
from communities unaccustomed to this practice or when supports such as childcare, translation, or
transportation are necessary (Schensul et al., 1999). This method is often used to gain exploratory
information for theory formulation, and is usually applied to complement other qualitative methods (Schensul et al., 1999).

**Participatory mapping**

Participatory mapping—as opposed to more “objective” GIS analysis—aims to harness the indigenous spatial knowledge of affected communities about land resources and their use (Nackoney, Rybock, Dupain, & Facheux, 2013). The approach evolved from the more extractive Rapid Rural Appraisal, and is now used for a variety of initiatives throughout the world, especially in the context of resource planning (Corbett, 2009). The process involves the depiction of spatial information by a group of non-experts who are related based on a shared interest or characteristic. It can help to build community cohesion, stimulate community members to engage in land-related decision-making, raise awareness about important land-related issues, and ultimately contribute to empowering local communities and their members (Corbett, 2009). The specific tools used and level of community involvement vary depending on the research topic and objectives, capacity of participants, and technology available, and the breadth of tools available makes participatory mapping a highly flexible method that is valuable in development initiatives (Corbett, 2009). It has the potential to provide rich data that is both visual (the maps produced) and auditory (the conversations) (Emmel, 2008). The health applications of participatory mapping have ranged from larval surveillance for vector-borne disease (Berrang-Ford & Garton, 2013; Dongus et al., 2007), to the mapping of food environments through youth photography (Dennis, Gaulocher, Carpiano, & Brown, 2009).

**Other complementary methods**

A short participant survey on community demographic characteristics and health status was used to provide background (Sofaer, 1999). Direct observation was also used to complement the data generated from the participatory methods, and documented in a field diary (Sofaer, 1999). Key informant interviews (KIIIs) were conducted to gain greater insight into the processes at play in the study community and also in the realm of food policy development. Key informants, according to
Marshall (1996), are able to provide more information and a deeper insight into what is going on around them as a result of their personal skills or position in society. The main benefit of this method is the potential to obtain high quality data in a relatively short period of time (as opposed to interviewing other members of a community) due to this individual’s level of insight (Marshall, 1996).

2.3.3 Data analysis

A process of thematic analysis, a common approach to qualitative data analysis, was applied using the computer-assisted qualitative data analysis software called NVivo to analyze the focus group and interview transcripts (Bryman, 2012). In this process, transcripts or field notes are read and re-read to identify recurring patterns in the data, and possible linkages to theoretical perspectives. Using an inductive and deductive approach, the researcher can begin with a set of codes that connect with the hypothesis or conceptual framework, code the data line-by-line, and later identify the concepts and relationships that emerge from the data (LeCompte & Schensul, 1999). The use of computer-assisted qualitative data analysis software facilitates the analysis process by allowing the researcher to view all the data relating to any given code or theme through the use of simple queries (Bryman, 2012).

2.4 Setting

This study was carried out in three neighbourhoods in the southern peri-urban parish (called “9 de Mayo”) of the city of Machala, El Oro, between May 31st and July 25th, 2013. Machala was chosen because it is a good example of a coastal city with a high percentage of land surface area used for medium- and large-scale agricultural production (10.14 – 15.73% of the land in its canton) and a low concentration of small-scale food producers (0.07-3.81% of land surface area)(Hidalgo, Gómez, Maldonado, Santillan, & SIPAE, 2011). As an agricultural hub with heavy influence from the transnational agribusiness industry and increasing marginalization of small-scale producers (Hidalgo et al., 2011), it is a prime setting in which to examine patterns of food production and consumption, as well as opportunities for enhancing the networks and linkages between local producers and
consumers. Although data on Machala’s overweight and obesity rates are unavailable, El Oro province reportedly has the highest provincial rate of adult OW/OB, at more than 75% (Freire et al., 2013).

The neighbourhoods of 9 de Mayo parish are relatively high-density, and are heterogeneous in terms of income levels, demographics, precariousness and living conditions (Equipo de salud del SCS Venezuela, 2013). The economic situation of most residents is determined by their insertion in the labour force. Common economic activities among residents of 9 de Mayo are agriculture, fishing, construction, public works, private sector, informal work, domestic work, and artisanal production, but many families also receive financial remittances from elsewhere (Equipo de salud del SCS Venezuela, 2013). The population of this parish is multicultural and multiethnic, with some coming from the upper El Oro province, and others from other areas of the country such as Loja, Esmeraldas, Manabí, and Azuay (Equipo de salud del SCS Venezuela, 2013). There is a low level of basic service provision in this area, most notably the lack of potable water and sewer system in most neighbourhoods (Equipo de salud del SCS Venezuela, 2013).

The three neighbourhoods involved in this study were “San Francisco” (approximately 218 households), “12 de Mayo” (approximately 55 households), and “Luz de America” (approximately 262 households). These neighbourhoods were selected with the assistance and contextual knowledge of local experts, including the director of the medical school at the Technical University of Machala, and the director of the local health centre. These sources indicated that, in comparison to other neighbourhoods in Machala, these neighbourhoods are characterized by low household incomes, high unemployment, limited access to services, high levels of both communicable and non-communicable diseases, but a relatively high level of social organization.
Figure 3. Map of Machala and study neighbourhoods

The old airport (see Figure 4) to the North of the parish acts as a geographic barrier, as it is surrounded by a concrete wall, and until only recently there was no path cutting through the empty land. This meant that every trip to the city centre had to circumnavigate this large area, increasing the travel distance, time, and cost. Buses still do not cross the area, but taxis will sometimes drive through.
The neighbourhoods are bounded to the South by shrimp farms. The land is walled off and flooded most of the time. There is an open canal running along the southern border of these neighbourhoods, carrying waste and creating a health risk for residents (see Figure 5). Houses along the southern edge of Luz de America are built on top of these canals. This entire area does not have proper sewage and water delivery.
2.5 Selection of study participants

2.5.1 Sources

Participants were recruited mainly from the three study neighbourhoods. Key informants were selected based on the five criteria of eligibility described by Tremblay (1989): role in the community, knowledge, willingness, communicability, and impartiality. As this last criterion is difficult to fulfill in practice, the informant’s positionality was taken into account during analysis.

2.5.2 Sampling method, recruitment, and sample size

Participants were recruited with the help of the neighbourhood presidents and the director of the local health sub-centre, as it was found that flyers and posters inviting the community to an informational recruitment meeting were ineffective. These key gate-keepers introduced me to influential...
community members, who were then asked to invite others from the neighbourhood. This combination of snowball and opportunistic sampling was deemed the best possible option given my time constraints, but can also have the benefit of revealing and capitalizing on the connectedness of individuals in networks (Bryman, 2012).

There were 30 participants in the focus groups (six focus groups in total). Five key informants were interviewed on the health and nutrition situation in the study area, and the process of health- and food-related policy development in Ecuador. Because the research is qualitative, there was no minimum requirement for sample size, but rather sampling was done until theoretical saturation was achieved.

2.5.3 Inclusion and exclusion criteria

Participants had to be over the age of 18, and be one of the main household members involved in the purchasing and preparation of food. Initially, residence in one of the three neighbourhoods was a criterion, but exceptions were made due to difficulty of recruitment, as long as the participant resided within the parish of 9 de Mayo. As it is a fairly small area, it was deemed that the participants living in adjacent neighbourhoods would have similar experiences. An effort was made to include both male and female participants, from different socioeconomic levels and working in various industries. In reality, the participants tended to be mostly women, and each focus group was generally comprised of people living within the same neighbourhood, with similar socioeconomic profiles. There was some variation in socioeconomic profiles between the focus groups.

2.6 Data collection procedures

2.6.1 Sources

The data was collected from a series of focus group sessions (six) and key informant interviews (five). Participants were also asked to fill out participant profiles before each session, which provided
a background on their individual and household demographic, socioeconomic, and health status (see Appendix A for full version in Spanish).

Direct observation was done in markets, corner stores, and grocery stores. This included documenting the prices of different foods at different points of access, as well as their nutritional information when available. This data was organized to form a general ranking of perceived food quality encompassing nutritional value, freshness, hygiene, and safety of food and beverages. General food purchasing behaviours were also observed and documented.

### 2.6.2 Protocol for a typical subject

As mentioned previously, each participant was given and asked to sign an informed consent form detailing, in Spanish: the study topic and aims, the research team and their contact information, participant activities, any associated risks and benefits, remuneration, and procedures for withdrawal from the study. This information was also given verbally, and assistance was given to any person who was not able to read or write. Participants were encouraged to ask questions before consenting to be included in the study. After consent was given, focus group participants were asked to fill out, to the best of their ability, their participant profile. Again, assistance was given when needed.

Participant profiles asked for: name, age, gender, contact information, neighbourhood of residence, number of people living in the household by age category (children, adolescents, adults, elderly), number of household members with an income, approximate monthly household income, occupation, receipt of social assistance through the El Bono de Desarrollo Humano program (yes or no), personal health conditions (diabetes, hypertension, overweight, nutritional deficiency, cancer), household health conditions, and biometric data (height, weight).

The focus group question guide was prepared, in Spanish, with the help of my local research assistant to ensure the cultural appropriateness and clarity of the questions. The focus groups generally lasted from one to two hours, and were held in the local daycare building, the Casa Comunal (a community
On one occasion, a focus group was held in the street. The following questions were asked (see Appendix B for the full question guide in Spanish):

Table 1. Focus group questions

<table>
<thead>
<tr>
<th>Dietary practices, knowledge and influences</th>
<th>Please describe your household’s typical diet at breakfast/lunch/dinner/snacks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How much sugar/oil/salt does your family consume, and in what do you use it? What type or brand do you use?</td>
</tr>
<tr>
<td></td>
<td>How frequently does your family drink soft drinks/juice/teas/milk/water/coffee, and how much do you consume?</td>
</tr>
<tr>
<td></td>
<td>What are the eating habits of your children at school/at home? Is there a difference between what children and adults eat? What do your children snack on? What are children’s food preferences? What kinds of advertising are your children exposed to, and through what media?</td>
</tr>
<tr>
<td></td>
<td>What does your family eat on special occasions?</td>
</tr>
<tr>
<td></td>
<td>What did your parents and grandparents eat, and is it different from what you eat now?</td>
</tr>
<tr>
<td></td>
<td>What do you consider “healthy food”? What do you consider “unhealthy food”?</td>
</tr>
<tr>
<td></td>
<td>What influences your food choices?</td>
</tr>
<tr>
<td></td>
<td>Do you read food labels?</td>
</tr>
<tr>
<td></td>
<td>From where do the majority of the foods you buy originate? From within Ecuador, or are they imported?</td>
</tr>
<tr>
<td>Food Sovereignty and nutritional campaigns</td>
<td>Have you heard of Food Sovereignty? Were you conscious of the inclusion of this right in the Constitution? What does it mean to you?</td>
</tr>
<tr>
<td></td>
<td>Are you conscious of any programs or policies in Machala or in the area that aim to improve diets or access to local foods?</td>
</tr>
<tr>
<td></td>
<td>Have you seen any changes in the availability or accessibility of food in the last 5 years? In the last 10 years? Have you seen a difference in food prices in this time? Have you seen a change in what people eat in this time?</td>
</tr>
<tr>
<td>Priorities</td>
<td>For you personally, what do you think is the most important issue—in Machala or in your community—related to nutrition, access to healthy foods, and health?</td>
</tr>
<tr>
<td></td>
<td>What would be your priorities in the development of programs and policies to improve nutrition?</td>
</tr>
<tr>
<td>Receipt of results</td>
<td>What would you like to receive as results from this study?</td>
</tr>
<tr>
<td></td>
<td>In what form would you prefer to receive the information?</td>
</tr>
</tbody>
</table>

These sessions also included contribution to a neighbourhood participatory map. Participants were asked to indicate, on a large paper map of the parish, their sources of food. We then discussed and recorded the types of food they typically access in these places, the prices of these different foods,
and from where they originate. We also discussed places where participants do not go to access food, and their reasons. At the end of the activity, we summarized as a group the distance they travel to access food, the types of food and drinks they buy most, the prices of different foods they buy, and the origin (domestic or imported) of most of their purchased foods.

Interviews were under one hour long, held in the home or office of the participant. They included open-ended questions on the state of the study neighbourhoods’ health, education, nutritional and physical activity habits, and associated policies or programs implemented by the government. Again, a culturally-appropriate question guide was developed with my local research assistant, in Spanish. Participants were also asked to state, in their opinion, the most important issue in the area pertaining to health or nutrition, and their priorities in the improvement of health and nutrition in the area.

**2.7 Data analysis procedures**

**2.7.1 Focus groups and interviews**

Transcripts from the focus groups and interviews were transcribed and translated by a bilingual contracted assistant, which I subsequently reviewed twice for quality and loaded into NVivo8 for thematic analysis. Thematic analysis involved reading through the data three times to produce codes. An initial set of hierarchical codes was established, based on my research questions, hypotheses, and preliminary understandings from the sessions (barriers to healthy eating, policy gaps, knowledge, priorities for improving policies and programs). Initial line-by-line coding was used to generate a large number of “free nodes,” or concepts that came out of the data (Bryman, 2012). These were then grouped and arranged based on hierarchy and in relation to each other and to the conceptual framework, to distinguish dominant themes or categories (Bryman, 2012; LeCompte & Schensul, 1999). Selective coding was then done, to ensure saturation in the core categories (Bryman, 2012). An audit trail was maintained throughout this process to document any analytical insights and decisions surrounding coding (LeCompte & Schensul, 1999).
2.7.2 Participatory map and direct observation

Information from the participatory map and direct observation of the food environment provided context and background to complement the analysis. The documented prices of different foods at different points of access were organized into a relative ranking of food prices at different locations (which included associated travel cost). Products’ nutritional information and notes on product freshness, hygiene, and safety (including whether a product was conventionally-grown, with chemicals, or agroecologically-produced) was organized to form a general ranking of perceived food quality (encompassing nutritional value, freshness, hygiene, and safety of food and beverages). These two ordinal variables for food sources were then compared to their approximate distance from the home.
Chapter 3: Results

3.1 Participant characteristics

In total, 30 residents of the southern neighbourhoods of 9 de Mayo parish participated in the focus group sessions. Table 2 shows some of the characteristics of the different focus groups. There were six focus groups held, four of which were made up of women only, and two of which included participants of both genders. Focus group recruitment and organization was based on neighbourhood of residence. Based on information from the participant profiles, there was some variation in socioeconomic levels between the groups.

Table 2. Focus group characteristics

<table>
<thead>
<tr>
<th>Focus group</th>
<th>Number of participants</th>
<th>Main neighbourhood</th>
<th>Gender composition</th>
<th>Average age (range)</th>
<th>Average monthly household income</th>
<th>Socioeconomic level within sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>FG1</td>
<td>4</td>
<td>San Francisco</td>
<td>Female</td>
<td>55 (47-65)</td>
<td>250$ (few dependants)</td>
<td>Middle</td>
</tr>
<tr>
<td>FG2</td>
<td>5</td>
<td>Luz de America</td>
<td>Mixed</td>
<td>57 (28-71)</td>
<td>200$</td>
<td>Lowest</td>
</tr>
<tr>
<td>FG3</td>
<td>3</td>
<td>Luz de America</td>
<td>Female</td>
<td>53 (41-66)</td>
<td>417$ (few dependants)</td>
<td>Highest</td>
</tr>
<tr>
<td>FG4</td>
<td>11</td>
<td>12 de Mayo</td>
<td>Mixed</td>
<td>51 (36-83)</td>
<td>428$ (0-4 dependants)</td>
<td>Middle</td>
</tr>
<tr>
<td>FG5 &amp; FG6</td>
<td>6</td>
<td>Luz de America</td>
<td>Female</td>
<td>35 (27-51)</td>
<td>256$ (2-6 dependants)</td>
<td>Lowest</td>
</tr>
</tbody>
</table>

Although the participant profile questions were optional, and many left blank, the responses indicate that OW/OB, diabetes, and hypertension are indeed problems in the community. Most participants were unable to provide accurate biometric data with which to calculate BMI, but eleven of the 30 participants self-identified as being overweight, and over half of the participants were observed to be overweight. Six participants reported having diabetes, and nine reported having diabetes in the family. Six participants reported having high blood pressure, and five reported having it in the family. Four participants reported suffering from anemia or another nutritional deficiency.
3.2 Describing the food landscape: food purchasing and consumption practices

3.2.1 Point of purchase, food quality, prices, and origins

The participatory map (see Figure 6) provided a picture of where food is accessed by community members. Most households buy the bulk of their food weekly or bi-weekly at the Feria Libre local open-air market (which is only held Monday mornings) or the market in the city centre (called the Mercado Central). The main supermarket (“TIA”) is in the city centre as well, but most people do not purchase much there because it is perceived to be expensive. Tiendas (corner stores) are the most proximate, and are usually only for last-minute needs, as they offer much less variety and charge much higher prices. Their products are also the least healthy, and mostly consist of packaged, processed foods high in salt, fat, and sugar. Restaurants are usually only frequented on special occasions. Participants typically do not access foods anywhere else because the travel (and associated cost) is prohibitive.
Figure 6. Participatory map of food access points. Green arrows: The Feria Libre open-air market (held Monday mornings only) and central market (Mercado Central, pointing out of frame); blue arrows: tiendas; yellow arrows: restaurants. The supermarket “TIA” is in the city centre, shown by the white arrow pointing out of the frame. These are by no means exhaustive – the map includes only the access points identified by the participants. The study neighbourhoods are shaded in blue (San Francisco), orange (12 de Mayo), and purple (Luz de America).
It is also important to note the differences in how participants perceived quality of the products offered between food sources, as well as price. Here, “quality” encompasses nutritional value, freshness, hygiene, and safety of food and beverages, along the lines of the definition suggested by the Food and Agriculture Organization of the United Nations (2004).

**Tiendas**

Foods offered in *tiendas* have the lowest quality from a nutritional standpoint, as it is mostly packaged and processed goods, which are high in salt, fat, and sugar. Some examples of foods sold in *tiendas* include: *chifles* (deep-fried plantain chips), cookies, ice cream, flavoured yogurts, and other snack foods; oil; salt; rice; noodles; and other staples. Commonly sold drinks include: water, milk (whole), chocolate milk, and SSBs including carbonated beverages, bottled juice, or tea-flavoured drinks. Some produce items are offered (e.g. bananas, plantains, tomatoes, onions, limes, potatoes) but these are in small quantities and are often less fresh than those sold in markets and supermarkets. Prices of *tienda* foods are the highest compared to markets and supermarkets, with some participants claiming that they “charge double” the price one would find at the markets. Typically, foods sold in *tiendas* are produced and/or processed in Ecuador.

**Markets**

The *Mercado Central* in the city centre has the greatest variety of fresh fruits and vegetables, but the poor hygiene of market stalls, streets, and products is seen by some community members as a major quality issue affecting the “acceptability” of these products. In the words of one participant, “*all that over there is unhygienic. Over there, it’s barbaric. It almost scares you to buy from there... because it is contaminated over there*” (FG2). The *Feria Libre* has a lower variety of products but is visibly more hygienic than the *Mercado Central*, although this comparison has not been empirically studied. However, as it occurs on Mondays, the products offered in the *Feria* are sometimes thought to be less fresh “cast-offs” from the weekend markets that happen elsewhere in the city, also decreasing their acceptability in the eyes of the consumer. Prices are comparable between the *Mercado Central* and
the Feria Libre, and are among the lowest in the city. Prices at one source may be higher than the other, depending on the day and the product.

Generally, foods sold in the markets are produced either in the highlands or in the coastal region of the country, depending on the product. The producers themselves typically do not sell their products in the markets. Intermediaries buy up all of their products at a low price, and then mark up the prices to sell in the markets. According to a key informant from the Unión Regional de Organizaciones Campesinas del Litoral (UROCAL), a regional association of agro-ecological producers, the intermediaries hold the majority of the market power in the agricultural food system (KI5). This arrangement can be attractive to producers due to the uncertainty of being able to sell enough at markets as well as the logistical difficulty of travelling to markets in terms of time and access to transport (KI5).

**Supermarkets**

The most commonly mentioned supermarket by focus group participants is called TIA, located in the city centre, at a distance of approximately 5 kilometres via road network. Foods sold here are perceived to be much more hygienic than those sold in the markets. Most are produced and/or processed within-country, but some come from other countries in the region. While the supermarket has a large variety of foods, including a small fruit and vegetable section, a significant portion of the products sold are packaged, processed foods high in fats, salt, and sugar. Supermarket prices are higher than those at the markets, but lower than those at tiendas.

**Organic market**

Few of the participants reported ever shopping at the organic farmers’ market (popularly called the Feria Orgánica), which is located near the city centre, just west of the Mercado Central and TIA. This market offers fresh agro-ecologically produced fruits and vegetables from the coastal and the highland regions, brought and sold by the producers themselves. Here, because of the lack of
intermediaries, prices are comparable to the markets but the products are “clean” and “free of chemicals.” Their agro-ecological status is verified, as the producers must belong to monitored associations in order to sell at this market. However, study participants felt that prices would end up being higher with the added cost of transport to and from this market. Because of low demand, insufficient supply, and limited capacity for producers to physically access these markets, the Feria Orgánica is currently only held every second Saturday.

When food access points are charted based on their average distance from the home, the perceived quality of the products, and relative prices thereof (see Figure 7), we can see that generally the quality of foods increases the further one travels. With the exception of the tiendas, prices also tend to be higher for higher quality foods. Almost no one shopped at the supermarket or the organic market, because of price and distance. The focus group participants who had slightly higher incomes were able to access most of their foods weekly or bi-weekly at the markets, but the poorest participants were forced to buy small quantities at a time at the local tiendas.

![Figure 7](image_url)

**Figure 7.** Graph of most common food access points by distance from home, perceived quality, and relative price of products. This graph situates the different food sources by approximate distance from the home, and quality of the foods offered (nutritional value, freshness, hygiene and safety). The size of the dot shows the relative prices of foods offered.
3.2.2 Commonly consumed foods and beverages

Data from focus group discussions revealed that diets are commonly high in starches and sugar, fats, and salt, and lower in vegetables and lean proteins. Table 3 shows the most frequently mentioned dietary sources of these problem-nutrients in the focus group discussions. Field notes from observations in markets and grocery stores provide additional insight on consumer behaviour and the composition of commonly consumed foods and beverages.

Table 3. Most common self-reported sources of salt, fats, and sugars among participants

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salt</td>
<td>As added ingredient to rice, soups, salads, etc.</td>
</tr>
<tr>
<td>Fats</td>
<td>Palm oil, dairy products, processed foods, chicken</td>
</tr>
<tr>
<td>Sugar</td>
<td>Sweetened beverages (fresh and bottled fruit juices, coffee, carbonated drinks), packaged snacks</td>
</tr>
<tr>
<td>Starches</td>
<td>White rice, green bananas and plantains, potatoes, yucca</td>
</tr>
</tbody>
</table>

Salt consumption was mainly reported as an added ingredient to prepared foods such as rice, soups, and salads. However, it is likely that many people are unaware of the sodium they consume through processed foods, as ingredient lists and nutritional labels are not typically read, and consumption of processed foods appears to be widespread.

Although TFA consumption appears to be low in the local diet (many processed foods are labelled free of trans-fats), saturated fat intake is high. Palm oil, which has a high percentage of saturated fat, is the most popular type of cooking oil (and also the least expensive). It is often used to fry foods, and to keep foods from adhering to a pan while cooking. The dairy products consumed are also typically high in saturated fats, as are other processed foods.

*Panela* (raw sugar), is often used as a natural sweetener, and is viewed as a healthier option than white sugar. However, this perception often leads to more of it being used in food and drink preparation. Large amounts of starches such as white rice, plantains, and potatoes are often used as “filler,” especially in low-income households. Again, sugar consumption is likely higher than the average person is aware, as it is often found in high amounts in processed, packaged foods.
Common sources of dietary protein include lentils, beans, eggs, chicken, fish, and shrimp. The most commonly mentioned fruits and vegetables in focus group discussions were bananas, tomatoes, onions, citrus fruits, pineapple, broccoli, corn, and carrots. Conventional production of these foods involves the heavy application of pesticides and growth accelerators. Traditional dishes typically include rice and/or plantains, some vegetables, and a protein (often legumes, but sometimes also meat or seafood).

Common beverages include carbonated drinks, packaged fruit drinks with high sugar content and low levels of real fruit juice (around 3%), and other SSBs; freshly made natural juices (with added sugar); and water. It is important to note that drinkable water can be as expensive as SSBs in these neighbourhoods. Water service is privatized, with the majority of households being delivered non-drinkable water to rooftop tanks. Potable water typically must be bought in bottles or large jugs.

3.2.3 Changes in diets – the nutrition transition

Most participants reported a change in diets from the food consumption habits of their parents’ and grandparents’ generations. Participants frequently mentioned a decrease in the variety of foods available and consumed. Many participants also noted a change from “naturally produced” foods to everything being “full of chemicals”. This is well exemplified by a focus group conversation between male and female participants:

*P1:* In the past, they had everything... everything that they harvested. Everything... and everyone would eat whenever they want.

*P2:* Whatever they would harvest, they would eat.

*P1:* Everything was more natural. Now, everything has...

*P2:* Chemicals! (FG2)

A group of female participants stated:
**P1:** The food from the past is very different from what we have now [...] Because now there are a lot of chemicals. In the past, everything was natural, organic... everything was beautiful. People themselves would live longer. Now it’s all bad.

**P2:** They had less artificial products. All the chemicals we use now... we live off these chemicals now. (FG6)

This concern for the now-pervasive use of chemicals in food production was echoed in all focus groups, by both male and female participants. With regards to changes in the nutritional quality of foods, a female participant declared, “there have been a lot of changes to food in comparison to the past. It used to be healthier, more nutritious. Now, you have to do more exercise...” (FG4).

These observations are consistent with the literature documenting a general nutrition transition in Ecuador and in Latin America (Rozowski et al., 2005; Uauy & Monteiro, 2004).

### 3.3 Issues surrounding food access: systemic and environmental drivers

We now examine the main systemic and environmental drivers of these food purchasing and consumption habits. These include aspects of the food environment, the natural or built environment, and the social environment.

#### 3.3.1 Food environment

Food environment influences on dietary habits include all aspects of the food system, from trade agreements to production, processing, distribution, marketing and advertising, prices, and labelling of foods. Through focus group discussions of these factors, food prices particularly stood out as a primary driver of consumer behaviour.

**Price**

Price was the main deciding factor in consumer choices. When asked how they prioritize when purchasing foods, no participants mentioned “healthiness” or nutritional value, but rather volume or
quantity for price was the most common influential factor. In the words of one female focus group participant, “we take... whichever one gives us more... we look at the quantity” (FG1). Another participant showed that locations offering lower prices are prioritized even when a person knows of the health risks of purchasing food there; in her words:

*The people from here look for cheaper prices at the Mercado Central. But that place is crap, that market. I go there and I still think it’s crap... I may be poor, but I can see when it is so dirty.* (FG2)

Prices vary from week to week, with the power mostly held by the intermediary, and have been increasing overall. When asked if they had seen a change in what people purchase and consume in relation to price increases over the last five years, one female participant stated,

*The majority, yes. They buy things that they need in the house. They buy things that are cheaper. In exchange, they have changed what they eat. Because before they would eat... more or less... a nice porkchop... or they would buy crabs... or meat... and now, no. Chicken is, now... it is the only thing they eat.* (FG6)

Direct observations of the food environment showed that pricing mechanisms also promote lower-quality and unhealthier choices. Figure 8 shows the various options for cooking oil at the supermarket. As the options get healthier, their price increases. Palm oil (which has up to 51% saturated fat) is by far the cheapest option, and the most popular. The same type of pricing mechanism is true for milk (where whole milk is cheaper as compared to reduced fat, and even more so with fat-free milk).
Figure 8. Supermarket cooking oil prices. Top left - palm oil: 51% saturated fat, 1.99$; Top right - soy oil: 15% saturated fat, 2.49$-2.89$ ("light"); Bottom left - sunflower oil: 12% saturated fat, 2.99$-3.25$; Bottom right - canola oil: 7% saturated fat, 3.29$-4.39$.

This type of differentiated pricing is not out of the ordinary in the neoliberal market – similar patterns can be observed in many processed foods, and this is in large part due to factors such as the amount of processing or transport required, and demand. But for groups whose food choices are mainly constrained to maximizing quantity for cost, this can presumably have a negative impact on dietary health.
It is also common to see sales promotions bundling unhealthy products, especially in the supermarkets (see Figure 9). The marketing of unhealthy foods and beverages to children, for example through the use of animated characters (see Figure 10), is another important component of the food environment.

![Figure 9. Bundling of unhealthy products in TIA supermarket](image1)

![Figure 10. Promotion and marketing of SSBs to children in TIA supermarket](image2)

**Labelling**

Although nutrition labels are now common on packaged foods and may soon be required throughout Ecuador (COPISA, 2013), none of the participants reported ever reading one, nor knowing how to read nutrition labels or ingredient lists. This indicates a need for improved consumer education programs surrounding product composition, but perhaps more importantly, an improved labelling system. This will be discussed further in Chapter 4.

**3.3.2 Natural and built environment**

Aspects of the natural and built environment that influence energy expenditure and consumption include urban design, land use, transport modes, public facilities, and access to markets. Those
that could potentially be targeted by food sovereignty policies, as per the hypothesized pathways mentioned in section 1.3.2, include land use and market access. Geographic access to sources of affordable, healthy foods was identified as the main natural/built environmental factor influencing food purchasing and consumption behaviours among study participants.

**Distance to markets**

Distance (through travel time or added cost) is a barrier to accessing better quality or more affordable foods for study participants. For example, to travel to the organic open-air market near the city centre, the taxi costs 3.00$ each way, significantly adding to the cost of accessing these healthier products. Although some shopping locations—such as the large supermarket in the mall on the outskirts of the city—are reportedly cheaper, the distance is a significant barrier for residents of the southern neighbourhoods, who for the large part do not have access to personal vehicles and who may not feel safe using the bus system to travel home with their purchases. As one group of participants mentioned,

*P1:* My sister says that at the shopping mall, the things are cheaper. Maybe because it’s farther away... We have bought from there but that doesn’t happen often.

*P2:* Sometimes when we are downtown and we are nearby, we can stop by there to buy a few things. It’s cheap over there... I go by bus and then on the way back, by taxi.

*P3:* When you are bringing everything back [from downtown], you can’t go like that on the streets.

*P2:* Sometimes, when I’m coming back the streets scare me. I don’t go on the bus. (FG3)

Also related to distance is the time associated with the travel. With regards to the supermarket in the mall, a pair of female participants stated:

*P3:* To go there, I have to take four busses

*P4:* There and back... there and back...
Four busses. You have to have the whole day free... at home, we are short on time. We don’t have someone to help us. We have to do everything ourselves. (FG1)

As the closest food sources are the local tiendas, these are the most viable options for persons with limited mobility or time. This includes not only persons with physical disabilities, but also mothers or caretakers of young children at home. As explained in section 3.2.1, these locations typically offer the unhealthiest food options, as the majority of the products offered are of the processed, packaged snack-food variety.

3.3.3 Social environment

Social environment determinants of obesity that were hypothesized, in section 1.3.2, to be potentially targeted by food sovereignty policies include: nutritional knowledge within the population, social norms regarding eating habits, and financial capacity to purchase healthy foods. This section presents insights of participants regarding the role of these dietary influences.

Nutritional knowledge

As previously presented, the majority of participants are aware of the health dangers posed by the chemicals conventionally used in food production and processing, but most feel that this situation simply “cannot be changed.” There is, however, greater variability in nutritional knowledge and awareness among the study sample.

When asked what they consider to be “healthy food,” a large number of participants replied “fruits and vegetables.” However, these respondents often voiced concerns that it is not possible—nor desirable—to eat only vegetables. Other participants declared that chicken and fish are healthier options than beef. It was more difficult to elicit a clear or decisive response when asking participants what they consider to be “unhealthy food.” Examples of “unhealthy foods” mentioned by participants include: “junk food” (though this term was undefined); bread (“for the flour”); mayonnaise; meat, eggs, and shrimp (because of cholesterol); “sweets”; fried foods; hamburgers (for high fat); margarine (for containing “more fat than oil”); and white sugar (as
opposed to brown sugar or *panela*). On occasion, participants referred to sunflower oil or options labelled “Light” as better choices as opposed to palm oil. Only one participant mentioned that consuming less salt is better for health.

A thorough examination comparing the notes and transcripts from focus groups sessions with participant profiles revealed that participants who had been diagnosed with diabetes tended to have a better concept of what constitutes healthy nutrition than their non-diabetic counterparts. This is likely due to post-diagnosis education from healthcare personnel. One such participant stated, in reference to her eating habits pre-diagnosis, “*I didn’t know... and I didn’t think about it. The sweets… too many sweets*” (FG1).

Key informant interviews of personnel at local health and educational institutions also indicated that nutritional knowledge and awareness is lacking in these neighbourhoods. “*They don’t apply it,*” said one informant, “*but I also do think that there still lacks knowledge*” (KI2). This informant explained that, although the health system has made progress in educating the public regarding nutritional deficiencies, especially in children and pregnant women, there are significant shortfalls in public education surrounding overnutrition and the risk for NCDs:

> A lot of work needs to be done. A lot... It’s like now it is a cultural thing, you know? The people, at times... I think that people do have knowledge about this but they don’t apply it... Yes, they eat poorly. A lot of carbohydrates... a lot of fat, fried foods. (KI2)

Certain participants expressed the need and desire to learn more about healthy nutrition, from a qualified authority, especially to clarify conflicting information. “*We need them to educate us and tell us what we are doing well and what we are doing badly,*” declared one female participant (FG4).

**Social norms**

As implied by the key informant statement above (KI2), social norms and customs do appear to perpetuate certain dietary behaviours. When asked why they—and people in the neighbourhood
in general—buy what they do, one female participant mentioned, “what happens is that... well for us, how do I say... from childhood, this is how they raised us... with these types of food that we eat” (FG1). The idea that healthy eating means consuming “only legumes every day” is common, as is the view that this is not a viable option. Eating habits are ingrained, as well. Another female participant stated, “we buy the same things every week, you could say. There is nothing else to buy. Chicken, beef, fish, mortadella, cheese... and then the next week, you buy the same thing” (FG1).

A culture of unhealthy eating may be particularly difficult barrier to address. A statement by one key informant highlights the shortcomings of current strategies to effect behavioural change through health and nutrition education:

        We [the health teams] have spent days talking, talking, and talking, but we never get there. But we have to find the way to get [through] to them. Maybe change our methodologies, the techniques used to reach out to them. Take these topics to the community, involve the community so that they... so that they can tell us the ways in which we [can] help solve these problems and involve them so that they are part of the solution. Because on the contrary... I don’t see changes [happening]. (KI2)

Current educational initiatives are evidently not sufficient to change the food purchasing and consumption habits in these neighbourhoods, leading us to examine another more important factor: poverty.

**Financial capacity**

Financial capacity, or poverty, is the main limiting social factor in food purchasing and consumption in these neighbourhoods. This was by far the most commonly cited barrier to healthy eating among participants, and was mentioned in every focus group. Statements of certain participants indicate that, even when they are aware that what they consume is unhealthy, they feel powerless to change this behaviour due to lack of money. This view was especially prevalent
among participants living in Luz de America—one of the most marginalized neighbourhoods in the study sample. In the words of one female participant from this neighbourhood, “we are talking about whether we can actually feed ourselves well... but sometimes you can’t do it. This is life over here. This is life in our neighbourhoods... Honestly, we don’t have enough money to afford good nutrition” (FG2). A young single mother from the same area confirmed this assertion:

    If we could only buy the things that are good for us... we wouldn’t be able to eat anything.  
    ...We can’t afford to buy everything with the money in our pockets... if we wanted to, the doctor says don’t eat this or that... but what are we going to eat with what we are given?

(FG6)

This finding alludes to the more upstream or systemic drivers of unhealthy diets in Machala. Although not explicitly mentioned by participants in the focus groups or interviews, underlying systemic poverty, inequality, and marginalization are contributing to the trends we are witnessing in diets and chronic disease in Machala. For example, participants from the lowest socioeconomic levels spoke about the high rates of unemployment in their neighbourhood, the precariousness of their living conditions, and barriers to accessing health care as major concerns affecting their ability to live well.

It is clear that, regardless of nutritional knowledge, poverty restricts food choices and forces households to engage in unhealthier eating habits. This is especially true for the most marginalized groups in Machala.

3.4 Perspectives on food sovereignty and other interventions

Almost none of the participants had ever heard of the term “food sovereignty,” or knew its definition. One male participant recalled having heard the term on television, but could not describe what it meant to him (FG4). None were aware of the inclusion of the right to food sovereignty in the new Constitution of 2008. It was therefore more difficult than expected to
ascertain the community’s perspective on how, and to what extent, the government’s commitment to food sovereignty is contributing to improving nutrition at the community level.

Questions therefore focused on whether or not participants had perceived any change in access to or affordability of healthy foods in the past five years—aspects that relate to the hypothesized consumer experience of food sovereignty, without invoking this specific term. According to one female participant, “[the price of foods] has gone up more than anything else” (FG6). When probed further on whether this has changed people’s consumption habits, another female participant affirmed that people have switched to buying cheaper foods, and enjoying less variety in their diets (FG6).

The rest of the participants mentioned either a rise in food prices, or no change at all in access to healthy foods in the past five years. Regarding the other dimension of food sovereignty, relating to control over one’s food system, conclusions can be inferred from participants’ statements throughout the focus group sessions. Statements on the inescapable and pervasive use of chemicals in food production and the inability to afford good nutrition show a lack of feeling of agency in their food system.

Participants were mostly unaware of any interventions that had been implemented since the 2008 constitutional change with an aim of improving nutrition or access to healthy foods. One participant stated that the feria libre had been “brought to the neighbourhood by the President” within the past five years (FG1), but this was disputed by participants of the other focus groups. Participants of one focus group did mention that there is now more attention to the healthiness of the foods served in schools: “some of those things had a lot of mayonnaise... that they would feed the kids. [...] They are a little more controlled now. Now, we are educating ourselves a little bit” (FG4).

The general lack of awareness of the concept of food sovereignty and related policy developments among the community indicates that, despite discursive attention by the state on the
right to food sovereignty, this is not translating to improved access on the ground, nor to 
increased awareness of this right for these urban consumers.

### 3.5 Concerns and priorities for improvement of policies and programs

When asked for their priorities in the development and improvement of policies and programs 
related to the food system in their area, the resounding response of participants was to lower 
prices. Women in one focus group said:

\[ P3: \text{At least lower the prices so that one could buy everything they need for their home} \]

\[ P1: \text{They need to be cheaper. Of course. (FG6)} \]

Other participants made similar statements, such as “it needs to be cheaper in the markets. Same 
for what they sell in the tiendas” (FG3). In another focus group, price regulation was also 
specifically mentioned as a priority. A female participant stated, “there should be controls on 
prices between stores, farmer’s markets, everywhere. For example, if you go this week, it is a 
specific price. If you go next week, it’s another price. So, they never maintain prices here” (FG4).

Finally, participants also stated the need to bring healthy foods closer to home. Specifically, “that 
the ferias [farmers markets] come to different sectors” (FG4). One male participant stated,

\[ \text{“for example, if the feria [organic market] came right around here, with fresh products, at} \]
\[ \text{the end of the week, because during the middle of the week people almost never have any} \]
\[ \text{money...so if it happened at the end of the week, it would be great since it would be closer.} \]
\[ \text{So, the people would only have to go there.” (FG4)} \]

Some participants mentioned a need for more nutritional education as well. One female 
participant, with regards to her priorities, stated, “it could be prices because sometimes, if one 
doesn’t have enough to buy... and also more knowledge, and to know more... as I say, I see it that 
way. To learn more... to learn what is healthier” (FG1). However, this was not mentioned as 
frequently as price and distance.
Financial and geographic access to foods are therefore two priority areas for policy intervention, as perceived by the community, to improve nutritional habits for obesity prevention. Another important priority for intervention was to reduce the use of chemicals in food production.
Chapter 4: Discussion

4.1 Key results in relation to policy options

The results of this study supported my hypothesis, which was that there remain significant barriers to healthy eating for at least certain groups in Machala following the constitutional commitment to food sovereignty, and that there are opportunities for policies and programs to lessen these barriers and cost-effectively improve dietary habits in the population.

The study area in general displays a lack of sources of affordable, nutritious food that is acceptable in terms of freshness or hygiene and accessible in terms of distance to point-of-sale and times offered. It is notable that the poorest residents of these neighbourhoods expressed barriers to accessing the more affordable products sold at the Mercado Central—due to cost of travel—and the Feria Libre—due to insufficient funds to buy food for the family for an entire week at a time. Residents are concerned about the amount of chemicals in their food, but feel that this cannot be changed. Consumption of processed, packaged foods high in salt, fats, and sugar is widespread, as is the use of palm oil, which is high in saturated fat. No participants reported reading nutrition labels or ingredient lists, or knowing how to interpret this information. While nutritional knowledge tends to be lacking and social norms may perpetuate poor eating habits, there is evidence that even in cases where people are aware of the un-healthiness of their habits, they feel unable to change this behaviour due to constrained financial capacity. Participants were unaware of the concept of food sovereignty, its inclusion in the 2008 Constitution, nor of any policies or initiatives implemented with the goal of targeting access to healthy foods. Participants’ priorities in the development and improvement of policies and programs to improve access to healthy foods and eating habits in the community were primarily in the realms of price decreases, reduction of chemicals used in production, and in the availability of healthy foods closer to home.

Based on the results presented, price and geographic distribution of healthy foods stand out as two key areas affecting equity in access to healthy diets in the context of Machala. Revisiting the
conceptual framework that guided this study (see Figure 11), these factors connect with aspects of the food environment, natural and built environment, and social environment, and are affected by the national policies and trade agreements associated with the larger policy and economic system. These factors fall within the potential scope of the role of food sovereignty, and could best be targeted by a set of related policy interventions.

Figure 11. Revisiting the conceptual framework for the determinants of and solutions for obesity, and the potential role of food sovereignty policies. Factors related to price are outlined in red, and factors related to geographic access are outlined in green.

4.2 Potential entry points for policy intervention

Adopting a comprehensive set of well-targeted policy actions to create an environment conducive to nutritious, healthy diets (such as restricting the marketing of foods and beverages to children, improving the provision of healthy foods in institutions, implementing fiscal policies, and social marketing campaigns) is the widely accepted “best practice” for national governments (World
Cancer Research Fund & NCD Alliance, 2013; World Health Organization, 2013), but this may not always be feasible in LMICs with limited resources.

The perspectives of access to healthy food and the factors affecting this that have been documented in this study suggest a number of potential policy approaches that can be considered, which would be under the realm of the constitutional commitment to food sovereignty. In the context of this study, food prices and geographic access (i.e. distance) to healthy foods provide vital entry points for policies and programs to increase access to healthy foods for residents of these low-income peri-urban neighbourhoods. The options for targeting these factors can be systematically presented by dividing them into different levels of governance (Sacks et al. 2008). This section will discuss potential policy interventions at the national, and municipal or provincial levels in relation to the study area.

4.2.1 National level policies and programs

Price

At the national level, there is potential for fiscal policies to be introduced that could regulate food prices, decrease the cost of fruits and vegetables through targeted subsidies, and increase the relative price of unhealthy foods through taxation. At the time of this study, no evidence could be found on the existence of such policies in Ecuador. On the supply side of the food system, Uauy and Monteiro (2004) suggest eliminating any price incentives for the production of unhealthy (e.g. high saturated fat, salt, or sugar) foods and facilitating the production of healthy foods (e.g. low in animal fat, salt, and sugar). Given that at the point-of-sale, healthier products such as lean meats, skimmed milk, and canola oil are more expensive, an alternative policy could be to equalize the prices of these products to that of their less-healthy counterparts (Uauy & Monteiro, 2004). Further research could examine how this might be implemented and enforced in supermarkets, markets, and tiendas. On the demand side, increasing the relative prices of
unhealthy foods through taxation could effectively reduce population demand for these products and increase demand for healthier options.

Recent evidence shows that such policies are highly cost-effective. In a model of global LMICs, fiscal policies were shown to have one of the largest cumulative health effects over time (in terms of disability-adjusted life years gained) and to have the lowest cost per head, compared to other population-based preventive measures (Cecchini et al., 2010). This model also found that price interventions, along with regulatory measures, could produce the largest health gains in the shortest amount of time (Cecchini et al., 2010).

Examples of fiscal policies to improve diets include targeted consumer subsidies or sales tax exemptions on healthy or staple foods, and taxes on unhealthy foods or nutrients borne by consumers or producers (Nugent & Knaul, 2006). Guo and colleagues (1999) found that a 10 percent increase in the price of pork reduced fat consumption by 8 percent in China, although this raised concerns regarding the relative nutritional effects on the poor. In a modelling study based in Denmark, Jensen and Smed (2007) found that it would be more effective to target nutrients than selected foods; an increase of 5% in the price of meat, butter, and fat in addition to a 50% decrease in the value-added tax on fruit and vegetables and tax subsidies based on fibre content was estimated to reduce sugar consumption by 16%, reduce saturated fat consumption by 8%, and increase fibre consumption by 15%. In Scotland, an increase in the price of meat (1%), dairy products (4%), eggs (11%), and of fats and oils (by 24%) was estimated to decrease energy consumption by 17.5% and decrease fat consumption by 20% (Santarossa & Mainland, 2003).

However, Thow, Jan, Leeder, and Swinburn (2010) have noted that the quality of the evidence available on the effects of fiscal policies on food consumption, body weight, and disease is generally low. Modeling studies may not properly take into account consumer shifts to different unhealthy foods in response to the taxation of a single target product (Thow et al., 2010). Empirical evaluation of existing fiscal policies is lacking, as is research undertaken to determine
the effectiveness and impacts of food taxes in LMIC contexts. Such a policy area needs to be further explored in the Ecuadorian context. Furthermore, it must be determined that these fiscal policies do not negatively affect more disadvantaged population groups (Thow et al., 2010).

**Labelling**

Participants’ responses indicated that nutrition labelling is not achieving any significant change in dietary habits in its current form in the study population. Mandatory labelling may have an effect on companies’ food formulation practices (Sassi, Cecchini, Lauer, & Chisholm, 2009; Vyth, Steenhuis, Roodenburg, Brug, & Seidell, 2010), but in the context of this study, the consumer is not receiving any of this nutritional information.

While nutritional labelling contributes to more informed consumer choice, informed choice does not necessarily translate into healthier dietary choices (Brambila-Macias et al., 2011). A labelling system may need to be clearer, more consistent, regulated, and more visible in order to have an effect on consumer behaviour. Perhaps a culturally-appropriate adaptation of the United Kingdom’s “traffic light” front-of-pack food labelling system could be an option worth investigation in the future.

**4.2.2 Policies and programs at provincial and municipal levels**

**Canasta Comunitaria**

At the provincial and municipal levels, food prices and distance to markets could be targeted by improving food distribution, while shortening and strengthening the links between producers and consumers. One promising community-level initiative that exists in various cities throughout the country is called the Canasta Comunitaria (“Community food basket”) movement. It is designed to link rural producers directly to urban communities, who have an agreement to purchase products in bulk and divide the goods and costs among themselves (Nehring, 2012). This helps to increase the producers’ incomes and market power, while providing consumers with lower-price produce directly to their community with savings of 30% or more (Sherwood et al., 2013).
Furthermore, the producers and consumers can come to an agreement on how the food will be produced, including whether or not the production is agro-ecological. The arrangement has been shown to promote the consumption of whole, home-cooked meals that are generally healthy and represents a source of empowerment for low- to middle-income families in improving their household budget and procuring safer, healthier foods (Sherwood et al., 2013). This type of initiative is not part of Ecuador’s formal food sovereignty initiatives, and is currently not operating in Machala, but has been done elsewhere in the country by grassroots groups for over a decade (Nehring, 2012). This type of initiative could potentially be scaled up, however, with support from provincial or municipal governments. UROCAL is in a good position to facilitate such an initiative in Machala, and representatives from both the organization and the study neighbourhoods expressed interest in collaboratively pursuing this option.

4.3 Potential challenges to policy intervention

The development and implementation of food sovereignty policies in Ecuador—whether fiscal, regulatory, or otherwise, will face various challenges. This section outlines some of the challenges posed by the nature of the domestic food system, the international trade environment, and the process of policy development itself.

4.3.1 Local considerations

Certain local food system characteristics of an Ecuadorian city such as Machala may pose challenges to the implementation of the recommended policy interventions. For example, regulation of food sales and prices may prove difficult due to the commonly informal nature of the food system (e.g. open-air markets, street vendors, candy vendors on city buses, etc.). Interventions must also take into account consumers’ point-of-purchase. Based on the data generated from this study on food access points, the most financially disadvantaged and geographically isolated households cannot afford to buy from a grocery store and instead buy from the informal market. Any intervention staged exclusively in grocery stores will therefore leave out the most marginalized groups. Additionally, it will be imperative to remember that
market intermediaries earn their livelihood through the up-sale of agricultural produce. Initiatives aiming to reduce costs of fruits and vegetables and increase geographic access through the reduction of intermediaries should consider supporting the exploration of alternative livelihoods.

4.3.2 Policy development by the people, for the people

It is important to determine whether the imposition of laws and regulations surrounding food, to promote healthy diets and reduce NCDs, promotes food sovereignty *per se*. These initiatives must come from the people. Citizens may not necessarily support the adoption of taxes that will increase the prices of certain foods. It may be difficult to identify foods for which an increase in price will not reduce access to the healthy components of a diet (Haddad, 2003). In some LMIC contexts, for example, edible oils are often used to increase the energy density of infant diets (Haddad, 2003). Rice, while the top source of energy and carbohydrates in the Ecuadorian diet, is also the top dietary source of protein (Freire et al., 2013). It is important to remember that, for marginalized groups especially, food consumption deficits are still widespread. It is therefore crucial to ensure that any fiscal measures adopted, such as taxation of unhealthy products, are not in reality regressive (i.e. have a more negative effect on the poor).

Haddad (2003) warns that, in terms of affecting food systems from the supply side, anything done to discourage the consumption of a locally produced food considered harmful to health above a certain level will be detrimental to the income-generating ability of many smallholder farmers. The economic impact on the rural economy of an attempt to alter such consumption could be large (Haddad, 2003). Such potential impacts must to be carefully considered in the policy development process.

An important emerging area of inquiry relates to the politics of scale in conceptualizing and enforcing food sovereignty (Wittman, 2011). In other words, who gets to be sovereign? Tensions can emerge between the push for local and regional autonomy in food system definition and the enforcement of trade rules or supportive agricultural policy at the national level (Wittman, 2011).
4.3.3 Industry pushback, WTO regulations and trade agreements

Industry pushback may also impede the development of food sovereignty policies. The food and beverage sector’s large contribution to the country’s economy—approximately 7.8% of Ecuador’s gross domestic product in 2007, contributing approximately 1729.2 million dollars (Carillo, 2009)—could influence the development or implementation of any policies that may be perceived to hurt the industry’s profitability in favour of food sovereignty and population health. The industry provided nearly half of the jobs in the country’s manufacturing sector in 2007 (Carillo, 2009). Bananas and plantains, crustaceans, prepared or preserved fish, cocoa products, and palm oil rank among the top ten export commodities, and represented a collective value of 5,121.7 million dollars in 2012 (UN Comtrade, 2012).

The topic of agricultural subsidies has been controversial – especially surrounding the World Trade Organization (WTO) ministerial meeting in Bali at the end of 2013 where this topic was revisited. Since the WTO Agreement on Agriculture in 1995, the rules and definitions surrounding agricultural subsidies had not changed. High-income country governments had been able to give heavy subsidies to their farmers and agribusinesses through measures mostly classified as “non-distorting” (and therefore unrestricted) (Ghosh, 2013). LMICs have had a more difficult time applying measures to encourage domestic food production because the definitions of the different types of subsidies and their associated distortion of trade are very rigid and do not account for the specific needs of developing countries (Ghosh, 2013). Although new agreements were reached in Bali, agricultural subsidy restrictions may play into food sovereignty policy measures in Ecuador.

Recent cases highlight the tensions that can arise between domestic regulatory autonomy and the Technical Barriers to Trade (TBT) Agreement. This Agreement was renegotiated during the Uruguay Round of the General Agreement on Tariffs and Trade to ensure that technical negotiations and standards, testing, and certification procedures do not create unnecessary obstacles to trade (Langille, 2013). In other words, technical regulations and standards (such as
regulations of product weight, size, packaging, ingredient or identity standards, or mandatory labelling) with the objectives of protecting human health or safety, animal plant or health, or the environment, must not be applied in a way that is discriminatory to products from another country. This Agreement favours the development of harmonized and international standards over domestic standards, diminishing the regulatory autonomy of members (Langille, 2013). Three regulations imposed by the United States in 2012 were blocked on the basis of the TBT: Indonesia successfully challenged a ban on clove cigarettes because it failed to also ban menthol cigarettes, which are heavily produced in the United States; Mexico successfully challenged conditions imposed regarding the labelling of tuna as “dolphin safe,” because of discrimination against Mexican fishers; and a “country of origin” labelling restriction on meat was also struck down (Langille, 2013). Therefore, any regulatory policies aiming to promote food sovereignty in Ecuador cannot present “unnecessary” or protectionist barriers to food imports.

It is important to note that, although the food sovereignty movement is often perceived as “anti-trade,” as most of the literature in this domain focuses on identifying trade as an obstacle to food sovereignty (Wittman, 2011), this is not necessarily so. Proponents of this movement are actually engaged in deep and ongoing discussions about the kinds of trade relations that will best serve the social, economic, political, and environmental principles of an alternative food paradigm (Wittman, 2011). These conversations include issues and themes such as fair trade, intellectual property rights, dumping, labelling, denomination of origin, affirmative action, social, environmental, and labour laws and regulations, as well as slow food, regional networks, farmers markets, and community-supported agriculture (Wittman, 2011).

4.3.4 Level of participation vs. speed of policy development

The process through which the current Food Sovereignty laws are being developed—while very participatory and therefore positive—has in itself been a barrier to achieving rapid change. Civil society and groups like Vía Campesina have been integral in the transformation of the Constitution and development of new laws to promote food sovereignty (Giunta, 2013; Peña,
The inclusion of grassroots movements as well as civil society and consumer groups in the development of healthy public policies—in Ecuador and in other countries committing to Food Sovereignty—is key; however, with greater participation and consultation, the process may be slower.

In the drafting of the Constitution, several issues were highly contested by different groups. For example, State actors and agencies supported genetically-modified organisms as a means to increase food productivity and alleviate hunger, while social organizations, environmental non-governmental organizations, and political movements of the left lobbied strongly against any introduction or development of these organisms (Peña, 2013). This was a matter of long debate, which eventually reached a compromise. Interestingly, despite a large diversity of actors in this policy development process, Peña (2013) reports that the participation of food retailers and the large agro-export industries of Ecuador had minimal influence on the outcome for the food sovereignty article of the Constitution.

In the development of the nine supplementary laws to the 2009 Organic Law of the Food Sovereignty Regime, COPISA sponsored food sovereignty policy-making workshops between 2010 and 2012, covering an array of topics that ranged from subsidizing farmers who want to transition to agro-ecological production to providing women preferential access to land (Peña, 2013). These workshops involved a great diversity of social groups, including associations representing artisans, credit unions, labour unions, to national-level organizations representing farmers, Afro-Ecuadorians, women, and fishers (Peña, 2013). This expanded the opportunities for common citizens to take part in government decision-making and policy formation processes; between 2010 and 2012, COPISA drafted nine laws with the engagement, consensus and deliberation of at least 15,000 individual participants and 5,000 organizations and state institutions (Peña, 2013). Key informants involved in this process, however, expressed that it can be difficult to achieve consensus in this type of forum, in addition to the logistical challenge of coordinating the schedules of so many different actors to meet (KI5).
This also raises the question of who is engaged in this participatory process. While representatives of UROCAL (the association of regional agro-ecological producers) were included in one of these provincial round-table workshops, such engagement was not observed in the study population. The notable lack of awareness of food sovereignty as a concept or of related policies and programs indicates a disconnect between national discourse and the experience of the average citizen. This process may need to be more inclusive of the consumer perspective.

4.4 Study limitations

Although all studies inherently have certain limitations, time constraints on fieldwork as well as challenges that arose in the field further limited this study.

First, this was a small study, and the results are context-specific. The population from which participants were sampled consisted of three neighbourhoods in the “9 de Mayo” parish located in the southern part of the city of Machala. Generalization of the specific results from this study to other geographic regions and demographic groups may therefore be limited. For instance, the prevalence of OW/OB in Ecuador has been shown to be highest in the richest population quintile, and lowest in poorest quintile (Freire et al., 2013). It is likely that there are different drivers for different population groups. Previous studies have highlighted the differential influences of globalized food systems on the rich and poor in LMICs (Hawkes, 2006), and have shown that burdens of obesogenic diets tend to shift toward the poor as economic development increases (Monteiro et al., 2004; Popkin, 2004). Due to limited time in the field, data could not be collected on a comparison group, for example a neighbourhood or group with a higher overall socioeconomic level, in order to more carefully examine questions of equity.

Due to difficulties in recruitment and limited time frame with which to carry out the research, only a small total sample size was achieved. However, the recurrence of themes indicates that saturation was achieved in certain topics. The focus groups themselves were also small in size. Small group size affected my ability to capture the social dynamics surrounding dietary
behaviours and to harness the collective knowledge of a group. Furthermore, some participants—who were perhaps less engaged or were pressed for time—expressed that they did not want to spend too much time in focus group sessions. This limited the opportunity to delve deeper into some issues. Sampling bias may have also been involved. The strategy of snowball and convenience sampling may have led to over-sampling of individuals with certain characteristics. To reduce this bias, I made an effort to use diverse recruitment strategies and to hold focus groups at different times of the day and days of the week.

The methods used may have introduced other limitations or biases. The emphasis on focus groups may have discouraged some individuals from participating if they did not want to discuss their dietary habits in a group. Additionally, the presence of other community members in the focus groups could have influenced participant responses. The competence of a focus group facilitator and their ability to effectively communicate with participants can be an important limitation, but this was mitigated to the best of our ability through the cooperation between the local research assistant and myself. With regards to KIIs, such informants are unlikely to represent or even understand the views of the majority of the members of the community (Marshall, 1996), limiting the potential to obtain unbiased or complete accounts. Additionally, key informants might only divulge information that is politically acceptable, especially if there is risk that the publishing of sensitive information could be attributed to this individual (Marshall, 1996).

Subjectivity in both the data and the analysis thereof also limited this study. Because the focus group and interview questions were based on participants’ reported behaviours and perspectives on access to food, there may be a gap between what is recalled or perceived and actual behaviours. The data collected through direct observation is also inherently subjective on the part of the researcher, although an effort was made to record more objective data such as prices, nutritional composition labelling, and ingredient lists. With regards to the analysis, only one person carried out the subjective process of coding. This was in large part due to the fact that the focus group and interview transcripts were translated to English at the time of transcription.
facilitate coding. As my research assistant and note-taker during focus groups does not speak English, he was unable to participate in the coding process and verify the decisions made.

Finally, my position as an “outsider” may have affected the interactions in the focus groups and the responses of participants. There may additionally have been miscommunication of meaning in questions asked. This was mitigated to the best of my ability by developing the question guide in Spanish in collaboration with my local research assistant, as well as his presence at sessions whenever possible to help facilitate discussion. There are likely also several dynamics at play in the study context pertaining to food access and purchasing and consumption behaviours that I was not able to fully comprehend.
Chapter 5: Conclusion

5.1 Summary

The overarching research question this thesis sought to answer was whether the promotion of food sovereignty has contributed to improving access to healthy diets for marginalized populations—if so, how and to what extent, and if not, what are the barriers to achieving change and the opportunities for improvement. Considering the fact that this concept was added to Ecuador’s constitution in 2008, but that there have not yet been specific measures operationalized to translate this policy orientation into desired outcomes, this study provides an exploratory investigation of the issues at play, the possibilities for intervention, and the perspectives of key actors—especially the populations most at risk of not enjoying access to healthy diets. A qualitative situational analysis was undertaken in the southern coastal city of Machala, Ecuador, with the objectives of 1) describing the current food landscape, identifying the main sources of food for the study population and the most commonly purchased foods; and 2) exploring the issues surrounding food access and consumer choices. My hypothesis was that there remain significant barriers to healthy eating for at least certain groups in Machala, and that there are opportunities for policies and programs to lessen these barriers and cost-effectively improve dietary habits in the population.

Various methods were used for their complementarity, including focus groups, a participatory map, key informant interviews, and direct observation. Results indicate that access to healthy foods is still an issue in these neighbourhoods, five years after the constitutional adoption of Food Sovereignty. Diets appear to be generally high in saturated fats, salt, and sugars, and low in fruits and vegetables, and lean proteins. Barriers to access are experienced most strongly by the poorest groups, suggesting that achieving equity in access to healthy foods is an ongoing challenge. These barriers are primarily financial and geographic. Participants were unaware of the concept of food sovereignty, and had not experienced any policies or interventions relating to its stated objectives five years after the addition of this right to the Constitution, suggesting that specific policies and
programs are still needed to address issues of food access for consumers in low-income peri-urban communities.

This study thus identified two policy areas that could be targeted by food sovereignty policies in order to improve equity in access to and consumption of healthy foods, and reduce the consumption of unhealthy foods: food prices, and geographic distribution of affordable, healthy foods. The discussion section of this thesis outlines various examples of specific policies that could be adopted to address these concerns, as well as the potential challenges and barriers to developing and implementing such policies. At the national level, fiscal policies such as targeted subsidies of fruits and vegetable production and taxation of unhealthy foods could be implemented. At a municipal or provincial level, food prices and distribution of healthy foods could be improved by supporting the development of community-based initiatives such as a Canasta Comunitaria.

5.2 Implications of findings and recommendations

The limitations of this study notwithstanding, the results obtained provide a window to the barriers experienced by a low-income peri-urban neighbourhood in Machala in accessing affordable healthy foods. This thesis presents one of the few studies thus far to examine the resonance of food sovereignty policies for consumers at the community level. The results also highlight the primary entry points for policies and initiatives to target these barriers, at the national and local level, in order to potentially improve nutrition and prevent NCDs in this population. Although the findings are not generalizable past the specific community studied, the conceptual framework, methods, and instruments piloted in this study could be used to repeat such an analysis in other community settings.

The results support the growing literature asserting that individual energy balance behaviours are embedded within proximal and distal environments. It is important to target these upstream drivers in order to effect lasting behavioural change. The evidence presented in this study may
help to support the development of healthy and cost-effective public policies with this goal in mind. Due to its participatory nature, this study may have also helped to raise awareness of the issue of inequities in access to healthy foods and the importance of healthy diets within the study neighbourhood and among participants, which could have a small effect on dietary behaviours. Furthermore, the experiences learned from this study can contribute to further investigations of the relationships between food sovereignty and health equity that are being explored in Machala. It is evident that significant challenges remain in the development and implementation of food sovereignty policies, and further research should include a more explicit exploration of what food sovereignty means to people and communities.

In terms of future research directions, price and geographic distribution of healthy foods are two crucial entry points for policy interventions, and opportunities here need to be further explored. Econometric studies of costs and benefits (including potential savings to the health system) could be done to bolster the evidence for policy interventions. Data on food price elasticities need to be generated that is disaggregated and detailed enough to be relevant for fiscal policy development (Thow et al., 2010). This should include the trade-offs in terms of nutrient consumption changes for communities based on changes to the prices of different foods. Studies should also examine the potential tensions between regulatory autonomy and WTO regulations with regards to food sovereignty policy, as well as the implications of trade agreements. Finally, administrative and implementation costs of various policies need to be explored, as they represent potential barriers to the feasibility of these interventions (Thow et al., 2010).

In conclusion, I recommend pursuing a two-pronged approach to preventing diet-related NCDs in Ecuador that can be woven into the ongoing development of food sovereignty policy: support for local grassroots initiatives focusing on distribution, coupled with the development of national fiscal policies to decrease the relative cost of healthy foods and increase the relative cost of unhealthy foods high in salt, trans and saturated fats, and sugar.
References

Almedio Consultores. (n.d.). Aliméntate Ecuador, Ecuador. Retrieved from http://alimescolar.sistematizacion.org/iniciativas/contenu-du-programme/?tx_panel_pi1%5Bafficher%5D=det_panel&tx_panel_pi1%5Buid%5D=23


Bellagio Declaration 2013: Countering Big Food’s Undermining of Healthy Food Policies. (2013).


equity. The Canadian Public Health Association (CPHA) 2013 Conference, Ottawa, Ontario.


Appendix A: Participant profile

Perfil de Participante

Esta información es importante para la organización del estudio. Todos los datos que deje estarán guardados seguro y permanecerán confidenciales.

Nombre: _______________________________________

Número / datos de contacto:

Móvil: ___________________________ Otro: _______________________

Edad: ________

Sexo:

___ Hombre ___ Mujer

Barrio en que vive:

___ San Francisco
___ 12 de Mayo
___ Luz de América

Número de personas viviendo en su hogar:

Adultos Mayores (65+): ______
Adultos (20-64): ______
Adolescentes (13-19): ______
Niños (1-12): ______

Cántas personas aportan económicamente en su hogar: _____________

Ingreso mensual (aproximado) de su hogar: ________________

Su ocupación: ________________

Recibe el Bono?

___ Sí ___ No

---

Estudio equitativo en el acceso a las dietas saludables in Ecuador siguiendo el anexo de la Soberanía Alimentaria a la Constitución

IDRC | CRDI
Instituto de Desarrollo y Cooperación Internacional
Centro de investigación para el desarrollo internacional

Canada
Estudio equitativo en el acceso a las dietas saludables in Ecuador siguiendo el anexo de la Soberanía Alimentaria a la Constitución

Sufre/ha sufrido de:

- Diabetes       __ Sí  __ No  __ No sé
- Hipertensión   __ Sí  __ No  __ No sé
- Sobrepeso       __ Sí  __ No  __ No sé
- Deficiencia nutricional __ Sí  __ No  __ No sé
- Cáncer          * __ Sí  __ No  __ No sé

*especifique qué tipo: ___________________

Alguien en su hogar sufre/ha sufrido de:

- Diabetes       __ Sí  __ No  __ No sé
- Hipertensión   __ Sí  __ No  __ No sé
- Sobrepeso       __ Sí  __ No  __ No sé
- Deficiencia nutricional __ Sí  __ No  __ No sé
- Cáncer          * __ Sí  __ No  __ No sé

*especifique qué tipo: ___________________

Cuál es el parentezco:

Datos biométricos:

Altura: ________ Peso: ________

En general, estoy disponible: (Indique las horas de disponibilidad, e.g. 8:00 - 10:00 AM)

<table>
<thead>
<tr>
<th></th>
<th>Lunes</th>
<th>Martes</th>
<th>Miércoles</th>
<th>Jueves</th>
<th>Viernes</th>
<th>Sábado</th>
<th>Domingo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mañana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarde</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noche</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix B: Focus group and participatory map question guide

Acuérdense:

- Porque grabamos la sesión, es importante que hablamos una persona a la vez
- Toda la información que me dan será confidencial, y voy a borrar los nombres
- Es una sesión abierta – quiero escuchar todos sus opiniones!
- La sesión durará una hora, mas o menos.

Antes de empezar, quiero que se presenten, y que me digan un poquito sobre usted...

Primero, vamos a hablar de cómo se alimentan a si misma y a su familia – sus conocimientos sobre la alimentación, y sus hábitos.

2.1 Puede describir la dieta de usted y de su familia... Que come su familia en

- El Desayuno?
- El Almuerzo?
- La Merienda?
- La colación o el refrigerio – para picar?

*Cuanto consume su familia de ___________ por semana? En que los usan?

- Azúcar __________________________

- Aceite __________________________
  o Que tipo, y porque? ________________________________

- Sal _____________________________

**Con que frecuencia beben _________ y que cantidad consume su familia por semana?

- Cola
- Jugo
- Horchata
- Te frio
- Leche
  - Entera o semi-descremada?
- Agua
- Café
- Te

2.2 Cuales son los hábitos alimenticios de los niños? Hay una diferencia entre lo que comen los niños y los adultos?

  2.2.1 Que comen los niños en casa?
     Que beben?

  2.2.2 Que comen los niños en la escuela?
     Que beben?

  2.2.3. Que comen/beben los niños para picar?

  2.2.4 Cuales son las preferencias alimenticias de los niños?

  2.2.5. A que tipos de publicidades están expuestos sus hijos?
     Por televisión?
     Radio?
     Medias sociales?

2.3 Que comen su familia en ocasiones especiales?

2.4 Que comieron sus padres y sus abuelos?
   2.4.1 Si es diferente de lo que come usted, por qué?

2.5 Que considera como ‘comida sana’?

2.6 Que considera como ‘comida malsana’?

2.7 Que influye sus decisiones alimentarias?
   (por ejemplo: el precio, la rapidez de la preparación, las preferencias de su familia, el costumbre, la valor nutritiva...)
2.7.1 Lee las etiquetas de la comida?

Ahora, vamos a hablar de su acceso a la comida

Este es un mapa del área.

1.1 Quisiera que ubican los lugares donde usted accede a la comida y a las bebidas. (Mercados, la feria libre, el supermercado, las tiendas, restaurantes, kioscos de comida... ) Si no están en el mapa, los vamos a apuntar al lado.

1.2 En cada lugar, quiero que me digan que compran normalmente (1.2.1), y cuanto cuesta aproximadamente (1.2.2).

- veg/legumbres
- arroz
- papas
- frijoles
- guineo
- verde
- yucca
- pan
- queso
- aceite
- pollo
- carne
- pescado
- BEBIDAS:
  - cola,
  - jugo,
  - leche
  - agua,
  - café, te...
  - COMIDA CHATARRA?

Además, me pueden decir de donde vienen estos productos (1.2.3)? Están producidos aquí en Machala? De este país? Están importados?

1.3 Hay lugares donde NO VAN para comprar comida?

Por que (1.3.1)?

Que tipos de comida ofrecen (1.3.2)?

Que podemos decir de este mapa...?

- Que distancia recorren para acceder a la comida?
- Cuales tipos de comida y bebidas compran mas?
- Como son los precios de la comida?
- De donde viene la mayoría de la comida que compran?

La Soberanía Alimentaria, la Constitución, las campanas nutritivas nacionales y regionales

3.1 Han escuchado de la Soberanía Alimentaria?

3.1.1 Estaba consciente de la inclusión de este derecho en la Constitución?

3.1.2 Que significa, para usted?
3.2 Esta consciente de programas o políticas en Machala o en su área que miran a mejorar las dietas o el acceso a la comida local?

3.3 Ha visto algunos cambios en la accesibilidad o disponibilidad de la comida sana en los últimos 5 años? En los últimos 10 años? (3.3.1)
   3.3.2 Ha visto un cambio en los precios de la comida en este tiempo?
   3.3.3 Ha visto una evolución en lo que come la gente en este tiempo?

Las prioridades en el mejoramiento de las dietas

4.1 Para usted personalmente, que cree es el asunto mas importante – en Machala y en su comunidad – relacionado con la alimentación, el acceso a la comida sana, y la salud?

4.2 Que serian sus prioridades en el desarrollo de programas y políticas para mejorar la alimentación?

Gracias!

Entrega de los Resultados

Finalmente, quisiera saber como quieren ustedes recibir los resultados de este estudio...

Tendremos los resultados preliminares al finales de Julio, y se los presentare en una reunión con toda la gente interesada... Después de hacer mas análisis, escribiré un informe para el gobierno con recomendaciones de programas y políticas para mejorar el acceso a la comida sana en la ciudad y en este área en particular.

Que quieren ustedes recibir como resultados, a parte de este informe?

En que forma prefieren recibir la información?

   Factores de riesgo?

   Recomendaciones para mejorar la alimentación en casa?