Neoliberal Policy in Action: A Critical Analysis of the Global Food Safety Initiative and Food Safety Governance

by

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Abstract

Using a political economy analysis, this thesis examines the Global Food Safety Initiative and its effects on food safety governance. It begins with a discussion of food safety, an important component of food production systems, which attempts to ensure that food will not induce foodborne illness in the consumer. After outlining how neoliberalism is the current political economy environment in which the Global North operates, it argues that within this environment the Global Food Safety Initiative is rapidly becoming the predominant expression of neoliberalism to promote food safety. A political economic analysis of the Global Food Safety Initiative reveals that it is an indicator of the current neoliberal food regime and has significant consequences for the governance of both Canadian and international food safety.
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<tr>
<td>AB</td>
<td>Accreditation Body</td>
</tr>
<tr>
<td>BRC</td>
<td>British Retail Consortium</td>
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<tr>
<td>CB</td>
<td>Certification Body</td>
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<td>CGF</td>
<td>Consumer Goods Forum</td>
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<td>CFIA</td>
<td>Canadian Food Inspection Agency</td>
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<td>EU</td>
<td>European Union</td>
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<td>GFSI</td>
<td>Global Food Safety Initiative</td>
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<td>GHP</td>
<td>Good Hygiene Practices</td>
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<td>GMP</td>
<td>Good Manufacturing Practices</td>
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<td>HACCP</td>
<td>Hazard Analysis Critical Control Points</td>
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<td>OMAFRA</td>
<td>Ontario Ministry of Agriculture, Food and Rural Affairs</td>
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<td>SPS</td>
<td>Sanitary and Phytosanitary Measures</td>
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<td>TBT</td>
<td>Technical Barriers to Trade</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WTO</td>
<td>World Trade Organization</td>
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Chapter 1: Introduction

The turn of the millennium brought a host of high profile food safety scares that broke consumers’ confidence in the abilities of the agrofood system to provide safe food and fueled consumer concerns in the prevailing mechanisms of food safety control (Anders, Souza-Monteiro & Rouviere, 2010; Henson & Caswell, 1999). At the same time, numerous factors began to have a significant effect on food safety management, including globalization, deregulation, the changing nature of the food chain, trade issues and emerging food safety issues (Davey, 2001; as cited in Manning, 2007; McMichael, 2000). As a result, increased political and economic demands for more effective food safety controls have left nation states struggling to regulate food safety and quality practices, allowing alternate mechanisms to proliferate (García Martinez, Fearne, Caswell & Henson, 2007). These mechanisms include supply chain management and certification of suppliers and have become commonplace activities among input suppliers and supermarket chains (Busch, 2010).

One outcome of this struggle has been the shift in food safety governance from public authorities to private food safety standards (Hatanaka, Bain & Busch, 2005; Luning, Bango, Kussaga, Rovira & Marcelis, 2008; Sodano, Hingley & Lindgreen, 2008). The public governance system uses regulations mandated by the state, both national and local, and enforced through regulatory officers whereas the private governance structure is a self-regulated system based on third party certifications mandated by food retailers and assessed by auditors (Barling & Lang, 2003; Busch, 2011). Operating alongside the democratic regulatory system, these private food safety standards are surreptitiously pervading the contemporary agri-food systems and, although not legally binding in a regulatory sense, are de facto mandatory for suppliers (Henson & Northen, 1998). Increasingly, these private
systems govern the way in which the entire food supply chain operates, from primary production through to retail distribution (Henson, 2008).

This has lead to a debate in the literature regarding the methods through which food safety is governed. Proponents of the private systems propose that there is a place for this method of control as it is seen to support weakened or ineffective governmental systems, advance public health through stronger food safety controls, and facilitate international trade (García Martinez et al., 2007; Global Food Safety Initiative [GFSI], 2011a; Tanner, 2000). Others have questioned the legitimacy of these systems as they are seen to usurp the democratic process and support the neoliberal political environment (Busch, 2011; Caduff & Bernauer, 2006; DeLind & Howard, 2008; Fuchs, Kalfagianni & Havinga, 2011; Hatanaka et al., 2005; Levi-Faur, 2009; Trail & Koenig, 2011). Within this second position is a further dialogue focusing on the placement of the current food system within Friedmann & McMichael’s (1989) concept of food regimes; does this form of governance represent the continuation of the acknowledged second food regime or does it signify a transition into an entirely new, third food regime?

Fundamental to this dialogue is the complexity of the food production system. No longer a simple “farmer, grocery store, consumer” pathway, instead many products have numerous ingredients made at multiple manufacturing locations that pass through many distribution centers before reaching the customer.

**The Food Production System**

Today, food and its ingredients are produced in a myriad of locations. Using the example of a loaf of bread, the network of processing steps is as follows.
The ingredients in bread are farmed (wheat, milk powder or corn) and/or made by a primary producer (yeast, flour mill or chemical refinery). Once these components arrive at the manufacturing location, they are transformed into bread and then sold to the grocery store where the consumer purchases it. Between each of these steps is a distribution system potentially involving railcars (wheat), tank trucks (oil) and transport trucks (bread) and multiple distribution centres. In the consumer’s home bread is often combined with other ingredients, many of which have multiple ingredients, for example mayonnaise and sliced meat, that have been through a similar number of process steps. A final complexity in this system is the distance the food travels. Vegetables, for example, are seasonal food items and often travel through multiple countries and possibly continents to reach the consumer, particularly when the produce is ‘out of season’ in the consumer’s country.

The complexities of the food production system greatly increase the risk to the consumer. Food safety is increasingly threatened by global sourcing – from regions with polluted water, resource-poor safety systems, exotic microbes unknown in the consumer countries and generally just the increasing distance from farm gate to dinner plate (McMichael, 2000). Understanding the intricacies of this system is essential to providing
safe food to the consumer; the health of consumers can only be protected if every step in the food product system is safe (Holm & Halkier, 2009).

**Food Safety**

Food safety is the “concept that food will not cause harm to the consumer when it is prepared and/or eaten according to its intended use” and is recognized as an essential public health function (Canadian Food Inspection Agency [CFIA], 2012b; p. viii, (GFSI, 2012, p.150; World Health Organization [WHO], 2011). An alternative, perhaps more practical, definition of food safety is “the process of ensuring food is safe from the farmer’s field to the consumer’s kitchen” and each step in the food system has a responsibility for ensuring that food will not cause illness or injury to the consumer. Food safety is distinct from food quality, though they are often confused. Food safety is a subset of food quality and is defined by Hensen (2008) as “the attributes of food that have potential effects on human health,” whereas all other product attributes indicate food quality issues. Using the example of lettuce, whether or not a piece of lettuce is contaminated with *E. coli O157:H7* is a food safety attribute, whereas the colour, flavour, and appearance of the lettuce would be a food quality concern.

The importance of food safety to a healthy and thriving population cannot be overstated. In Canada, an estimated one third of the population is stricken with a foodborne disease each year (Public Health Agency of Canada [PHAC], 2011). Often these illnesses are mild and self-limiting, however, most foodborne diseases have the potential for serious and life-long complications, including kidney failure, paralysis, and death (Roberts, Kowalcyk & Buck, 2009). Victims rarely seek medical attention for the less severe ailments and consequently foodborne illnesses are often under-reported. Thomas, Majowicz, Pollari,
Sockett (2008) estimated there are approximately 30, 25 and 36 illnesses for every case of verotoxigenic *Escherichia coli* [O157:H7], *Salmonella* and *Campylobacter* reported to health agencies ([] added). No one is invulnerable to a foodborne illness, yet there are some members of society, including children, pregnant women, the immunocompromised, and the elderly, who are more susceptible and therefore have a higher risk of developing a foodborne illness (Griffith, 2010). Food safety, therefore, aims to promote public health by preventing illness in the most vulnerable of our population; if society acts to protect this group, the larger populace will also be protected.

For the victim, acquiring a foodborne disease is simple; they ingest the contaminated food or water. This is the end stage in the transmission of microorganisms and a number of events must occur prior to the consumption of the contaminated food. First, the food must be contaminated with the microorganism, which can occur at any point in the food chain, from the farmer’s field to the consumer’s kitchen. Second, the pathogen must survive, and / or multiply, in the food to a sufficient number to cause illness. Third, the contaminated food must be consumed. As eating is often a communal act, it is common for these illnesses to affect many members of the group. When two or more individuals consume the same contaminated food, the situation is classified as an outbreak (Centers for Disease Control and Prevention, 2012).

These pathogens are ubiquitous in our environment and cannot be avoided. Instead, care must be taken to prevent the contamination of a food with microorganisms, reduce the level of microorganisms present, or destroy the microorganisms. Each action (prevention, reduction, destruction) requires a different technique to promote food safety. Examples of such actions include the cleaning and sanitizing of a meat slicer in a manufacturing facility.
Foodborne illnesses are not the only concern in food safety; foodborne injuries also occur. A foodborne injury is the result of the ingestion of a food that wounds the consumer and examples include broken teeth or chemical burns (CFIA, 2008, p. 286). These injuries arise from the ingestion of a food containing foreign material such as bone fragments, glass, or chemicals such as sanitizers. To facilitate discussion, these injuries are included in the term “foodborne illness” and, in this thesis, the term foodborne illness will be used to refer to both injuries and diseases caused by food.

The incidence of these foodborne illnesses is increasing. First, global demographics are changing, including an increase in population density through urbanization and an aging population. Urbanization promotes foodborne illnesses as the close contact between individuals in urban settings facilitates the person to person transmission of illnesses where the initial victim acquired the illness through food, and outbreaks of this nature have been seen with Noroviruses and *E. coli* *O157:H7* (Patel, Hall, Vinjé & Parashar, 2009; Pennington, 2010). An elderly population presents a food safety challenge because they are more vulnerable to these illnesses as a result of a variety of physiological conditions associated with aging, including a weakened immune system (Kirk, Veitch & Hall, 2010). Second, there has been a shift in the species of microorganisms that cause foodborne diseases; three of the four most significant foodborne pathogens in the United States were unrecognized as causes of foodborne illness 20 years ago. These emerging pathogens are often more virulent that their predecessors, as can be seen with the 2011 *Escherichia coli O104:H4* outbreak in Germany in which 22% of the adult victims developed hemolytic uremic syndrome (HUS), as compared with the normal rate of adult HUS of 7% (Frank et al.,
Another issue is the greatly intensified food production and manufacturing practices combined with a globalized distribution system can result in one food safety issue in one facility or farm causing a global outbreak of foodborne illness (García Martinez et al., 2007; Martin et al., 2003). Finally, food production methods and processing techniques are increasingly sophisticated. The entrance of genetically modified organisms into the food supply and novel processing methods such as irradiation and high pressure processing to decrease microbial contamination may present hazards that have yet to be identified or quantified.

Food safety is defined by the CFIA and GFSI as a ‘concept’ and a concept is constructed by a society. In order to understand food safety, therefore, it is important to understand the society that has constructed it. In the Global North, the prevailing political ideology is neoliberalism, an idea that proposes human well being can best be advanced by the maximization of entrepreneurial freedom within an institutional framework characterized by private property rights, individual liberty, free markets, and free trade (Harvey, 2006). The impact of this ideology on the governance of food safety has played a crucial role in the development and proliferation of private food safety systems.

**Neoliberalism**

Within a neoliberal environment, governments use the classical liberal ideals of the self-regulating market and laissez-faire policies to encourage industry rather than protect the individual or promote public health (Harvey, 2005 p. 2; Larner, 2000). The neoliberal canon is externalized through three intertwined manifestations; an ideology, a mode of governance and a policy package (Larner, 2000; Steger & Roy, 2010; p. 11). The acceptance of neoliberalism as a common sense ideology has had a significant impact on the Global North,
including changes in the methods of governance and public policy through privatization, deregulation and liberalization. Two outcomes of this doctrine include the withdrawal of the state from its traditional activities and the consolidation of corporations. This consolidation has resulted in oligopolies in which the principal companies control a large share of total production or have sales domination of the global industry (Charlebois & Labrecque, 2009). The consequence of this consolidation is a significant amount of power hidden within organizations whose agenda is focused on the pursuit of increased profits in new and multiple territories, not public health or the betterment of society (Phillips, 2006).

Another outcome of neoliberal doctrine on the food industry can be seen in the new era in the global regulation of food marked by a shift to more flexible systems of production and a new approach to international trade to permit a freer flow of goods across national borders (Phillips, 2006). To facilitate this flow, food retailers are requiring their suppliers to obtain third party certification to one of the schemes approved by the Global Food Safety Initiative (Loblaw Companies Limited, 2010; Sansawat & Muliyil, 2011).

The GFSI is also a private governance system, outside both governmental regulations and recognized international systems (e.g. the World Trade Organization). It has emerged as the most preferred means to support food quality and safety standards (Herzfeld, Drescher & Grebitus, 2011; Sodano et al., 2008). Two major food retailers in Canada require their suppliers to meet the food safety standards of the GFSI: Loblaw Corporation Limited and Walmart, with other retailers encouraging its adoption by their suppliers (Loblaw Companies Limited, 2010; Sansawat & Muliyil, 2011; Sobeys, 2011). As a result, Canadian food safety governance has shifted from its historical place of public regulation to a private standard developed and mandated by food retailers. Not limited to Canada, global food governance is
increasingly being created not only by (inter)governmental actors but also private actors who assume pivotal roles in terms of rule-making, monitoring, compliance and enforcement (Fuchs et al., 2011, parenthesis in the original).

Governance of food safety is highly reliant on governmental policy. Policy consideration and development is concerned with normative and prescriptive judgments about which particular courses of action should be adopted and pursued (Millstone, 2007). Current food safety regulatory policies do not require substantial financial commitment from public authorities, and support a form of governance that transfers regulatory capacity to the industry, that is from policy makers to ‘experts’, distributing the responsibility from governments to economic and social participants such as food manufacturers, food retailers and consumers (Holm & Halkier, 2009).

One analytical framework to deconstruct the concept of food safety, the impact of neoliberalism, the Global Food Safety Initiative, and food safety governance, is political economy. Political economy investigates, whether and to what extent neoliberal philosophy doctrine has been put into practice and its outcomes (Guthman, 2008) and is particularly well suited to an analysis of the outcomes of neoliberalism as this is a political concept based on economic principles.

**Political Economy Framework**

Based in Marxist social theory, this comprehensive interdisciplinary framework can elucidate relationships among the various actors, including perceptions of legitimacy, goals and goal conflict, influence, and the exercise of power (Redmond, 2009; Sumner, 2008b).

Therefore, it is appropriate to apply this framework to the analysis of food safety
governance in a neoliberal political environment as it questions the role of organized political and economic power (Sumner & Mair, 2008; p. 56) resulting in the comparative study of organizations at the micro level and societal control systems at the macro level, with particular focus on their interdependencies (Arndt, 1981; Redmond, 2009). This analysis reveals a great deal about the governance of the current food safety system and the reallocation of power from the government to the food retailers.

Friedmann and McMichael (1989) have used a political economy framework to identify food regimes, or historical periods within the food production system. The food regime concept can be used to identify the neoliberal moment in which the GFSI stands.

**Food Regimes**

First proposed by Friedmann in 1987 and expanded by Friedmann and McMichael in 1989, the food regime model combines political economy, political ecology and historical analysis to explain how particular relations of food production and consumption are central to the functioning and reproduction of global capitalism (Holt Giménez & Shattuck, 2011; McMichael, 2009b; Pechlaner & Otero, 2008). It has historicized the global food system, underlining the pivotal role of food in global political economy, and conceptualizing key historical contradictions that produce crisis, transformation and transition (McMichael, 2009b).

Two food regimes have been identified in the literature, however, currently there is an unresolved debate regarding a postulated third food regime (Burch & Lawrence, 2009; Friedmann, 2009; McMichael, 2009b). The third food regime as postulated by Burch and Lawrence (2009) and elaborated by McMichael (2009a, 2009b) is based on neoliberal
This thesis uses a political economy analysis to examine the Global Food Safety Initiative and its effects on food safety governance. Its goal is to illustrate how the development of the GFSI has significant consequences for food safety governance. To achieve this end, the thesis will meet three objectives. First, it will explain the importance of food safety. Second, it will demonstrate that in the current neoliberal environment, the GFSI is the predominant neoliberal vehicle to promote food safety. Third, using a food regime perspective, it will establish that the GFSI is an indicator of the third food regime and thus has significant consequences for the governance of both Canadian and international food safety.

**Thesis Scope**

The study of food safety encompasses a broad spectrum of potential risks and control measures, from animal waste management used to prevent the contamination of produce in a field to food handling practices in the consumers’ home. The scope of this research therefore has been limited to an analysis of the hazards the Global Food Safety Initiative attempts to control; the biological hazards of bacteria, protozoa, and fungi, as well as their associated toxins, chemical hazards, and physical hazards. Other issues such as the biological hazard of prions, genetically modified foods, and processing methods such as irradiation are outside the scope of this thesis and will not be explored.

**Organization of the Chapters**

This thesis is organized into six chapters. Chapter one: Introduction, introduces the general concepts that will be presented throughout the thesis and provides a brief introduction
to food safety, political economy, neoliberalism, the Global Food Safety Initiative, and food regimes. Chapter two: Food Safety: Challenges and Governance, outlines how food safety is an important component of the food system to promote public health. I begin with an explanation of food contamination: types of hazards, the resulting information imbalance inherent in food safety and food production, and the predominant control system, HACCP. From here, I move to a discussion of the governance of food safety focused on Canadian and international governance.

In Chapter 3: Neoliberalism, I use the political economy framework to consider the current political environment in which food safety systems operate, beginning with an overview of the history of neoliberalism and its ascendance to the predominant doctrine directing the Global North. I then explain how neoliberalism manifests as ideology, governance and political policy, and its global implementation. I advance an outcome of neoliberalism, the restoration of class power, and finally present an example of a neoliberal intervention, the Bioniche Life Sciences Inc.’s Econiche™ cattle vaccine.

Combining food safety and neoliberalism, Chapter 4: Global Food Safety Initiative concentrates on private food safety governance and how it has become the dominant tool to promote food safety. I outline its history, how the GFSI operates as an organization, its component management systems, and the impact it has had on food safety. Finally, I present a number of outcomes of the GFSI.

In Chapter 5: Neoliberal Policy in Action: The GFSI, Food Regimes and Food Safety Governance, I use the food regime concept to demonstrate how it assists in the political economy articulation of our current food system. I place the GFSI within the third food
regime and consolidate the view that the GFSI is a neoliberal mechanism to enhance food retailer power.

Finally, Chapter 6: Conclusion summarizes the arguments made throughout the thesis.
Chapter 2: Food Safety: Challenges and Governance

Though the production of safe food appears to be a simple process, it is in fact a complex procedure requiring diligence at all stages of food handling. Using the example of cooking a chicken, the following procedures must be followed to ensure healthy consumers. First, the farmer must make certain the birds are raised in an environment that promotes their health, minimizing the potential for contamination with pathogens such as Salmonella and using medications in a responsible manner. Second, the slaughter facility and processor must follow good manufacturing practices to minimize cross contamination with pathogens from the processing environment and foreign material contamination such as metal pieces from the knives and other equipment. Third, the retailer must ensure adequate temperature control to prevent any pathogens that are present from multiplying and finally the consumer must cook the chicken to a temperature sufficient to kill any pathogens present on the chicken and handle the raw chicken in such a way as to prevent cross contamination in their own kitchen. Between each of these steps is the transport of each product and each transportation step requires the same diligence. For example, the processed chicken must be transported at refrigeration temperatures by the processor, and the consumer should not leave the raw chicken in a warm car in the summer time. Each of these steps illustrates the importance of strict food safety controls at each stage of the process.

This chapter begins with a review of the established hazards in food safety (physical, chemical and biological) and methods of controlling these hazards. It then moves to a discussion of food contamination and preventative approaches to food safety. Finally, it outlines the current governance mechanism for food safety focusing on food safety and state control systems.
Food Safety Hazards

A food safety hazard is an entity, condition, or circumstance that is reasonably likely to cause illness or injury in the absence of its control (Surak & Wilson, 2006; p. 285. CFIA, 2012a; p. 53). All hazards in the food production system can be classified into three groups (physical, chemical or biological), each presenting its own risk to the consumer. These hazards will be discussed in detail.

Physical Hazards

Physical hazards, or extraneous material, are foreign bodies that may cause illness or injury to the consumer, or are perceived by the consumer to be alien to the food. This hazard presents three health concerns: injury, choking or product tampering (CFIA, 2008; p. 286; Edwards, 2004; p. xi). Extrinsic physical hazards are materials not normally found in food, such as stones, insects, plastic, glass or metal, whereas intrinsic hazards are a component of the food such as bones, stems or pits (CFIA, 2012b, p. 2; Edwards, 2004; p. xi, Gaze & Campbell, 2004; p. 14; Surak & Wilson, 2006; p. 153). In 2011, 9.5% of all food recalls were due to extraneous material, including insect parts in asparagus tips and glass fragments in milk (CFIA, 2009b; CFIA, 2011c; CFIA, 2011d). These hazards accounted for 44% of the food safety investigations conducted by the CFIA between 2006 and 2011 (CFIA, 2011e).

Extraneous material may contaminate food at any stage of production and these items are removed by a variety of systems, for example filtering, manual sorting and metal detection (CFIA, 2008, p.289; Edwards, 2004; p. xii-xv; Surak & Wilson, 2006; p. 153). No method, however carefully implemented, will guarantee complete freedom from foreign bodies and therefore extraneous materials are an accepted component of food (CFIA, 2008, p.
Though the Food and Drugs Act states that no person shall sell an article of food that has in it any harmful substance, Health Canada has developed allowable limits for many items such as pits in maraschino cherries, metal pieces in chocolate, insect fragments in coffee, mold in raisins, and bone fragments in ground beef (Government of Canada, 2009; CFIA, 2008, p. 287).

**Chemical Hazards**

A chemical hazard is the contamination of a food with a chemical that may cause an adverse reaction or injury to the consumer, including toxic chemicals from plants or animals, processing aids added during food production or growth where the substances are considered safe at established levels but are dangerous above these levels (for example sodium nitrite, or pesticides), chemicals used in the facility such as sanitation chemicals or lubricants, and allergens (CFIA, 2012b, p. 2; Jackson, 2009; Raspor & Jevšnik, 2008; Surak & Wilson, 2006; p. 21; Sprenger, 2008; p. 82). These hazards are controlled by the facility through their food safety programs.

Chemicals can contaminate food in two other important ways. First, chemicals may be used to alter the composition of the product, as was seen with the deliberate contamination of pet food and milk products with melamine, a toxic chemical not approved for addition to food. In this example, the adulteration, or intentional modification of food to mislead the consumer, can be detected by monitoring the protein level in the food through a test measuring nitrogen content. The addition of melamine increases the nitrogen content of the milk and therefore its apparent protein content (WHO, 2012). Thus, the addition of melamine masks food adulteration in a way that it is difficult to detect. Second, chemical contamination can be the result of the migration of chemicals in the packaging material into
the food, as occurs with bisphenol A (Jackson, 2009). In 2011 the CFIA issued 58 recalls for chemical contamination, including drug residues in honey, lead in candy and Phthalates in juice (CFIA, 2009c).

As with physical hazards, tolerance levels have been established that vary by both food type and chemical. For example, the marine toxin amnesic shellfish poison is allowed at the 20 µg/g level in shellfish (CFIA, 2010a) whereas Carbaryl, a broad spectrum insecticide, has a maximum residue limit of 10 parts per million (ppm) on asparagus and 5 ppm on broccoli (Health Canada, 2011c). Despite this, there are a limited number of retail foods for which maximum contaminant levels have been developed. Health Canada (2011a) states that because most chemicals are found in food at such low levels a chemical residue does not automatically lead to the conclusion there is an unacceptable risk to human health.

These examples highlight the difficulty in identifying chemical hazards once present in foods and their control is most effective at stages in food production prior to processing (Surak & Wilson, 2006; p. 52).

**Allergens**

One particular type of chemical hazard is allergens, proteins mistakenly identified by the immune system as harmful and cause an allergic reaction in the consumer. As the vulnerable population is estimated to be as great as 5-6% of young children and 3-4% of adults in westernized countries, food allergies have become a problem of significant public health importance (Health Canada, 2011b; Jackman, 2009; Kirsch et al., 2009; Lack, 2012; Shriver & Yang, 2011). Symptoms of an allergic reaction may be mild or severe, and in highly reactive individuals can rapidly progress to anaphylactic shock or death (Health
Canada, 2011b). The food products most commonly associated with severe allergic reactions in Canada are: eggs, milk, peanuts, seafood, sesame, soy, sulphites, tree nuts, and wheat. These are otherwise known as the priority allergens (CFIA, 2012c).

Allergenic proteins are normal components of the foods and it is reasonable to expect that a peanut butter sandwich would contain peanut proteins. However, allergens may inadvertently contaminate other foods through a number of avenues, including incorrect labeling, changes to product formulation, and insufficient or ineffective equipment cleaning/sanitation procedures (Jackman, 2009; CFIA, 2008, p. 219). The only effective way to prevent an allergic reaction is the complete avoidance of the protein and consequently the handling of allergens is an important consideration in any food processing environment (Health Canada, 2011b; Shriver & Yang, 2011).

**Biological Hazards**

Biological hazards are pathogenic microorganisms or their toxins, and include bacteria, protozoa, fungi, viruses, prions, and natural toxins (CFIA, 2008, p.187; Lampel, Al-Khaledi & Cahill, 2012; p. 2; Sprenger, 2008; p. 275; Surak & Wilson, 2006; p. 150). Microorganisms can enter the food chain at different steps, are highly versatile, and adapt to most environments allowing survival, growth and production of toxic compounds (Havelaar et al., 2010). The food safety risk associated with each microorganism varies by both pathogen and method of entry into the food system, and not all present the same level of risk. Bacteria, protozoa, and fungi, as well as their associated toxins, are the primary risk to consumers given their ubiquitous presence in the environment. *Salmonella species (spp.)*, for example, survive in a variety of environments and contaminate food at numerous locations in the production system, including irrigation water, soil, factory equipment, and the consumers’
kitchen (Hammack, 2012; p.13).

These microbes cause foodborne illnesses in two ways: infection and intoxication. First, foodborne infections occur when contaminated food is consumed and the pathogen multiplies within the host. The food, though it may support the multiplication of the microorganism, is not an important feature of the illness (Lampel et al., 2012; p. 253; Sprenger, 2008; p. 52). *Campylobacter jejuni* and *Salmonella spp.* are two common pathogens that cause infections (CFIA, 2008; pp. 191-197). Second, foodborne intoxication occurs when a toxin produced by the microorganism causes the illness and the toxin may continue to cause the illness after the pathogen has died (CFIA, 2008, p. 189; Lampel et al., 2012; p. 253). These toxins are classified in two ways; exotoxins and endotoxins. Exotoxins are most commonly produced in the food product during the multiplication of the microorganism, whereas endotoxins are a component of the pathogens’ cell membrane and are released during pathogen growth or death (Lampel et al., 2012; p. 251; Sprenger, 2008; p. 20). Some microorganisms, for example, *Escherichia coli O157:H7* can induce illness through both infection and intoxication (CFIA, 2008, p. 195).

The infective dose is the number of microorganisms that must be present in the food to cause an illness. For a foodborne infection, the infectious dose is the number of microorganisms that must be consumed by the victim to cause an illness, whereas for foodborne intoxication it is the number of microorganisms required to produce sufficient amounts of the toxin to cause the intoxication (Lampel et al., 2012, p. 93). For both infection and intoxication the food safety concern is the total number of pathogens present; the more microorganisms present in the food, the more likely the consumer is to become ill, either through the microorganisms overwhelming the immune system, as in the case in infection, or
the quantity of toxin produced, as in the case of intoxication. For example, the infectious dose for non-typhoidal *Salmonella* spp. can be as low as one microorganism, whereas *Clostridium perfringens* requires 1,000,000 cells to produce sufficient quantities of toxin (Al-Khaldi, 2012; p. 82; Hammack, 2012; p. 13).

**Foodborne Illness Examples**

Two common foodborne illnesses that are the result of biological hazards will be discussed in detail; *Staphylococcus aureus* (*S. aureus*), a pathogen that causes a foodborne intoxication, and *Campylobacter jejuni* (*C. jejuni*), a pathogen that causes a foodborne infection. These pathogens were chosen for both the characteristics of the illnesses they cause and the frequency of occurrence.

**Staphylococcus aureus**

Staphylococcal food poisoning (SFP) is one of the most common foodborne diseases and in Canada *S. aureus* was responsible for nearly 15% of foodborne outbreaks between 1976 and 2005 (Ravel et al, 2009). This intoxication is of abrupt and often violent onset with severe nausea, cramps, vomiting, and prostration, and may be accompanied by diarrhea, subnormal temperature, and lowered blood pressure. The intoxication arises from the ingestion of staphylococcal enterotoxins (SEs) preformed in food by enterotoxigenic strains of *Staphylococcus aureus* (Hennekinne, De Buyser & Dragacci, 2011). The intoxication dose is less than 1.0 microgram, a level achieved when the *S. aureus* population exceeds 100,000 organisms per gram and, as its toxins resist boiling, reheating a contaminated food does not render it safe. This microorganism is a component of the normal microbial flora of mammals and therefore a common source of *Staphylococcus aureus* is the food handler (Heymann,
Foods associated with outbreaks include meat; poultry; salads, such as egg, potato, and macaroni; cream-filled pastries, and sandwich fillings (Bennett & Hait, 2012; p. 86).

**Campylobacter jejuni**

*Campylobacter jejuni* is the pathogen responsible for campylobacteriosis a leading cause of acute gastroenteritis worldwide (Cox, Richardson & Musgrove, 2010, p. 20; Gardner et al., 2011). In Canada, 9345 cases (30.2 per 100,000) of this illness were reported in 2004, nearly twice the number of cases of salmonellosis (16.0 per 100,000) and in the United States, *Campylobacter* infections are estimated to annually cost $1.7 billion dollars (Galanis, 2007; Hoffmann, Batz & Morris, 2012). Outbreaks of campylobacteriosis are relatively rare, with most illnesses identified as sporadic events rather than as part of a recognized outbreak (Humphrey, O'Brien & Madsen, 2007). The infectious dose is approximately 10,000 microorganisms, but may be as low as 500 in vulnerable people, such as the elderly (Heymann, 2008; 95; Foley, 2012; p. 17). In Canada, 75% of this illness is attributed to poultry and dairy products (Ravel et al., 2009).

Animals are important reservoirs for this pathogen, including poultry and cattle, therefore the risk of contamination of food products such as raw meat and milk has major consequences for human health (Gaggia, Mattarelli & Biavati, 2010). It is also common in wildlife, and in 2008 an outbreak of nearly 90 illnesses of campylobacteriosis occurred in Alaska. Sandhill cranes contaminated a field of peas and a food safety inspection of the processing facility found a lack of chlorine residual in pea-processing water, inadequate plumbing leading to and within the processing area, inadequate work surfaces for processing, and exterior doors and entrances that were left open throughout the day (Gardner et al.,
These findings indicate that once the peas were contaminated there were inadequate food safety controls in place to decrease the risk to the consumer.

Food safety controls are critical to preventing, removing or destroying the pathogens present in the food and thus decreasing the incidence of foodborne illnesses. However, once a microorganism is present, control methods rely heavily on preventing their growth in order to minimize the number of microorganisms. Given the low infectious dose of many microorganisms, this is an important goal, and one that can only be managed through strict food safety systems.

**Growth of Microorganisms**

Bacteria, the microorganism of concern in foodborne illnesses, multiply through binary fission, a reproduction method in which an organism divides in two and in as little as 20 minutes (Angert, 2005). Through binary fission, one bacterium can become one million in seven hours (Sprenger, 2008; p. 23). Returning to the microorganism *Campylobacter jejuni*, a contaminated poultry carcass can carry 100 to 100,000 *Campylobacter* cells and poultry products pose a significant risk for consumers who mishandle fresh or processed poultry during preparation or for those who undercook it (Foley, 2012; p. 17).

There are six factors which affect microorganism growth; food, time, acidity (pH), temperature, oxygen and moisture (a$_w$ or water activity). These factors can be divided into two broad categories: intrinsic and extrinsic factors. Intrinsic factors are inherent to food, such as a$_w$ and pH. Extrinsic factors that affect microbial growth in foods are external conditions under which food is stored, such as temperature. Of these the most important are moisture, pH, and temperature (Lampel et al., 2012; p. 242). Microorganisms, excluding
viruses and prions, require food to multiply and most foods contain sufficient nutrients to support microbial growth (Lampel et al., 2012; p. 242). Since the food source for the microbe cannot be removed from the food source for the consumer, the primary control of the microorganism’s food source is the food processing environment. The removal of food sources through cleaning and disinfection is a significant contribution to product hygiene and food safety because removing food particles on which the microorganism can feed minimizes the number of microorganisms available to contaminate the product (Otto et al., 2011).

pH is a measurement of the hydrogen ion concentration of the food, and is calculated as a range of 1 to 14. A highly acidic food has a low pH (towards 1) whereas a highly basic food has a high pH (towards 14). The acidity of food is an important factor in controlling the growth of microorganisms as most pathogens do not grow in high acid (pH less than 4.5) or high basic (pH greater than 7.5) environments (Surak & Wilson, 2006; p. 151). High acid foods, however, have been responsible for outbreaks of *E. coli O157:H7* (apple cider) and *Salmonella* (orange juice), despite the low pH of juices (Besser et al., 1993; Jain et al., 2009).

Microorganisms have a temperature range at which they grow best, usually between 20°C and 50°C (Sprenger, 2008; p. 25). Heating a food will destroy pathogens, however, the lethality of the heat treatment depends on the temperature of the product and on the time under which the product is held at that temperature (Surak & Wilson, 206; p. 151). For this reason, legislation states specific time and temperature requirements for the cooking of food. For example, the Ontario Regulation 562 Food Premises requires whole poultry to be cooked to an internal temperature of at least 82°C for at least 15 seconds, whereas a food mixture containing poultry or ground poultry must be cooked to reach a temperature of at least 74°C for at least 15 seconds in all parts of the mixture (R.R.O. 1990, Regulation 562 Food...
Premise). Cold also affects microorganism growth and though microorganisms do not die at refrigeration or freezing temperatures, they rarely will grow (Surak & Wilson, 2006; p.150). One exception is *Listeria monocytogenes*, which will grow at a temperature as low as -0.4°C (CFIA, 2008, p. 196).

Time is also a consideration in the control of microorganisms as the longer a microorganism remains in the optimal zone for growth, the more binary fission will occur, resulting in a rapidly expanding population.

Oxygen may or may not be required for a microorganism to grow. Aerobic microorganisms require oxygen, whereas anaerobic microorganisms grow only in the absence of oxygen. For example, *Clostridium botulinum* is an anaerobe, reproducing only in the absence of oxygen, thus making it a particularly hazardous microorganism in the canning process (CFIA, 2008, p.192). *E. coli O157:H7*, and most pathogens, are facultative anaerobes able to grow in both aerobic and anaerobic environments (CFIA, 2008, p.195).

Finally, water activity (\(a_w\)) is the amount of moisture available in any food and is measured as a number between 0.0 and 1.0. Pure water has an \(a_w\) of 1.0 and is essential to the growth of pathogens, however, each one requires a different amount of water. *Campylobacter jejuni* require a minimum \(a_w\) of 0.987 (CFIA, 2008, p. 191) whereas *Staphylococcus aureus* has a minimum water activity of 0.85 to produce its toxin (CFIA, 2008, p. 199). In general, the lower the water activity the less likely pathogens are to grow. The \(a_w\) of a food can be lowered by adding ingredients such as salt or sugar, or the physical processes of evaporation or drying (Surak & Wilson, 2006; p. 151).
These control measures are applicable only to bacteria, protozoa, and fungi, and serve control their growth and toxin production. Viruses are rarely controlled through these methods because they are non-living entities that do not reproduce without a living host. For example, Noroviruses may be present on a food product but its population cannot be reduced or eliminated without significant transformation in the product (e.g. high heat) (Patel, Hall, Vinjé & Parashar, 2009). Prions are proteinaceous infectious particles specific to animals and are controlled by preventing the infected material from entering the food supply (Sprenger, 2008, p. 61).

All three hazards described here, physical, chemical and biological, present risks to the consumer in the form of foodborne illness or injury. When a consumer chooses a food product, whether it is freshly picked snow peas from a farmer’s roadside stand, a cooked chicken from a grocery store or a sandwich prepared in the home, they are also asking a food safety question: will this food cause a foodborne illness to themselves or their family? Consciously or unconsciously, the consumer is deciding whether or not a product is contaminated. To do this, they rely on the information available to them.

**Information Asymmetry in Food Safety**

Information about food quality, and therefore food safety, is asymmetrically distributed (Deaton, 2004). This asymmetry is the result of two fundamental issues with food. The first is the inability of the consumer to determine if the food is contaminated and the second results from discrepancies in historical knowledge. Therefore, these asymmetries in food safety, which are the results of attributes and factors of the food and production process, present significant challenges to devising food safety control (Jensen & Sandøe, 2002).
Uncertainty in food contamination

The traditional method of food safety assessment, a visual examination, provides information about the physical attributes of the product but little to no information regarding the safety of the food (Albersmeier, Schulze, Jahn & Spiller, 2009; Deaton, 2004; Traill & Koenig, 2010). This inspection relies on sensory information; sight, touch, and smell, and cannot determine if the food has been contaminated. Physical hazards are often buried in the product or hidden by the packaging and cannot be seen until the foreign material has injured the consumer. Chemical contamination, for example with pesticide residue, may leave no discernible evidence. Pathogen contamination has no discernible smell, taste, touch or visible indicators and so is difficult to detect through an inspection by a consumer. For the manufacturer it is impossible to conduct sufficient microbiological sampling to obtain the necessary degree of assurance that the product is safe (Havelaar et al., 2010).

For example, in 2008 Stephanie Smith, a children’s dance instructor became paralyzed after eating a hamburger contaminated with Escherichia coli O157:H7 which had been cooked by her mother (Moss, 2009). It is a reasonable assumption that neither the victim, nor her mother, knew the ground beef was contaminated. From this example it can be seen that neither the food handler nor the consumer can identify microbiologically contaminated food by sight, smell or taste. Even when a consumer is aware of the potential hazards with food they may still be at risk for a foodborne illness. In 2009, Kristen Gardiner, a young woman suffered an anaphylactic allergic reaction to a Starbucks parfait. The victim read the label, which had no warning information and asked an employee if it was nut free. Despite her efforts to ensure her safety, the victim was left with permanent damage to her vision (Tomlinson, 2009).
Imbalance in food production information

Within the food system the seller is better informed than the buyer because the seller has a certain amount of historical knowledge of the product (Deaton, 2004). For example, when purchasing fruit salad from the grocery store, the consumer has little information regarding the farming practices (the orchards, the harvesters, the pesticides applied), the processing method (chlorine residual in the wash water), the transportation methods (the condition of the truck or container) or food handling practices in the grocery store (the cleanliness of the knife used to prepare the fruit, or the food safety knowledge of the employee). Furthermore, actors at each stage in the food production system can only be certain of the accuracy of the information when the product is in their direct control. In the grocery industry, the retailer can be assured only of the food safety handling practices while the fruit is in their possession: transportation from their distribution centre to their stores and their employees (Deaton, 2004; Traill & Koenig, 2010). To compound this issue, the retailer has no impact on how the food is handled once it has left their premises; raw chicken may be left in a car trunk in July or frozen hamburger meat left to thaw on the counter.

Control of Hazards

Contamination of food can happen at any stage of the production chain. For example, with meat it can happen at animal feed manufacturing, farm level, slaughter, meat processing, retail stores, and preparation of meat at home, therefore it is important that hazard control occur at all locations in the food system (Gaggia et al., 2010). Galanis (2007) provides the following recommendations for control of campylobacteriosis:
Farm

- Ensuring animal health through preventive and veterinary medicine
- Ensuring biosecurity (e.g., appropriate cleaning and ventilation, safe handling of litter and manure, elimination of standing water)

Slaughterhouse and processing

- Maintaining good hygiene and sanitation
- Using HACCP (Hazard Analysis and Critical Control Points)
- Separating contaminated from uncontaminated animals and meat

Kitchen

- Keeping poultry and meat refrigerated
- Avoiding cross-contamination
- Cooking poultry to an internal temperature of 74°C and meats to 71°C

Individual

- Hand washing (p. 570)

Thus, the responsibility for food safety rests on all participants in the food system, from farmer to consumer. Though the consumer would be responsible for preventing cross-contamination in their own kitchen through effective hand washing, they would not be expected to manage hygiene practices in the slaughterhouse.

As hazards are difficult to detect and remove from a food product, the importance of preventing the contamination from occurring cannot be overstated. Many hazards are best controlled during processing, including metal detection (physical), veterinary drug
application (chemical) and pathogen contamination (biological). Therefore, food safety systems have become preventative in nature; it is more effective for the producer, and safer for the consumer, to ensure the food is not contaminated than to remove the contaminant once it is in the food product.

**Preventative Approaches to Food Safety**

As a result of the importance of food safety to public health and the inherent information asymmetries in the food system, the food industry has moved to a preventative and systematic approach focusing on outcomes rather than process controls or specific product attributes (Fulponi, 2006; Griffith, 2010; Herath & Henson, 2006; Scott, Wilcock & Kanetkar, 2009). An outcome-based standard clearly identifies the expectations for the final product but does not specify how this outcome is achieved, whereas a process standard identifies the requirements for the process (Reardon & Farina, 2002). Using the example of *Listeria monocytogenes* contamination of meat sliced in a grocery store, the differences between an outcome-based standard and a process-based standard can easily be seen. If the goal of the standard was the absence *Listeria monocytogenes* on sliced meat an outcome-based standard would require that the meat be free of this pathogen. To achieve this, not only must the meat slicer be kept in a clean and sanitary manner, but other sources of the pathogen, such as drains, must be managed to control contamination. However, a process-based standard would specify only that the meat slicer, a primary source of this pathogen, be maintained in a clean and sanitary manner. As there are many methods of pathogen contamination in any food processing environment, the process-based standard would place the consumer at risk for a foodborne illness by failing to prevent contamination from other sources. Theoretically, the outcome-based standard should decrease the risk to the consumer
by controlling a greater number of potential hazards than the process-based standard because it requires controlling all sources of the pathogen, not just the meat slicer.

Given the complexity of the food production system, a preventative approach to food safety is appropriate. Food safety management systems such as Hazard Analysis Critical Control Points (HACCP) and the pre-requisite systems Good Manufacturing Practice (GMP) and Good Hygiene Practice (GHP) are used to ensure that physical, chemical and biological hazards are recognized and controlled in food facilities (Gorris, 2005).

**Food Hygiene Programs**

The Codex Alimentarius Commission (CAC) defines food hygiene as all conditions and measures necessary to ensure the safety and suitability of food at every stage of the food production system and food hygiene programs are vital to preventing foodborne illness, foodborne injury and food spoilage (CFIA, 2012a; p. 3; Codex Alimentarius Commission, 1997, p. 5). Therefore, the production of safe foods begins with the implementation and application of general preventive measures such as Good Hygienic Practices (GHP) and Good Manufacturing Practices (GMP) (Reij & Den Aantrekker, 2004). GHP and GMP are activities undertaken by the food producer, whether a farm or a factory, to ensure that the food will be safe and include such actions as employee hand washing, sanitation of equipment, and the proper application of chemicals to a field of produce. These programs are the foundation of producing safe food, they are often called prerequisite programs, and are used to support the primary food safety system used today, the Hazard Analysis Critical Control Points (HACCP) Program. Prerequisite programs include sanitation, employee training, and preventative maintenance and it is these programs that ensure a safe food handling environment.
Hazard Analysis Critical Control Points Program

The globally accepted practice for managing food safety is the Hazard Analysis Critical Control Point (HACCP) system developed by Pillsbury in the 1960s for the United States Army and the NASA program (Nguyen, Wilcock & Aung, 2004; Soon, Manning, Davies & Baines, 2012; Surak & Wilson, 2006, p. 4). HACCP is an internationally recognized, science-based food safety system, designed to prevent, reduce or eliminate potential biological, chemical and physical food safety hazards and is widely acknowledged as the best method of assuring product safety (CFIA, 2012b, p. 1).

This system is outcome based and has as its goal zero defects in the food product. Zero-risk, however, is unattainable, and so HACCP systems are used to prevent, reduce or destroy hazards (Havelaar et al., 2010; Reardon & Farina, 2002). HACCP analyzes the process at each stage of production in order to determine where hazards could enter the system and then designs the system to prevent these hazards from occurring rather than remove these hazards after they have happened. A logical system, Gaze & Campbell (2004, p. 19) refer to it as essentially common sense and it is particularly useful for managing biological hazards as it is impossible to conduct sufficient microbiological sampling to obtain the necessary degree of assurance that the product is safe (Havelaar et al., 2010).

HACCP involves seven principles; Principle #1 Hazard Analysis; Principle #2 Identify Critical Control Points (CCPs); Principle #3 Establish Critical Limits; Principle #4 Monitor the CCPs; Principle #5 Establish Corrective Action; Principle #6 Record Keeping; Principle #7 Verification (CFIA, 2012b, p. 36; Surak & Wilson, 2006, p. 5).

Principle #1 Hazard Analysis: the hazard analysis assesses potential hazards
associated with a food. For example, the hazard may be biological (e.g., *Campylobacter jejuni* in poultry), chemical (e.g., pesticides on produce) or physical (e.g., metal in ground beef). Once the hazard is identified, it can be controlled through actions taken by the food handler.

Principle #2 Identify Critical Control Points: Critical Control Points identifies the locations in the food process where a preventative measure may be taken and are determined through a structured decision tree (CFIA, 2012b, p. 41). CCPs are a point or a step at which a control measure can be applied and the hazard prevented, eliminated or reduced to an acceptable level (CFIA, 2012b, p vii). A prevention step may be location specific, for example control of pesticides in fresh produce at the farm level, an elimination step could include cooking food to kill pathogens and a reduction step would be a sifter that removed foreign materials larger than 2.0 mm (Soon et al., 2012; Gaze & Campbell, 2004, p. 23).

Principle #3 Establish Critical Limits: critical limits are criteria that separate acceptability from unacceptability in the food product and confirm the safety of the product if properly maintained (CFIA, 2012b, p. 42; Surak & Wilson, 2006, p. 5). Health Canada has determined that foreign material greater than 2.0 mm may cause illness, injury or choking in the consumer (CFIA, 2008, p. 287). Therefore, the Canadian critical limit for foreign materials is 2.0 mm and any foreign material larger than 2.0 mm must be removed from the product (Gaze & Campbell, 2004, p. 23).

Principle #4 Monitor the CCPs and Principle #5 Establish Corrective Action; the CCP must be monitored at all times to ensure the conformance of the process to the critical limit and the facility must take corrective actions to prevent unacceptable product from reaching the consumer should a process fail to meet the critical limit. If a chicken was cooked in a
restaurant and the temperature was found to be 68°C, the critical limit would not have been met (poultry must be cooked to 82°C for 15 seconds as per the Ontario Regulation 562) and could not be served to the customer. An appropriate corrective action is to continue cooking the chicken until it meets the critical limit.

Principle #6 Record keeping and Principle #7 Verification; the measurement of a critical limit must be recorded. This ensures that the facility can prove, should a foodborne illness occur, that the food served was microbiologically safe for the consumer to eat. Finally, the system must be verified to ensure it is functioning as required (Surak & Wilson, 2006, p. 5). The progress of the HACCP has to be reviewed periodically, and the outcomes of the measurements and actions undertaken serve as the basis for modifications and adjustments of the system (Kleter & Marvin, 2009). The verification step and this review act to ensure that the program is based on scientific evidence that has been proven to produce safe food. Each manufacturer must provide documented evidence that the critical limits are effective through legislation, scientific papers or in-house testing results.

HACCP is strongly supported by both the World Health Organization and the Food and Agriculture Organization of the United Nations through the Codex Alimentarius Commission. These organizations recommend the HACCP system as a means of promoting food safety and HACCP is now are required by both the federal and provincial governments in Canada (CFIA, 2010b, p. 39; Fulponi, 2006; Health Canada, 2009; Herath & Henson, 2006; Scott et al., 2009; World Health Organization, 2011).
Governance and Food Safety

As a society, we use legislation as our primary governance mechanism, or as Levi-Faur (2009) states, “to regulate is to define what is acceptable and legitimate for public action.” Historically, the control of food safety practices outside of the home has been the domain of the state through the development, application, and enforcement of governmental food safety regulations and each nation has had sole responsibility for the regulation of food and agriculture within its borders. The goal of statutory food safety regulations is to mandate that firms produce safer products, and as such, governmental agencies are responsible for monitoring food safety and quality standards through state-conducted inspections of food manufacturing and preparation premises (Antle, 1999; Hatanaka et al., 2005).

Canadian governance is considered quite good, and the 2010 Food Safety Performance World Ranking Initiative conducted by the University of Saskatchewan found that the Canadian system ranked fourth (with the United States of America) in the world (Charlebois, 2010, p. 16). Constitutionally, Canadian food safety governance is largely under provincial control, however regulations and enforcement activities take place at federal, provincial and municipal levels for such attributes as safety, quality, composition, packaging, and labelling of products (Holley, 2010; Ontario Ministry for Agriculture, Food and Rural Affairs [OMAFRA], 2011).

Canadian Governance

Food production facilities in Canada may be divided into two categories, those that are regulated by the federal government and the facilities that are regulated by the individual provinces. The jurisdiction of each government depends on the food product and the location
in which it will be sold. For example, meat or processed foods that are import, export or interprovincial trade must be produced in a federally registered facility, whereas the same product that will not leave the province of production is under the jurisdiction of the provincial government.

**Federal Governance**

At the federal level, food governance in Canada is a shared responsibility between Health Canada and Agriculture and Agri-Foods Canada (Hatt & Hatt, 2012). Health Canada, through the Food and Drugs Act, provides standards for the cleanliness of food sold in Canada (Food and Drug Act, R.S., 1985; c. F27; s. 4; 2005; c. 42; s. 1.). This Act and its Regulations are enforced by the Ministry of Agriculture and Agri-Food through the Canadian Food Inspection Agency (CFIA), an organization whose mandate is to promote the food industry (CFIA, 2011a).

HACCP is mandatory for facilities that produce meat and seafood transported between provinces through the Food Safety Enhancement Program (FSEP) in federally registered meat and poultry establishments and the Quality Management Program (QMP) in fish and seafood processing facilities (García Martinez et al., 2007). FSEP relies heavily on two components, HACCP to manage food safety and the Compliance Verification System (CVS) to verify that the establishment is following its HACCP plan (Hatt & Hatt, 2012). The CVS audits the HACCP records through a sampling design based on the number of Critical Control Points in the facility’s HACCP plan and the risk of the products produced at that facility (Hatt & Hatt, 2012).

The non-federally registered companies are encouraged, but not required, to use a
HACCP program to ensure food safety through General Principles of Food Hygiene, Composition and Labelling. This guideline assists these facilities to establish manufacturing practices that maintain food safety and meet regulatory requirements (CFIA, 2011b, p. 3). However, when traded within provincial–territorial borders, the same products require only regional approval and must comply with a second tier of often less stringent regulations administered by provincial agriculture, environment or health departments (Holley, 2010). For example, most of the non-federally registered establishments involved in the slaughter of food animals and the processing, packaging, labelling, refrigeration, freezing and storage of meat products are small- or medium-sized businesses that operate locally and have limited production capacity and/or limited financial means to pursue federal registration and correspondingly fulfill the requirements of the federal Meat Inspection Regulations (Canada Gazette, 2011).

**Provincial and Municipal Governance**

At the provincial level in Ontario, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) both administers and enforces a number of statutes established to minimize risks to food safety and promote the orderly marketing of various commodities produced in Ontario (OMAFRA, 2011). The province of Ontario has recently promulgated and implemented a voluntary standard for HACCP implementation, HACCP Advantage, aimed predominantly (although not exclusively) at the meat and poultry processing sector. Finally, municipalities have the responsibility to enforce legislation for food-processing plants that are not federally or provincially registered (OMAFRA, 2011), for example bread manufacturers. Provinces and local governments have their own inspection staff and training programs (Holley, 2010).
International Governance

The World Trade Organization governs the international regulation of trade in food through its Agreements on Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT) (Henson & Humphrey, 2010). The WTO's SPS Agreement states that “to harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations”. This organization serves as the major international arena for the promotion of trade liberalization, and as such has become the de facto enforcer of standards through the legal matters it adjudicates (Hatanaka et al., 2005; Henson & Humphrey, 2010).

The SPS names the joint Food and Agricultural Organization / World Health Organization Codex Alimentarius Commission as the relevant standard-setting organization for food safety (WTO, 2012). The Codex Alimentarius Commission (CAC) was created in 1963 by FAO and WHO to develop food standards, guidelines and related texts as codes of practice under the Joint FAO/WHO Food Standards Programme. There are three purposes for this Programme: first, protecting health of the consumers; second, ensuring fair trade practices in the food industry; and third, promoting coordination of all food standards work undertaken by international governmental and non-governmental organizations (Codex Alimentarius Commission, 2011). The CAC also provides the international standard for food safety, HACCP, the foundation of Canada’s federal and provincial legislation, including facility registration, operation, and inspection to ensure these systems are in alignment with Canada’s international trading partners (Holley, 2010).
Conclusion

Food safety is an important component of ensuring public health by providing the assurance that the consumer will not be sickened or injured by the food they have eaten. Ensuring the safety of food requires both understanding the potential hazards (physical, chemical and biological) which can make people sick, and implementing control measures such as HACCP and prerequisite programs. These programs are internationally recognized as effective control measures and serve to partially correct the information imbalance inherent in the food system. Traditionally, the safety of food has been ensured by state governance mechanisms, namely the development, implementation and enforcement of food safety legislation.

Understanding food safety and its control measures is critical to ensuring safe food is provided to consumers. However, as CFIA (2012, p. viii) states, food safety is a concept and as such it is a social construction. Therefore, to understand food safety and its governance it is important to understand the society and its prevailing ideology. Currently, the Global North is firmly in the grasp of neoliberal ideology. Chapter three, Neoliberalism, explores this ideology, its implementation and outcomes, and concludes with an example of the commodification of food safety.
Chapter 3: Neoliberalism

Neoliberalism is a political doctrine that proposes human well being can best be advanced by the maximization of entrepreneurial freedom within an institutional framework characterized by private property rights, individual liberty, free markets, and free trade (Harvey, 2006). Larner (2000) identified neoliberalism as both a political discourse about the nature of rule and a set of practices that facilitate the governing of individuals from a distance. Today, neoliberal policy is the dominant global ideology governing human interaction through voluntary and involuntary implementation, and is perceived as fated, inescapable, and evolutionary (Heynen & Robbins, 2005). However, despite the worldwide acceptance of this ideology there is nothing natural or inevitable about its rise; neoliberalism is a politically managed and institutionally regulated process with significant impact on virtually all aspects of life (Heynen & Robbins, 2005; Peck, 2004).

This chapter investigates the history of neoliberalism, its rise to a hegemonic philosophy in the last 30 years, and selected outcomes. Focusing on neoliberalism as an ideology, it explores the historical development of neoliberalism, explains how this ideology rose to its current hegemonic status, and then moves to a discussion of the outcomes of neoliberal policy, with a focus on the restoration of class power. It concludes with an example of a neoliberal impact on food safety, the development of a vaccine for Escherichia coli O157:H7 in cattle.

History of Neoliberalism

Societies create the forms of their existence and as a result are very much a matter of deliberation and choice (Hudelson, 1999, p. xi). These choices are historically contingent
and neoliberalism, like all political ideologies, can only be identified and understood by tracing its origins through time and space (Turner, 2007). Therefore, to understand how neoliberalism became not just the dominant, but also virtually the sole global political ideology, as well as its impact on societies, it is necessary to understand its historical development.

**Classical Liberalism**

The concepts and premises of neoliberalism are not, despite its prefix, new; it is instead a resurgence of the classical liberalism developed in the eighteenth and nineteenth centuries, coloured by the political developments of the 20th century (von Werlhof, 2008). Opposed to the mercantilism of monarchs who exercised almost total control over the economy in their efforts to amass personal wealth, classical liberals such as Adam Smith and David Ricardo developed the concepts and promoted the merits of individual liberty, the free market, and laissez-faire economics (Steger & Roy, 2010, p. 2; Tang, 1997). This resulted in the ideology of classical liberalism, which holds that the best economy is one in which the scope for individual choice, through individual liberty and free markets, is greatest, and the scope for government intervention is smallest, through laissez-faire economics (Tang, 1997). Free markets are institutions within which buyers and sellers freely enter into agreements to exchange goods and services, usually through purchase transactions. Participants decide what commodities they will sell (e.g. the product of their labour or their labour itself) and what they will purchase (e.g. clothing, food or shelter). In a free market everything is a commodity to be bought or sold, regardless of its intrinsic value or necessity. Free markets are, therefore, presumed to function efficiently because they provide every individual an incentive to produce more efficiently (Hudelson, 1999, p. 35) and, as a result, they work best
with little, if any, state interference. Issues, should they arise, are presumed to naturally correct themselves (Busch, 2010; Steger & Roy, 2010, p. 6). Laissez-faire is an economic and political doctrine that holds that economies function most efficiently when unencumbered by government regulation (Busch, 2010). This doctrine advocates for individual self-interest and competition and opposes both the taxation and regulation of commerce (US History, 2011). Laissez-faire assumes that markets are beneficial, governments are harmful, and suggests that individual freedom and government actions exist in inverse ratio to each other (Tang, 1997). Therefore, classical liberalism proposes that it is in the best interest of the nation to endorse individual liberty through a reduction in laws and regulations that results in a self-regulating and efficient market (Hudelson, 1999, p. 21).

Classical liberalism became the overwhelmingly dominant philosophy during the nineteenth century (Hudelson, 1999, p. 37). However, the severity and longevity of the Great Depression convinced leading economic figures that government's role was much more than the role prescribed by classical liberalism and that this doctrine was no longer a viable approach to the economic problems of the twentieth-century (Steger & Roy, 2010, p. 5; Turner, 2007). The ideological dominance of classical liberal values, free trade and limited government, gave way to a pro-collectivist liberal creed, entitled the Keynesian State, embracing the principles of community, rational planning and institution design (Turner, 2007).

The Keynesian State

As a result of the turn from classical liberalism, the three decades after World War Two were governed by Keynesian economic policy. This is a theory of macroeconomics which postulates that the state should focus on full employment, economic growth, and the
welfare of its citizens and that state power should be freely deployed, alongside of or, if necessary, intervening in or even substituting for market processes to achieve these ends (Harvey, 2005, p. 10). These decades were focused on policies wherein the role of the state was to guide the economy and distribute risk to shield the inevitable losers in a capitalist market, leading to what has been called the “golden age of capitalism” (Dean, 2008; Steger & Roy, 2010, p. 7). The Keynesian state, or Keynesian welfarism, as it came to be known, protects citizens primarily through employment; citizens who are employed are able to participate in the market economy. The government’s role was one of oversight and careful interventions to stimulate demand as the market alone was not enough to guarantee continued, secure productivity (Dean, 2008). This golden age was marked by first, a retreat from laissez-faire and liberal use of state policy and second, the attendant growth of the regulatory powers of the state (Hudelson, 2011, p. 60). Through to the 1970s, the business cycle was successfully controlled through the application of Keynesian fiscal and monetary policies (Harvey, 2005, p. 11).

It is important to note, however, that Keynes, despite a commitment to basic material sufficiency for all, felt that the advantages of wealth and privilege could only be appreciated by a select few, the upper classes. Keynes promoted capitalism because he felt it was the only form of economic system that could ensure such prosperity would remain with the class who possessed the faculty to enjoy it (Thompson, 2011, p. 39). In other words, though his influence and guidance were critical to developing what the neoliberals referred to as collectivism, his aims were to provide the theoretical basis for the preservation of capitalism, not its overthrow (Thompson, 2011, p. 39). Thus, though Keynesian policies appear to
protect the entire population, in practice they perpetuate the capitalist state, albeit with a softer touch.

Ultimately, Keynes policies encountered difficulties in the 1970s. Unemployment and inflation surged, and various states suffered fiscal crises (Harvey, 2005, p. 12). In response to the oil shocks that quadrupled the price of petrol overnight, the simultaneous occurrence of runaway inflation, rising unemployment, and falling corporate profits, a new breed of liberals revived the doctrine of classical liberalism (Steger & Roy, 2010, p.9). Though Keynesianism provided for the population as a whole, it failed to develop a public understanding of the economy that could compete with the neoliberal rhetoric of free markets (Dean, 2008).

The Beginnings of Neoliberalism

The beginnings of current neoliberal theory arose from the Mont Pelerin Society in 1947 and were a result of the efforts made by these liberal intellectuals to restore the status of classical liberalism (Harvey, 2005, p. 20; Steger & Roy, 2010, p. 15; Turner, 2007). For the Mont Pelerin Society, democracy was necessary for the efficient operation of a competitive market economy but needed to be limited to that function. The free market had to take precedence over democratic accountability (O’Flynn, 2009).

Neoliberalism identified itself as a variation of liberal ideology; it was a revival of classical liberal ideas of free trade and the minimal state and a counter-movement in reaction to various forms of collectivism, such as central planning, protectionism, and Keynesianism (Turner, 2007). Slowly building support through the decades after the Second World War, neoliberals advanced their new form of liberalism and contributed to the disintegration of the
Keynesian state in the 1970s. At this time, neoliberals were explicit drivers of the collapse, well positioned to advance their new form of liberalism. For example, Milton Friedman, an influential economist at the Chicago School of Economics had a guiding hand in elevating neoliberalism from its minority view in the 1950s to the ruling economic orthodoxy in the 1990s (Steger & Roy, 2010, p. 17). This elite school educated an international generation of thinkers who returned to their home countries fully indoctrinated in neoliberal ideology. Furthermore, by 1980, the proliferation of think tanks financed by wealthy individuals and corporate donors, coupled with the corporate acquisition of media power allowed the neoliberals to disseminate a discursive onslaught persuading the public of the common sense of neoliberalism (Harvey, 2006). Concurrent to the rise of neoliberalism, the graduates of the 1970s were taking their place as the upper echelon of power in international economic institutions, for example the General Agreement on Tariffs and Trade and the International Monetary Fund (Steger & Roy, 2010, p. 20). From the combined vantage points of education (the global political elite and the central contributors to intellectual institutions), and media control, neoliberalism became the fundamental ideology of the late twentieth century.

**Neoliberalism**

Though it may appear that neoliberalism is a single, monolithic and undifferentiated process that is somehow distinct from capitalism, it is a diverse and interlinked set of practices that reflects a heightened, evolved and more destructive form of capitalism (Heynen & Robbins, 2009). The creation of this neoliberal system has entailed much destruction, not only of prior institutional frameworks and powers (such as the supposed prior state sovereignty over political-economic affairs) but also of divisions of labor, social relations, welfare provisions, technological mixes, ways of life, and attachments to the land (Harvey,
In a neoliberal environment the role of the government is to create and preserve this structure. In it, the purpose of regulations is to encourage industry, not protect the individual or promote public health (Harvey, 2005 p. 2). Hayek, one of the founders of the Mont Pelerin Society, argued against any form of central planning and for the use of markets (especially competition) because they are the only method by which our activities can be adjusted to each other without coercive or arbitrary intervention of authority (as cited in Busch, 2010). Moreover, state decisions on matters of investment and capital accumulation were bound to be wrong because the information available to the state could not rival that contained in market signals (Harvey, 2005, p. 21). As Margaret Thatcher, an admirer of Hayek, famously declared, “there was no such thing as society, only individual men and women… all forms of social solidarity were to be dissolved in favour of individualism, private property, personal responsibility and family values” (Harvey, 2005, p. 23). Built upon the classical liberal ideal of the self-regulating market, neoliberalism is conceptualized through three intertwined manifestations; an ideology, a mode of governance, and a policy package (Steger & Roy, 2010, p. 11).

**Neoliberalism as Ideology**

Neoliberalism has become the overwhelming global political ideology. As described by Hudelson (1999)

A political ideology is a system of coherent and interconnected ideas that present a reasonably clear vision of how human social existence should be organized. A political ideology is a particular political philosophy. It brings together beliefs about
human nature, beliefs about the findings of social science, beliefs about the likely consequences of particular policies, beliefs about moral values and perhaps also beliefs about religion, history and the meaning of human existence. (p. 37)

In order for a concept to develop into an ideology it must become a fundamental concept so deeply embedded in common-sense understandings it becomes taken for granted and beyond question (Harvey, 2006).

As an ideology, neoliberalism appears to be a set of self-evident truths rapidly replacing both classical liberalism and non-capitalist visions (Busch, 2010). This replacement was accomplished in two ways. First, corporate and financial actors were wooed by the prospects of greater profits in a global marketplace combined with a reduction in government intervention. Second, the general population was convinced through appeals to individual liberty; the establishment of free markets in areas where there was previously governmental control, for example telecommunications, allowed individuals greater freedom to make their own choices (Levi-Faur, 2009). Thus, liberalized economies looked like the gateway to the consumer paradise and were much hyped by the global media (Thompson, 2011, p. 245). Therefore, neoliberalism became an ideology through social processes: its diffusion was the result of both structural forces and structurally positioned agents (Peck, 2004).

Neoliberalism as Governance

Neoliberalism as governance focuses on the state promoting the free market through legislation designed to facilitate a perfectly functioning market (Busch, 2010). Rather than operating along more traditional lines of pursuing the public good by enhancing civil society
and social justice, it encourages the transformation of bureaucrats into self-interested actors responsible to the market, not the public, and contributing to the monetary success of slimmed down state enterprises (Steger & Roy, 2010, p. 12). For example, budget cuts result in government employees utilizing market rationales in their day-to-day roles (Allen & Guthman, 2006; Guthman, 2008). One of the clearest examples of neoliberalism as governance involves the transfer of responsibility for social programs from the state to the community; it places the cost and the responsibility for the program on the local government or community, regardless of whether these groups have the will or wherewithal to act (Allen & Guthman, 2006) or the financial resources to take up such a burden.

**Neoliberalism as Public Policy**

Neoliberalism as public policy has three major tenets; deregulation of the economy, liberalization of trade and industry and privatization of state owned enterprises (Larner, 2000; Steger & Roy, 2010, p. 14). Harvey (2005, p. XX) declares that the role of the neoliberal state is to encourage and open new markets. One way to do this is through enclosure and the assignment of private property rights; it is considered the best way to protect against the tendency of individuals to irresponsibly super-exploit common property resources such as land and water (or housing in the case of Britain); therefore, sectors formerly run or regulated by the state must be turned over to the private sphere and be deregulated (Harvey, 2005, p. 65). This can be clearly seen in the European Union (EU), where there is a clear correlation in practice between the opening up of economic sectors to deregulation and governments’ decisions to privatize. Furthermore, though privatization is distinct from liberalization and deregulation, in practice, many EU governments used privatization as a tool to facilitate and accelerate liberalization (Clifton, Comín & Fuentes, 2006). A selection of tactics used to
facilitate the public policy of neoliberalism include massive tax cuts, reduction of social services, downsizing of governments, and the creation of new political institutions, think tanks and practices designed to reproduce the neoliberal ideology (Steger & Roy, 2010, p. 14).

Any ideology, however, is of limited importance until it has been implemented into a society and the methods of implementation say a great deal about a society. Neoliberalism has been implemented in two ways; a voluntary implementation by the Global North and an involuntary implementation in the Global South.

**Neoliberal Implementation**

Voluntary implementation occurs when the policies are implemented by the nation state as the result of democratic elections. In these countries, neoliberalism is voluntarily chosen as a result of electing leaders who are proponents of this system, whether or not citizens support these policies. Involuntary implementation reflects forced application of neoliberalism. The countries that have not voluntarily committed to neoliberalism have had this philosophy imposed through the might of the international organizations, primarily the World Trade Organization and the International Monetary Fund, resulting in the involuntary adoption of neoliberalism by countries in both the Global North and the Global South.

**Voluntary Implementation**

Voluntary implementation can be most clearly seen throughout the United States and Britain where leaders have had neoliberal agendas since the 1980s. Though Margaret Thatcher and Ronald Reagan were the originators of these policies, their successors (Blair and Clinton most notably) have continued on this path, indicating that this doctrine has
transcended party boundaries. The timing of these leaders corresponds with the widespread dissemination of the ideology of neoliberalism in the education and institutional systems in the 1970s. For example, many key members of the British Treasury in the 1980s were initially affiliated with powerful conservative think tanks, and, in the United States, powerful neoconservatives and corporations worked closely with Reagan and his staff to promote policies aimed at private-sector-led economic growth (Steger & Roy, 2010, p. 23).

Reagan’s administrations embarked on a program of welfare curtailment or transfer to the state, and attacks on trade unionism accompanied by business deregulation (Thompson, 2001, p. 188; Steger & Roy, 2010, p. 34). Thatcher used similar methods, but also a stronger policy of privatization. Her Housing Act of 1980 ostensibly empowered the tenants by providing specific rights but had the deleterious effect of forcing tenants out of their homes when they could not afford to purchase their rental units (Steger & Roy, 2010, p. 41).

The 1990s brought what appeared to be a softer, gentler form of neoliberalism. Blair and Clinton purported that a middle of the road approach that embraced major portions of neoliberalism while also seeking to incorporate parts of a socially progressive agenda traditionally associated with the political ‘left’ (Steger & Roy, 2010, p. 50).

**Involuntary Implementation**

During the 1970s and 1980s, Global South countries were forced to borrow from the Global North. The monetary policies of Reagan and Thatcher resulted in a high-interest rate on loans to developing countries which then triggered a debt crisis as a range of countries, led by Mexico, were forced to default on their variable-rate loans. This established the context for the rise of ‘policy-based lending’ by multilateral institutions like the World Bank and the
International Monetary Fund (IMF), and by the US government itself. Under this regime, loans were linked to strict neoliberal conditions requiring the structural adjustment of national debts, widespread privatization and deregulation, public sector austerity and the opening of markets to foreign corporations through international competition (Peck, 2004). The World Bank worked in tandem with the IMF to ensure that poor nations who required a structural adjustment of their debts followed a neoliberal approach to solvency (Busch, 2010). Thus the structural adjustment programs administered by the IMF coerced many developing countries to adopt neoliberal policies and forms of governance via the Washington Consensus (Harvey, 2005, p. 92; Steger & Roy, 2010, p. 19). Where this coercion was not available, countries were persuaded, cajoled and, perhaps most importantly, required by membership in the World Trade Organization, to adopt neoliberal policies (Harvey, 2005, p. 92; Steger & Roy, 2010, p. 136). Other countries were compelled by these international institutions to remove price controls, accept inferior terms of trade, and dismantle their public sectors as a condition for aids and loans (Dean, 2008).

**Outcomes of Neoliberalism**

As a practical political economic project, neoliberalism claims to involve the privatization of public resources and spaces, minimization of labour costs, reductions of public expenditures, the elimination of regulations seen as unfriendly to business, and the relocation of governance responsibilities away from the nation-state (Guthman, 2008). As the state withdraws from welfare provision and diminishes its role in areas such as health care, public education, and social services, it leaves larger segments of the population exposed to impoverishment; the social system is reduced to a bare minimum in favour of a system that emphasizes personal responsibility (Harvey, 2005, p. 76).
Though there are numerous examples of the results of neoliberalism, one of the most important is the restoration of class power.

**The Restoration of Class Power**

One condition of the post-war settlement was that the economic powers of the upper classes be restrained and that labour be accorded a much larger share of the economy (Harvey, 2006). To foster this, the state became interventionist and acted as a force field to previously internalized class relations. Political parties of the left, through support of working class institutions such as labour unions, had a very real influence within the state apparatus (Harvey, 2005, p. 11). However, this is contrary to the neoliberal belief that holds absolute individual liberty as a fundamental tenet of society and abhors state intervention. The redistributive effects of power and resources since the implementation of neoliberal policies in the late 1970s have resulted in such persistent and increasing social inequality it can be regarded as structural to the whole project (Harvey, 2005, p. 16). Furthermore, to the extent that neoliberal policies have attempted to restore free markets in the period after 1975 they appear to have produced social polarization of the kind experienced in the early days of capitalism, with great wealth on one side matched by great poverty on the other (Hudelson, 1999, p. 118). However, care was taken to avoid presenting neoliberalism as a device deliberately intended to shift wealth from low-income groups to the already wealthy; instead it was heralded as a necessary mechanism to reward and encourage enterprise, ensure maximum use of capital, and provide employment all round (Thompson, 2011, p. 200). Once it has been recognized that neoliberalism is a direct influence on government policies, it can be seen for what it is: the tool of a capitalist economic class that seeks to use the political
system to perpetuate and extend its class’s power (Ingersoll, Matthews and Davison, 2009, p. 134). The implication of this restoration will be briefly discussed in Chapter 5.

**Escherichia coli O157:H7: An Example of Neoliberal Impact on Food Safety**

*Escherichia coli O157:H7* is an enteric pathogen that produces potent toxins that may cause severe damage to the lining of the intestine, including haemorrhagic colitis (HC) and haemolytic uremic syndrome (HUS) (CFIA, 2008, p. 194; Heymann, 2008, p. 181; Moxley et al., 2009, Piérard, De Greve, Haesebrouck & Mainil, 2012). The infectious dose of this pathogen is estimated to be very low, in the range of 10 to 100 cells, therefore very little contamination is needed to cause an illness (Feng, 2012, p. 75; Heymann, 2008, p. 183). The emergence and increased prevalence of *E. coli O157* since its first description in 1982 is suggested to be associated with changing production and processing practices or changing consumer practices, or both (Franz & van Bruggen, 2008). Transmission to humans occurs mainly through the ingestion of food contaminated with feces and these foods may be grouped into two categories; animal products, including undercooked or raw hamburger (ground beef), dry-cured salami, game meat, raw milk, cheese curds, and produce products, including alfalfa sprouts, unpasteurized fruit juices, lettuce, spinach, and frozen, raw cookie dough (CFIA, 2008, p. 195; Feng, 2012, p. 76).

Cattle are asymptomatic natural reservoirs of *E. coli O157:H7* and it has been reported that as many as 30% are carriers of this pathogen (Callaway, Elder, Keen, Anderson & Nisbet, 2003; CFIA, 2008, p. 195). Once present, the animal it can ‘shed’ or release these pathogens in their feces, contaminating their environment and other animals. Feedlot and high-producing dairy cattle are fed large grain rations in order to increase feed efficiency; however this creates an environment in the animals’ intestines that promotes the growth of
these bacteria. Higher populations of *E. coli* have been correlated with increased *E. coli O157:H7* shedding in grain fed cattle (Callaway et al., 2003).

Soil contamination is an important factor in the contamination of produce and *E. coli O157:H7* has been detected in manure, insects, water, soil, and food (Ibekwe, Papiernik, Grieve & Yang, 2011, Piérard et al., 2012). Although contamination of produce can occur in various ways throughout the production chain, contaminated irrigation water and animal manure are considered the major contamination sources. In many leafy green production systems around the world animal manure is used as an organic fertilizer to provide nutrients to the crops and to improve overall soil quality and this is of particular concern where arable farming co-occurs with intensive livestock farming at a relative high density (Franz & van Bruggen, 2008).

Thus, focusing on mitigation strategies at farm level represents an important method of decreasing foodborne illness due to this highly pathogenic microorganism since there is no single widely accepted food safety intervention that will eliminate pathogen contamination of fresh and minimally processed foods (Doyle & Erickson, 2012).

For cattle, farm-level interventions include switching the animals to a forage based diet, either throughout their life or prior to slaughter and good hygiene practices (Adam & Brülisauer, 2010; Callaway et al., 2003; Doyle & Erickson, 2012). Produce farms also require interventions to prevent contamination, or Good Agricultural Practices (GAPs). These GAPs include, but are not limited to, boundaries between where animals are pastured and the field in which the produce is grown, irrigation water, soil and fertilizer management (Doyle & Erickson, 2012).
Despite the existence of these practices, other interventions to decrease the number of pathogenic microorganisms found in the feces of ruminants have been developed, including the use of vaccines, bacteriophages, prebiotics and probiotics (Doyle & Erickson, 2012; Khanna, Waechter, Sargeant, Clark & Garg, 2008). In particular, vaccines have been a focus of industry to reduce or prevent disease. These methods are representative of the neoliberal impact on food safety because they have been invented to address a problem (the shedding of *E. coli O157:H7* by cattle) that was magnified, if not created, through a significant change in the feeding methods of cattle (the change from cattle’s natural forage diet to a grain-based diet) in order to increase feed efficiency, which increases economic efficiency. In other words, the solution to this food safety problem is not to return cattle to their natural forage diet, but to develop a product to sell to farmers in order to enhance economic efficiency.

In May 2012 Bioniche Life Sciences Inc. issued a press release stating that The Public Health Agency of Canada’s recently released paper, *Most Effective Strategy for Managing E. coli O157:H7 in Beef is a Combination of a Pre-Harvest Intervention and Several Processing Interventions*, “assessing the effects of various interventions on the management of *E. coli O157:H7* in Canadian beef came to a favourable conclusion with regard to pre-harvest vaccines such as the Company’s *Econiche™* cattle vaccine” (“Bioniche Life Sciences Inc.”, 2012; Smith, Fazil & Lammerding, In Press). The peer-reviewed paper, however, makes no mention of Bioniche Life Sciences Inc. and instead states that the application of Type III secreted protein vaccination along with a suite of processing interventions (applied pre- and post-evisceration and during chilling) provided the greatest relative reduction in risks (Smith, Fazil & Lammerding, In Press, parenthesis in the original).

Bioniche Life Sciences Inc. is a research-based, technology-driven Canadian
biopharmaceutical company focused on the discovery, development, manufacturing, and marketing of proprietary and innovative products for human and animal health markets worldwide, whose primary goal is to develop and commercialize products that advance human or animal health and increase shareholder value (Bioniche Life Sciences Inc., 2012). The development of this vaccine can be seen as neoliberalism in action on the part of a company driven by profit and not public health. Though this vaccination is generally thought to be of value in reducing the shedding of E. coli O157:H7, it is important to note that a reduction in foodborne illness has not yet been proven (Gaggia et al., 2010). In addition, it promotes the sale of a priced commodity, the vaccine, as the solution to an industry-created problem, not better management through GAPs, an unprofitable strategy.

**Conclusion**

The rise of neoliberalism since the 1970s has resulted in this ideology being taken for granted. Not only does it appear that there is no other plausible system, it is difficult to imagine what an alternate system may look like. However, there is nothing natural or inevitable about the rise of market reason; it is a politically managed and institutionally regulated process that has become hegemonic throughout the globe (Peck, 2004). Its hegemonic rise was promoted by the growth of academic, financial and political institutions that emphasized neoliberal policies in the late twentieth century, resulting in both voluntary and involuntary implementation throughout the world. One outcome of this is the restoration of class power to a ruling and financial elite.

Neoliberalism has revived the classical liberal principles of free markets and laissez-faire governmental policies and removed the protectionist stance of the Keynesian state, and its implementation through both voluntary and involuntary methods has reshaped society.
One area that has been restructured is the governance of food safety through the rise of private food safety standards. These standards support one of the major tenets of neoliberalism, the removal of the government from the day-to-day operations of the individual and the corporation. To this end, food retailers have collaborated to establish their own private food safety standard, the Global Food Safety Initiative (GFSI), and required that their suppliers meet these standards through third party certification (Fulponi, 2006; Giraud-Héraud et al., 2012; Hatanaka & Busch, 2008). To better understand the outcomes of these standards, Chapter 4 will outline the history of the GFSI, its implementation and its outcomes.
Chapter 4: Global Food Safety Initiative (GFSI)

The Global Food Safety Initiative is a third party certification system that has become the global standard for food safety (GFSI, 2011b, p. 2). Albersmeier et al. (2009) define this certification as the (voluntary) assessment and approval by an (accredited) party on an (accredited) standard (parenthesis in the original). These certifications aim to improve the process of food production through the manufacturers’ implementation of the food safety scheme and the independent auditor’s verification of the company's compliance (Freidberg, 2007; Tanner, 2000).

Chapter 4 begins with an exploration of the Global Food Safety Initiative, including its history, how it operates, and the certification process, and a benchmarked scheme, the British Retail Consortium Global Standard for Food Safety, and how the GFSI is implemented in Canada. It then moves to a discussion of the impacts of the GFSI on retailers and manufacturers and concludes with an investigation into the impacts of the GFSI on foodborne illness and information asymmetry.

The Global Food Safety Initiative

The History of the Global Food Safety Initiative

In May 2000 the CEOs of a group of international retailers identified the need to enhance food safety, ensure consumer protection, and strengthen consumer confidence. To reach these goals, this group created the international standard for food safety, the Global Food Safety Initiative (GFSI), whose mission is “safe food for consumers everywhere” (GFSI, 2011a, p. 2).
Several forces have driven the development of the Global Food Safety Initiative. First, changes to governmental consumer protection policies and legislation, required as a result of the 1990s European food safety crises, in particular Bovine Spongiform Encephalopathy (Mad Cow Disease) and dioxin in animal feed, required retailers to have stronger oversight of their suppliers (Anders et al., 2010; Barling & Lang, 2003; Giraud-Héraud et al., 2012). This increased control provided a due diligence defense in which, should a foodborne illness or outbreak occur as a result of food associated with the retailer, the retailer can demonstrate that they have taken all reasonable precautions to ensure that the food conforms to legal food safety standards (Hantanka et al., 2005; Henson, 2008). Second, the considerable increase in market share held by retailers’ private label brands significantly increased their liability; the more private label products sold by a retailer, the greater their risk should a food safety incident occur from one of their brands (Giraud-Héraud et al., 2012). Third, by the mid-1990s most of the major retailers in the UK food sector had both developed their own internal food safety standard and were using their employees to inspect suppliers or they had adopted an external standard and demanded their suppliers be certified by an independent organization (Henson & Humphrey, 2009). The considerable degree of overlap in the requirements of these food safety standards resulted in many food processors simultaneously complying with and achieving certification to multiple private food safety standards. This burden, combined with each standards’ requirement for an audit, lead to the concept of a collective private food safety standard. The outcome of this concept was the GFSI with its vision of "once certified, accepted everywhere" (Henson & Humphrey, 2009).
The Global Food Safety Initiative

The GFSI is a non-profit making foundation whose mission “is to provide continuous improvement in food safety management systems to ensure confidence in the delivery of safe food to consumers worldwide” (GFSI, 2012, p. 11). Managed by the Consumer Goods Forum (CGF), it fosters collaboration between some of the world's leading food safety experts including retailers, manufacturers, food service companies, and service providers active in the food supply chain (GFSI, 2011b, p. 2-8).

The GFSI is governed by a Board that provides strategic direction and oversight. Membership to the Board is by invitation only and participants are drawn from major retailers, manufacturers, and food service operators. Three groups support the GFSI Board; an Advisory Council, a Stakeholder Group, and several Technical Working Groups. The Advisory Council is comprised of academics, non-governmental organizations, and government representatives who provide expertise concerning matters related to the mission, objectives, and goals of GFSI. The Stakeholder Group is an international forum that, through an annual meeting used to discuss current and emerging food safety issues, identifies areas of concern to be addressed by the GFSI Board. Participants include retailers, manufacturers, Certification Bodies, Accreditation Bodies, standard owners, food safety experts and consultants. The purpose of the Stakeholder Group “is to ensure that GFSI is run and managed by its members and is as inclusive and transparent as possible” (GFSI, 2011b, p. 2-3).

The Technical Working Groups are composed of retailers, manufacturers, food service operators, standard owners such as the British Retail Consortium, Certification Bodies, Accreditation Bodies, industry associations, and other experts who provide technical
expertise and advice for the GFSI Board on such topics as auditor competency and the guidance document. Technical Working Groups are open to all stakeholders by invitation only, subject to approval by the GFSI Board (GFSI, 2012, p. 11).

The GFSI has developed a Guidance Document that, though not a food safety standard, provides the key elements required by a food safety scheme. A food safety scheme is a commercial food safety programme, for example the British Retail Consortium Global Standard for Food Safety that includes an auditable and certifiable food safety standard and a governance and management system (GFSI, 2011b, p. 2). These elements are directly related to the food safety principles laid down by the Codex Alimentarius Commission (GFSI, 2012, p. 12). The Guidance Document also specifies the process by which food safety schemes may gain GFSI recognition (GFSI, 2012, p. 12). The components of a food safety scheme, including its food safety standard, auditor competence requirements, certificate audit programme, and management system is assessed against the requirement in the Guidance Document to attain formal recognition as a ‘benchmarked’ scheme (GFSI, 2012, p. 12). All recognized schemes have a common foundation of requirements, which should provide consistent results, but the benchmarked schemes cannot be considered as equal (GFSI, 2010, p. 3, emphasis added). The GFSI published Version 6 of its Guidance Document, the standard to which all food safety schemes are benchmarked, in January 2011 (GFSI, 2011a, p. 8).

**The Certification Process**

The process of attaining third party certification is as follows: a supplier, for example a farm or factory, applies to a Certification Body (CB) for certification to a GFSI benchmarked scheme such as the British Retail Consortium Global Standard for Food Safety.
Depending on the scheme, the CB may conduct a pre-assessment or an off-site documentation review. After the non-conformances identified at this stage are corrected, an onsite audit is performed. The auditor assesses the compliance to the standard, issues non-conformances for deviations, and the CB issues the certificate after the auditor has confirmed the non-conformances are corrected (Hatanaka et al., 2005; BRC, 2011, p. 83). The granting of a certificate indicates that an unbiased assessment by the auditor has found the safety and quality standards of the scheme have been met (Bredahl, Northen, Boecker & Normile, 2001).

Certification Bodies are considered competent and independent once accredited by the country’s Accreditation Body. The CB are seen to be objective arbitrators of product safety and quality because they are thought to have no stake in the outcome of the certification process (BRC, 2011, p. 5; Sodano et al., 2008). Accreditation Bodies (AB) are not-for-profit organizations, either government owned or under agreement with a government, charged with ensuring that participating CBs in the country are subject to oversight by an authoritative body (GFSI, 2011a, p. 15). Accreditation is also the validation that a Certification Body has the infrastructure, competencies and controls necessary to properly assess conformity and complies with its own processes (GFSI, 2011a, p. 28). In Canada, two quasi-public North American institutions grant accreditation; the American National Standards Institute and the Standards Council of Canada (Hatanaka et al., 2005).

A GFSI Benchmarked Scheme: The British Retail Consortium

The British Retail Consortium (BRC) is the leading trade body for United Kingdom retailers and acts to protect the interests of all retailers, from small independent shops to large chain stores (Sansawat & Muliyil, 2011, p. 5). First published in 1998, the BRC Global
Standard for Food Safety is a framework to assist food manufacturers in both the production of safe food and the management of product quality to meet customers’ requirements; the current version is Issue 6 (BRC, 2011, p. 3).

The BRC Global Standard for Food Safety has seven sections: Senior Management Commitment, The Food Safety Plan – HACCP, Food Safety and Quality Management System, Site Standards, Product Control, Process Control and Personnel. Using the Codex Alimentarious guidelines, Section Two, The Food Safety Plan – HACCP is the actual HACCP plan, Sections Three to Seven are the Prerequisite programs or GMPs. Section One, Senior Management Commitment is required by the GFSI Guidance Document. Within these sections are ten Fundamental Clauses; failure to comply with a Fundamental Clause results in non-certification at the initial audit or withdrawal of certification at subsequent audits (BRC, 2011, p. 9-56). These fundamental clauses range from senior management commitment and continual improvement to the HACCP plan to the housekeeping and hygiene of the facility.

Conformance to the standard is assessed through an audit completed by a trained and accredited BRC auditor. Facilities that are attempting recertification to the BRC scheme may choose between announced or unannounced audit, and an enrollment program is available to a company attempting to achieve its initial BRC certification. The enrollment program provides either certification if the requirements are met or an audit report to demonstrate the progressive development of their food safety systems if the facility fails to meet the standard. In the BRC scheme the audit duration is based on the facility size, number of HACCP plans and number of employees and at least half the audit time must be spent on the production floor (BRC, 2011, F29). The BRC logo may be displayed at the manufacturing site or on
company marketing materials but cannot be used on products or product packaging (BRC, 2011 V6 p. 70).

The Global Food Safety Initiative in Canada

In early 2008 Walmart required suppliers of its private label and other food products to have their factories certified against one of the Global Food Safety Initiative (GFSI) standards, and Loblaw Companies Limited followed suit in 2010 (Rano, 2008; Loblaw Companies Limited, 2010). The current website for the Manitoba Agriculture, Food and Rural Initiatives (n.d.) states “Other retailers such as Sobeys and Safeway also now require their vendors to apply benchmarked GFSI standards.” However, a review of the company websites provides little information on their actual requirements. The Sobeys website states “Sobeys encourages their vendors to adopt the Global Food Safety Initiative (GFSI) harmonized international standards” whereas no information was found on the Canada Safeway Limited website or its Supplier Handbook (Canada Safeway Limited, 2011a; Canada Safeway Limited, 2011b; Sobeys, 2011). Metro Richelieu Inc., a Canadian corporation separate from the international food retailer Metro, provides no information on either their consumer or corporate website about their requirements for GFSI (Metro Richelieu Inc., n.d.; Metro Richelieu Inc., 2012).

Third party certification schemes such as the GFSI are increasingly seen as strategic business tools to gain access to new markets, coordinate operations, provide quality and safety assurance, complement their brands and define niche products and markets (Hatanaka et al., 2005). These tools provide a number of benefits to the retailers, including providing the retailers with an increase in due diligence and decrease in liability, decreasing their costs,
altering the procurement process and presenting a barrier to market entry for new manufacturing businesses.

**Impact of the GFSI on Food Retailers**

Drives to enhance minimum quality standards, pre-empt regulatory developments and differentiate products, while at the same time manage the transaction costs and risks associated with expansive supply chains have provided the impetus for the evolution of private food safety and quality standards (Henson, 2008). Fulponi (2006) found that providing consumers with products that meet consistent quality and safety standards which go beyond the minimum requirements was seen as essential to building the retailers’ reputation and consumer loyalty as well as increase market share. Proponents of the GFSI have presented a number of outcomes that benefit the retailers directly: an increase in retailer due diligence and decrease in their liability, a decrease in the cost of food safety for retailers, and a significant change to the procurement process.

**Increase in Due Diligence and Decrease in Liability**

Certification to a GFSI scheme is one major tool to demonstrate the retailers’ due diligence and decrease their liability by indicating that the firms are taking all reasonable precautions to prevent foodborne illnesses and outbreaks (Giraud-Héraud et al., 2012). Due diligence is confirmed through GFSI certifications by assuring that desired product safety attributes are attained through HACCP, the international standard for food safety. Third party certification also transfers the liability for a foodborne illness incident to the Certification Body and the GFSI scheme. Should such an event occur, the retailer could place the responsibility for the crisis on the manufacturer for producing unsafe food, the
Certification Body for certifying the manufacturer and, finally, the GFSI scheme for being faulty in not providing a standard sufficient to protect public health (Hantanka et al., 2005).

**Decrease Cost for Retailers**

Within any industry, there is a constant incentive to reduce costs (Fulponi, 2006). Prior to the development of the GFSI food retailers had the dual cost of developing and auditing their own food safety standard. By requiring their supplier to achieve certification to a food safety scheme, the retailers have transferred not only the cost of developing the standard to the benchmarked scheme owner (e.g. BRC) and, as they no longer need to directly inspect or audit their suppliers, but also the costs accrued through their auditing group (Freidberg, 2007; Henson, 2008). Thus, by demanding this certification from their supplier, the retailers decreased their direct costs for food safety.

**Changes in the Procurement Process**

Compliance with private quality assurance schemes has become a prerequisite to supplying both multinational and large national food retailers (Fulponi, 2006; Manning & Baines, 2004). As a result, these certifications establish new procurement systems in which the retailers move from a fragmented supply chain using traditional suppliers to a centralized supply system with specialized wholesalers and preferred suppliers (Sodano et al., 2008). It also permits retailers to switch between certified suppliers quickly and source across the globe, expanding the population of suppliers from which they could procure (Fulponi, 2006; Henson, 2008).

The impacts on the food retailer are entirely advantageous; not only do they receive the direct benefits of this system, they also incur little, if any, cost for its implementation.
Those promoting this system have used these advantages to convince retailers of the importance of the GFSI. However, there are significant impacts on the manufacturer, as discussed in the following section.

**Impact of Certification to a GFSI Benchmarked Scheme for Food Manufacturers**

The burden of achieving certification is solely the responsibility of the food manufacturer and this requirement impacts the manufacturer in several ways. In terms of opportunities in the market, there can be both positive and negative impacts. Other negative impacts include the cost to the manufacturer to implement a GFSI benchmarked scheme and the barrier to market entry for new businesses.

**Opportunities within the Market Place**

**Increased opportunities.**

One of the benefits promoted by the Consumer Goods Forum is the increased opportunities within the marketplace for certificated companies. Once the certification has been achieved, the manufacturer can use the certificate to assure their other customers, and any potential customers, that they have recognized food safety systems in place. This provides greater opportunities within the buying community and greater market access for their products (GFSI, 2011a, p. 28).

**Decreased opportunities.**

The requirement for certification may also decrease the opportunities available to the manufacturer because if they cannot meet one retailer’s standard, they likely cannot sell their products to any retailer (Albersmeier et al., 2009). The investments necessary may result in
some suppliers being forced out of business or into alternative, less profitable markets, assuming these markets still exist (Hatanaka et al., 2005; Hatt & Hatt, 2012).

**Cost to the Food Manufacturer**

Eligibility for certification to a GFSI benchmarked scheme requires the implementation of numerous tools and processes prescribed in the standard. This often requires significant investments in equipment, employee training, and process improvements, and well as the cost of the audit itself (Giraud-Héraud et al., 2012; Herzfeld et al., 2011). Larger organizations can absorb the cost of programs for monitoring safety much more readily than smaller operations (Hatanaka et al., 2005).

**Barrier to Market Entry for New Businesses**

Third party certification acts as a barrier for new businesses entering the market as the concentration of the retail sector necessitates that the new company have this certification prior to achieving its first sales. This requirement, coupled with the significant investments required on the part of the manufacturer to attain certification, is a strong deterrent to a new or small business attempting to enter a market. Such private governance, enforced by market sanctions, provide manufacturers with little or no option other than compliance if they wish to enter or remain within a particular market (Busch, 2011; Fuchs et al. 2011; Henson, 2008; Henson & Humphrey, 2009).

The implementation of third party food safety certifications is thought to benefit the retailers through enhancing food safety and therefore public health. To determine if this is an effect are effective measure, it is necessary to review the impact of the GFSI on two
important indicators of food safety: the incidence of foodborne illnesses and the reduction in the information imbalance as discussed in chapter two.

**Impact of the GFSI on Food Safety**

Food safety practices are used to reduce the risk to public health associated with contaminated foods and any standard, whether a public regulation or a private scheme, should result in a decrease in the incidence of foodborne illness in the population. However, the preventative nature of food safety practices makes it extremely difficult, if not impossible, to quantify how many people will not get sick or die as a result of eating non-contaminated food (Antle, 1999; Hatanaka & Busch, 2008; Henson & Caswell, 1999). For example, a 2010 study of *Campylobacter spp.* on poultry purchased from grocery stores in Southern Ontario found a contamination rate of 60% (Deckert et al., 2010). If 100 packages of two pieces of chicken were purchased to feed two people in each household there would be 120 potential illnesses. Whether or not these illnesses occur depends on a number of factors, including the health status of the individual and whether or not the chicken was cooked to an adequate temperature to prevent an illness. If every consumer cooked the chicken correctly the expected rate of illness would be zero. However, if the consumer cross-contaminated other foods with the microorganism, for example if they placed the chicken back on the same plate that held the raw meat, or did not wash their hands between handling the raw chicken and preparing a salad, the number of illnesses could be as many 120 or as low as zero.

Therefore, determining whether or not a food safety activity is functioning as expected to improve public health is a significant challenge. Two items presented in Chapter Two can be used to measure the impact of the GFSI on public health: the reduction in foodborne illnesses and the reduction in information asymmetry.
Reduction in foodborne illness

The stringent food safety requirements of the GFSI Guidance Document can reasonably be expected to improve food safety, but to date there are no studies indicating if GFSI standards decrease food safety risks or improve public health. The Consumer Goods Forum (2012) issued a press release entitled “Study Shows Global Food Safety Initiative (GFSI) Results in Improved Food Safety for Consumers”. The press release states that a study, commissioned by Walmart to evaluate their decision to require food suppliers to go beyond regulatory requirements by obtaining certification on one of the GFSI benchmarked schemes, found that “suppliers also perceived that adopting one of the GFSI benchmarked schemes was beneficial to improving the safety of their products”. It goes on to state that the study has been submitted for publication in the International Association for Food Protection’s Journal of Food Protection. At this point in time, however, there is no proof of reduction in foodborne illnesses and therefore no impact of the GFSI on public health.

Reduction in Information Imbalances

Third-party certification is a method to provide market signals facilitating food safety transactions because the certification addresses the issues that emerge when information about a product is imperfect and asymmetrically distributed (Deaton, 2004; Henson & Caswell, 1999). To decrease the information imbalances intrinsic in the food safety process, companies use third party certifications to ensure that the food they purchase both meets the quality levels necessary to be acceptable to buyers and is in compliance with regulations across multiple countries (Albersmeier et al., 2009; Deaton, 2004; Sodano et al., 2008; Traill & Koenig, 2010). Albersmeier et al., (2009) have found the validity and reliability of audits
is not guaranteed, and, hence, it is doubtful whether this certification actually achieves its stated goals. Thus, the reduction of information imbalance has not yet been proven.

**Conclusion**

The intent of the GFSI is ostensibly to improve the safety of foods sold in the retail sector and decrease the information imbalance in the food supply. However, the outcomes of this certification process have far wider implications, including a significant impact on the manufacturers and an unverified improvement in public health or information imbalance.

Chapter Five explores these outcomes from a political economy perspective. Placing the GFSI in the framework of food regimes, Chapter Five discusses the GFSI as an example of neoliberalism in action, and its effects on food safety governance.
Chapter 5: Neoliberal Policy in Action: The GFSI, Food Regimes, and Food Safety Governance

The Global Food Safety Initiative has been portrayed in both the literature and the media as a system expected to greatly improve the safety of the global food production, yet there is little scientific evidence that this has occurred (GFSI, 2011a, p. 28; GFSI, 2012; Tanner, 2000). This assumption, that private standards and third party certification not state regulation will strengthen food safety practices and improve public health, is an indicator of the neoliberal ideology in place within the Global North.

Any assertion that industry can best protect the health and welfare of a population is one that must be critically examined. The political economy framework is an excellent method to analyze this discourse and can be used to reveal the differing goals and power struggles within the neoliberal political environment, and Friedmann and McMichael (1989) have furthered this analysis with their concept of food regimes. An analysis of the food production system through the food regime lens reveals capitalist food relations have structured moments and transitions, characterized by geographically and historically specific institutional structures, norms, and unwritten rules (Holt Giménez & Shattuck, 2011; McMichael, 2009a; McMichael, 2009b; Pechlaner & Otero, 2008).

From this perspective, the GFSI can be seen as an institutional structure employed by the food retailers to develop a new norm, that of private food safety governance, and executed through the unwritten rules of involuntary implementation. However, the food regime discourse has not yet examined the GFSI, nor placed it in a food regime.
This thesis postulates that the GFSI is an indicator of the third, neoliberal, food regime and that there are significant changes to the governance of food safety as a result. Chapter five begins with an exploration of the GFSI as an expression of neoliberalism, including neoliberal ideology, governance and public policy. From here it moves to a discussion of food regimes, exploring the concept of food regimes and identifies the GFSI as an indicator that the transition to the third food regime is complete. The effects of this neoliberal food regime on food safety governance is explored, including the outcomes of GFSI governance.

The Global Food Safety Initiative as an Expression of Neoliberalism

In the food sector, neoliberalism has resulted in the decrease of governmental resources to food safety systems and a concurrent increase in the reliance on the food industry to adopt stricter standards (Henson, 2011). This transfers the control of the food safety system from its historic place as a public health responsibility of the government to entities whose primary consideration is their own profitability. The GFSI advances this reassignment through all three of the neoliberal manifestations; ideology, mode of governance, and policy package.

The Global Food Safety Initiative as Neoliberal Ideology

Neoliberal ideology supports the interests of multinational organizations operating in the international market place and promotes environments in which these corporations can exert maximum power (O’Flynn, 2009). A critical analysis of the GFSI reveals two significant features indicating it is an expression of neoliberal ideology; first, the communication of both the GFSI and industry and second, the international acceptance of the
GFSI as a food safety tool without a concurrent demand for scientific evidence.

**Communication**

To fully comprehend the GFSI as a neoliberal ideology it is necessary to examine the language used by Consumer Goods Forums to justify and legitimate their program. In their communication Enhancing Food Safety through Third Party Certification they state:

The CEOs of the major retailers and manufacturers agreed that consumer trust needed to be strengthened and maintained, while making the supply chain safer, through the harmonization of food safety standards and driving cost efficiency. (GFSI, 2011a, p.12)

Peck (2004) states that neoliberalism became an ideology through social processes: its diffusion was the result of both structural forces and structurally positioned agents. The pervasive support and acceptance of the GFSI by the food retail industry is evidence of these social processes. The States of the Global North, as the structural forces advancing neoliberal ideology by implementing regulations which require retailers to have greater control of their suppliers, can be seen as transferring the responsibility and governance of food safety from their direct supervision and agents (i.e. regulations and inspectors) to the supervision of the food industry and Certification Bodies (i.e. GFSI standards and auditors). The CEOs, as the structurally positioned agents requiring their manufacturers to attain certification to a GFSI benchmarked scheme, have required “voluntary” implementation of these standards at all levels of production.

The GFSI also fulfils the concept that neoliberalism appears to be a set of self-evident truths (Busch, 2010; Harvey, 2006), thus reinforcing the discourse surrounding the GFSI.
Despite little empirical evidence to support its claim of improved food safety and public health, the GFSI has been both approved by, and made a condition of supplying, one Canadian and seven international retailers. The self-evident truth, that the GFSI results in an improvement in food safety and public health, is so obvious to its proponents that evidence is not necessary to show it has performed as expected. This can be seen in one of the first published papers to recommend this form of governance stated:

“Independent, third party, involvement can make a significant contribution towards achievement of improved food safety, and food law compliance. Accredited certification organizations, with wide experience and expertise, such as NSF International, are increasingly supporting food industry and regulators by providing alternative, cost-effective services… Third-party certification has a significant part to play in achieving improvement in global food safety. An independent assessment by an expert, experienced and fully accredited organization provides true additional value to the industry it serves as well as supporting, and complementing the role of the food-law enforcement agency.” (Tanner, 2000)

The author of this article was the Vice President and European Managing Director of NSF International, a Certification Body, at the time of its publication and both he and his employer had a vested interest in promoting the GFSI. More importantly, however, is the assumption that these certifications will improve food safety. Tanner’s paper was published the same year the GFSI was initiated, seven years before retailers required their manufacturers to implement these systems, and such comments prepared the industry for an uncritical acceptance of the effectiveness of these systems. Despite his claim that “independent, third party, involvement can make a significant contribution towards achievement of improved
food safety” there was no scientific evidence to support the assertion that third party certification programs would enhance public health. Furthermore, the publication of this paper in a peer-reviewed journal, *Food Control*, emphasizes that the neoliberal ideology of market-based food safety governance was already a ‘self-evident truth.’

**Demand for evidence.**

The HACCP system, the basis for legislated food safety programs in Canada and a key component of the GFSI Guidance Document, requires that food safety activities undertaken by the facility are established on the basis of scientific evidence and the facility provide verification that these activities are effective in controlling the hazard. However, promotion of the GFSI standard prior to any independent scientific evaluation such as a decrease in either foodborne illnesses or recalls of contaminated product indicates that acceptance of the GFSI has been based on the neoliberal ideology of ‘common sense’ and ‘self-evident truth’. That there has been little, if any, demand for scientific evidence of the effectiveness of these claims reveals a contradictory stance of food retailers; despite their requirement for the food safety programs of their suppliers to be based on scientific evidence, there is no requirement for the retailers to provide similar confirmation prior to their requirement that their manufacturers implement these standards.

**The Global Food Safety Initiative as Neoliberal Governance**

Among other things, governance is associated with regulation, whether by public or private agents. In the realm of food safety, public regulation has been the norm until recently. As Fuchs et al. (2011) state:

> Public regulation is considered legitimate because of democratic decision-making
procedures on rules, implementation, monitoring, and enforcement that are meant to safeguard the proportionality of rules and measures, inclusion of all relevant interests, and redress procedures for victims. Most importantly, however, public regulation is legitimized through its roots in decisions taken (through representatives) by the general public. (p. 53, parenthesis in original)

Food safety governance is a process through which state, industry, and public alike maintain the order of the agri-food system and is strongly influenced by socio-political relationships between these groups (Charlebois & Labrecque, 2009). Historically, food safety governance was the domain of the state through legislation, sanctioned by democratic, transparent processes, which set requirements to ensure food was safe for its citizens, but this is changing. Taylor (2002) states, “Whilst governance occurs without government, government cannot happen without governance” (as cited in Sumner, 2008, p. 27). The GFSI is an example of governance occurring without government as it has been developed and implemented outside of government regulatory control. “Governance”, however, is a broader term than “government” (Sumner, 2008, p. 27, quotation added). This is clearly seen in the duality that has emerged between the state system of regulations (government and public governance) and the system of self-regulation (private governance) (Barling & Lang, 2003; Lang, 2003, parenthesis added).

**Free Market Governance.**

Neoliberal doctrine suggests the corporation will act to prevent its involvement in a foodborne illness or outbreak by developing and implementing food safety programs, thereby minimizing the risk to its profits. Placing the control of food safety within the free market, presumes that this mechanism functions efficiently and without issues, a problematic
assumption given the information imbalances and asymmetries associated with food production.

Deaton (2004) argues that third party certification such as the GFSI can reduce the potential for market failure that might otherwise occur when information about food safety and quality are uncertain and asymmetrically distributed. This reduction, however, is not conveyed to the consumer by any means such as labelling or advertising. Therefore, any reduction in the information imbalance is advantageous only to food retailer and supports their goals of profit maximization and minimization of liability, not public health or the safety of the consumer.

The reliance on the free market to penalize the manufacturer situates the incentive to implement food safety programs in the buying power of the firm and provides the opportunity for food retailers to become key players in the governance of the global food system (Fuchs et al., 2011; Hatanaka & Busch, 2008; Sodano et al., 2008).

**The Global Food Safety Initiative as Neoliberal Public Policy**

Neoliberal governments use a number of public policy measures to support their activities, specifically privatization, deregulation and liberalization. All three measures are visible within the GFSI system of food safety.

**Privatization.**

Privatization occurs when the responsibility for sectors administered or regulated by the state is delegated to the private sector with the intention of injecting market forces into these segments (Heynen & Robbins, 2005; O’Connor, 2010). The development and implementation of the GFSI represents the international privatization of food safety, as the
state is neither a participant in, or responsible for, a food safety system operating in their jurisdiction. Third party food safety certification standards are now developed by corporations (the GFSI benchmarked schemes), mandated by corporations (food retailers), and enforced by corporations (food retailers and Certification Bodies). The GFSI Guidance Document is the foundation of these food safety schemes, and though the GFSI itself is a non-profit organization (GFSI, 2011a, p. 2), the organizations that have benchmarked standards are profit driven. For example the British Retail Consortium, which identifies itself as the lead trade association representing British retailers, claiming it has “powerful campaigning ability and significant influence with governments” has its own GFSI benchmarked food safety scheme, the “BRC Global Standard for Food Safety” (BRC, 2012b).

**Deregulation.**

Deregulation involves the dismantling government regulatory controls with the goal of opening up markets, reducing capital costs, and lowering consumer prices (O’Connor, 2010; Peck & Theodore, 2007). For example, in 2012 a representative in US state of Alaska proposed a bill that would remove much of the state’s safety regulations for food sold directly to consumers in an attempt to grow Alaska’s local food industry and farmers markets, including the foods that are traditionally regulated such as seafood, shellfish, poultry, meat, and dairy (Buxton, 2012). The Alaskan example is an explicit form of deregulation, one that can be debated and opposed through the democratic process. The GFSI represents an insidious form of deregulation as it positions itself as an aid to government regulations while weakening the democratic process. Returning to Tanner’s (2000) statement that “independent, third party, involvement can make a significant contribution towards
achievement of improved food safety, and food law compliance”, there is an insinuation that the government is ineffective at managing and enforcing food safety without the food retailers’ assistance, and it is necessary for the retail industry to administer their own governance system rather than support state efforts at improving food safety within the production sector.

Three methods of deregulation are active in the GFSI; private standards supersede public standards, food retailers and food safety auditors act as regulatory agents, and the involuntary implementation of these standards.

*Private Standards Supersede Canadian Public Standards.*

Public mandatory standards lay down the basic parameters of a food safety system and private standards elaborate on how this system should be structured in order to be effective (Henson & Humphrey, 2009). As discussed in Chapter 2, the foundation of food safety governance in Canada is the Codex Alimentarius and much of the Canadian legislation is based on this standard. Above the Canadian legislation is the International Standards Organization (ISO), the non-governmental organization that forms the bridge between both public and private sectors through its ISO 22000:2005 food safety management systems. The GFSI benchmarked schemes are based on the ISO standard and are superseded only by best practices (GFSI, 2011b, p. 5; Sansawat & Muliyyil, 2011, p. 4). The structure of this system has been designed by the GFSI so that its benchmarked schemes supersede all national and international regulatory food safety systems, including Canada’s provincial and national legislation.
Food Retailers and Food Safety Auditors as Regulatory Agents.

As the proportion of food sold by food retailers increases, these organizations are actively assuming a role as guardians of consumers’ health, thereby becoming a regulatory operative (Anders et al., 2010; Fulponi, 2006). As a result, private standards and third-party certifications are not merely an impartial technological tool to foster food markets’ efficiency and safety but instead are a means by which powerful actors in the chain discipline people and things to accomplish their own objectives, which allows food retailers to act as regulatory agents (Sodano et al., 2008). This fact is explicit in the GFSI communication (2011):

Governments and regulators benefit from third party certification in as much as oversight is achieved without the use of additional publicly-funded financial and human resources, because it is funded by private industry. Certification results may thus be used by regulatory agencies as a tool to optimize the use of budgeted resources and to determine not only the frequency of their own audits, but also the areas to concentrate on during these audits. (p. 25, italics added)

The auditor must be competent in food safety management as applied to the industry sector(s) they are auditing and the requirements of the specific scheme (GFSI, 2011a, p. 15). However, there is no requirement for auditors to understand the implications of a foodborne illness or outbreak or the broader public health implications of food safety issues found at the facility. The third party certification auditors become de facto regulatory agents without the benefit of the public health training required of traditional enforcement officers.
Involuntary Implementation.

O’Flynn (2009) demonstrates that capitalism requires the subordination of those without property to the collective will of powerful individuals, corporations and attendant institutions, as can be seen in the application of the GFSI to the manufacturing sector. Each entity in the food supply chain is compelled by the level above it to have implemented a GFSI benchmarked standard until all producers, including farms, have achieved this certification.

The benefits of the GFSI mirror the benefits of neoliberal policies as the groups that profit most by the GFSI, the retailers, are those that will be the least imposed upon by its implementation.

Liberalization.

The opening of global markets via the World Trade Organization (WTO) and its predecessors permitted, and even encouraged, the transformation of the food retail sector, allowing the formation of global oligopolies which shape the market to their advantage (Fuchs et al., 2011; Hatanaka et al., 2005; Hatt & Hatt, 2012; Henson, 2008; Sodano et al., 2008). This increased buying power through the oligopolies, market concentration, and cross-border buyer alliances gives these firms the ability to impose product requirements and standards on their suppliers (Fulponi, 2006; Hatanaka et al., 2005). The GFSI standards were developed and enforced by these oligopolies, forming a world trading system outside the current legislative system of governmental regulations and the recognized international systems, including the WTO (Herzfeld et al., 2011).
Food Regimes

First proposed by Friedmann (1987) and expanded by Friedmann and McMichael (1989) the food regime concept combines political economy, political ecology, and historical analysis to explain how the relationship between food production and consumption is central to the functioning and reproduction of global capitalism. Currently, the literature acknowledges two distinct food regimes and debates a third. The first food regime occurred from 1870 to the 1930s and was dominated by British and European import and export practices (Friedmann & McMichael, 1989; McMichael, 2009b). Emerging in the 1950s, the second food regime transferred control of food production and distribution from Britain to the United States (McMichael, 2009b; Burch & Lawrence, 2009). The Second World War clearly demarcates the boundaries of the first and second food regime, however the delineation between the second and third regimes is less precise. Friedmann (2009) suggests that this transition may be underway but is not yet complete. Others posit that the dominance of neoliberalism since the mid-1980s coincides with the complete transition to a third, corporate, or neoliberal, regime (Burch & Lawrence, 2009; McMichael, 2005; Pechlaner & Otero, 2008).

This thesis will use the designation of “neoliberal” to identify the third food regime in order to maintain the distinction between a corporation and the concept of neoliberalism. While not every corporation is a manifestation of neoliberal doctrine, neoliberal doctrine rests heavily on the concept of a corporation as a profit making, power seeking entity. Guided by neoliberal doctrine, the GFSI is the result of corporations’ deliberate actions to influence both the marketplace and the governance of the food system. As such, the GFSI is an indicator of
the third food regime and thus has significant consequences for the governance of both Canadian and international food safety.

**The first food regime.**

The first food regime, from 1870 to the 1930s, was a key to creating a system of national economies governed by independent states (Friedmann & McMichael, 1989). This regime supported industrial capitalism through British and European imports of sugar, tea, and other food items from their tropical colonies and grain and livestock imports from settler colonies, combined with exports to these regions of capital and people (Friedmann & McMichael, 1989; Holt Giménez & Shattuck, 2011). In this British-centered food regime, the export of its colonies allowed Britain to become a significant industrial power (McMichael, 2009b).

**The second food regime.**

The second, US-centered, food regime developed American agriculture and food industries into a major driver of technological innovation and profit (Friedmann, 2009). During this regime the United States used food politically to create alliances and markets for its agribusiness, and re-routed the flow of (surplus) food from the United States to its informal empire of postcolonial states in the form of food aid (McMichael, 2005; McMichael, 2009b, parenthesis in original). This regime effectively reversed the flow of food from South to North and acted as a solution to the overproduction of agricultural commodities in the heavily protected U.S. farm sector. The result was a US hegemony of agribusiness chains of inputs, technologies, and foodstuffs (McMichael, 2009a).
NEOLIBERALISM AND THE GLOBAL FOOD SAFETY INITIATIVE

The third food regime.

A third food regime, originating in the late-1980s and continuing to the present, has been postulated in the literature. The neoliberal regime uses the market as its organizing principle and its strategies for profit capture were built around internationally coordinated flows of production, commodities, and money capital (Holt Giménez & Shattuck, 2011; McMichael, 2005; McMichael, 2009a; Pechlaner & Otero, 2008; Pritchard, 1998). Food retailer corporations have been instrumental in the development of this regime as they restructured the agri-food supply chain in order to satisfy the desire of privileged consumers in the Global North for new commodities (Burch & Lawrence, 2005; McMichael, 2009a). As McMichael (2005) states:

> It carries legacies of the previous food regimes, nevertheless expressing a new moment… facilitating an unprecedented conversion of agriculture across the world to supply a relatively affluent global consumer class. The vehicle of this corporate-driven process is the WTO’s Agreement on Agriculture, which, as above, institutionalizes a distinctive form of economic liberalism geared to deepening market relations via the privatization of states. (p. 270)

The Global Food Safety Initiative as an Indicator of the Third Food Regime

Using the food regime concept, the GFSI is a strong indicator that the transition to the third food regime is complete for three reasons. First, the three motives for the development and implementation of the GFSI display significant neoliberal characteristics: changes to governmental consumer protection policies, increased merchant liability due to the consolidation of the retail food sector, and increasing the efficiency of the sector by creating
one food safety standard and audit system are indicators of the neoliberal doctrine present within both the food sector and the state. The first motive has resulted in states forcing supermarkets to have stronger oversight of their suppliers and to assume responsibility for ensuring all agents in the food chain produce safe food, thereby transferring food safety from state-based instruments such as public health regulations to market-based protection mechanisms. The second motive indicates that the retailers are responding to the threat of financial penalties in the form of decreased profits and litigation from their customers rather than the threat of regulatory penalties, for example monetary fines or investments mandated by enforcement officers. The third motive emphasises the neoliberal concept of efficiency in which numerous audits evaluating the same material were condensed into one international standard, the GFSI Guidance Document.

Second, as discussed earlier, the GFSI itself exhibits the neoliberal doctrine of ideology, governance and public policy. And third, there is a direct correlation between the implementation of neoliberalism and the development of the private food safety standards that evolved into the GFSI.
Food Regimes and Economic History

The timeline of the food regime concept closely follows the economic history presented in chapter three.

Table 1
Comparison of Economic Policy and Food Regimes

<table>
<thead>
<tr>
<th>History of economic policy</th>
<th>Timeline</th>
<th>Food regime</th>
<th>Timeline</th>
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<tbody>
<tr>
<td>Classical liberalism</td>
<td>Up to 1930</td>
<td>First</td>
<td>1870 – 1930s</td>
</tr>
<tr>
<td>Neoliberalism</td>
<td>1980’s – present</td>
<td>Third</td>
<td>1980s to present</td>
</tr>
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The first food regime took place between 1870 and 1930s when classical liberalism was the dominant economic ideology. At that time, the economy promoted individual liberty and free markets with limited government intervention (Tang, 1997). This aligns with the tenets of the first food regime in which the state supported industrial capitalism (Friedmann & McMichael, 1989). The second food regime from 1950 to the 1970s occurred during the time that Keynesian welfarism with its protectionist stance and an increase in state support for employment and increased services was growing in popularity among governments (Larner, 2000). The neoliberal state, beginning in the 1980’s, saw a reduction of the supports offered to citizens through the privatization and deregulation of public services, creating a space for the private sector to take over forms of governance and opening the way for the third food regime.
First, neoliberal ideology can be seen in the supermarket industry’s development and implementation of their own food safety standards (the GFSI) as a result of their increasing liability from both a regulatory and a due diligence perspective. Second, neoliberal governance can be seen in the standard making process of this new regime as it is now outside of state regulations or oversight and as a result food safety is increasingly moving from both the democratic decision-making bodies and the arena of public debate to the back stage realm of the large supermarket procurement offices (Konefal, Mascarenhas & Hatanaka, 2005). Third, neoliberal public policy can be seen as the food retailer now dictates what foods are available for purchase and how they are manufactured, decreasing their costs and consolidating their power (Freidberg, 2007; McMichael, 2005).

This neoliberal food regime has had a significant effect on food safety governance.

The Effects of the Neoliberal Food Regime on Food Safety Governance

There have thus been three significant impacts on the broad scope of food safety governance: a decrease in the transparency of the development of food safety standards, the co-regulation of food safety between industry and government, and a focus on the cost-benefit analysis of food safety.

Decrease in Transparency

Private standards such as the GFSI and its associated schemes challenge the legitimacy of established international institutions, specifically the WTO and Codex Alimentarius Commission that lay down rules for the promulgation of public food safety standards (Henson, 2007; Henson, 2008; Sodano et al., 2008). Private standards developed by corporations replace the democratic and open processes of governance by activities carried
out behind closed doors, and thus they circumvent even this limited governmental oversight (Henson, 2007; Henson & Humphrey, 2010). This decrease in transparency has been examined by Konefal et al. (2005) who have found that food safety is being transformed from an open, democratic process to one that is increasingly occurring outside of the supervision, or even knowledge, of the general population and governmental authorities. Moreover, these standards are not communicated to consumers; rather they support broader product differentiation efforts, for example through private label development (Henson, 2008). Thus, not only is the process of developing food standards not communicated to the consumer, the consumer has no way of knowing that the food they purchase has been ‘certified’ through these standards.

**Co-regulation of Food Safety**

Levi-Faur (2009) describes co-regulation of food safety as the corporatist regulatory order where state and civil actors share the responsibility for regulatory design or regulatory enforcement. Given the scarcity of public-sector resources, concerns about the impact of regulation on competitiveness, and the scale of the task at hand, there is growing interest in co-regulation with public and private sectors working hand-in-hand to deliver safer food at lower (regulatory) cost (Martinez, Fearne, Caswell and Henson, 2007, parenthesis in the original). Unpacking this sentence reveals a strong four-part neoliberal premise, which promotes co-regulation. First, regulations are seen to decrease competitiveness. Second, the scarcity of public sector resources and unwillingness for the government to pay for these resources transfers the responsibility to the manufacturer. Third, a public-private sector partnership promotes both deregulation, because there are now outside agencies involved in setting food safety standards, and privatization because private sector employees now do the
traditional task of government inspectors. Finally, a focus on an increase in efficiency and a decrease in cost reflects the free market approach to providing services.

**Cost-benefit Analysis**

Private standards for food safety are often responses to government regulations and build on the framework of public standards. In so doing, private standards are able to reduce the cost of standards formulation and enforcement, for example by providing a detailed ‘road map’ for compliance and conformity assessment (Henson & Humphrey, 2009).

In order to balance the conflicting priorities of an increase in public demand for food safety and the liberalizing economy, nations are moving to a cost-benefit analysis of proposed regulations (Martin et al., 2003; Traill & Koenig, 2010). The cost of food safety regulation is an increased requirement on the expenditures of the food manufacturer and administrative costs for the regulatory agency, whereas the benefits of food safety regulation is a reduction in the risks of mortality and morbidity associated with consuming foods that could be contaminated with microbial pathogens and other hazards (Antle, 1999). The neoliberal perspective requires that food safety practices measure the marginal social costs and benefits to determine whether a higher level of safety provided by a proposed regulation is justified (Traill & Koenig, 2010) and determining the appropriate level of food safety governance focuses primarily on the economic cost to the food industry of a proposed regulation instead of its public health benefit. As a result, public authorities are increasingly engaging industry in the development of safety and quality objectives and adopting the mechanisms employed by private standards (Fulponi, 2006; Henson & Horthen, 1998; Henson & Hooker, 2001; Wæraas, 2010).
The regulatory impact statement is an important instrument for the cost-benefit analysis of food safety policy and is used to examine the consequences of a proposed legislation prior to its approval. It is now required by neoliberal states, including the United Kingdom, Australia and the United States (García Martínez et al., 2007; Martin et al., 2003; Traill & Koenig, 2010). However, a careful analysis of the benefits and costs of alternative regulatory options may advise policy-makers that there is no economic case to regulate normal market transactions, for example where costs of preventing an uncertain food safety hazard outweigh the probable benefits (García Martínez et al., 2007). Returning to the example cited in Chapter 2 of non-federally registered establishments involved in the slaughter of food animals with limited financial means to pursue federal registration, the Regulatory Impact Analysis Statement (RIAS) declares:

“For these establishments, becoming federally registered is expensive, varying greatly from establishment to establishment in relation to the volume and nature of the product. The cost for new plants is estimated at $200 per square foot... These amendments will allow more small- and medium-sized enterprises to access the federal system and, therefore, trade inter-provincially.” (Canada Gazette, 2011)

This RIAS also states that the current revision “converts the regulation from prescriptive requirements, namely requirements that specify how an outcome must be achieved, where possible, to outcome-based requirements that rely on principles and outcome-focused rules” (Canada Gazette, 2011), an explicit acknowledgement of the transition from process-based to outcome-based requirements discussed in chapter 2.
These changes to food safety governance are applicable to Canada and to neoliberal states in general, and are supported by the GFSI. There are consequences, however, specific to the GFSI that are critical to understanding the transformation of food safety governance.

**Consequences of GFSI Food Safety Governance**

Using a political economy analysis, this thesis aims to illustrate how the development of the GFSI has significant consequences for food safety governance, not just in Canada but also in the international food production system. These consequences fall into four general categories: loss of Canadian control of food safety governance, the commodification of food safety, deflection of responsibility and the decrease in consumer choice.

**Loss of Canadian Control of Food Safety Governance**

The GFSI surreptitiously transfers control of the Canadian food safety system to corporations that are not Canadian and hence not concerned with the public health of Canada’s citizens. For example, of the GFSI benchmarked standards only CanadaGAP was developed by Canadians (CanadaGAP, 2012). Returning to the BRC Global Standard for Food Safety, this scheme transfers responsibility for the public health of Canadians to an organization that identifies itself as focusing on British interests (BRC, 2012b).

**Commodification of Food Safety**

Third-party certification of food safety is an example of the commodification of areas not previously subject to market control and supports the neoliberal goal of creating new sectors of industry. For example, certification schemes create three distinct areas for entrepreneurial development; first, these schemes require a third-party audit, thus promoting
the industry of auditing and the businesses of the Certification Bodies and Accreditation Bodies. Second, these schemes are difficult to implement and promote the industry of consulting. Third, these schemes have distinct requirements for training that are thus promoting the industry of training (Busch, 2011).

**Deflection of Responsibility**

Although its implementation is essentially mandatory for manufacturers because it is required by their customers, the GFSI claims no responsibility for food safety. The GFSI Guidance Document (2012) deflects the responsibility for food safety through its statement:

> The Consumer Goods Forum shall not be held liable for any damages (including, without limitation, damages for loss of business or loss of profits) arising in contract or otherwise from this publication or any information contained in it, or from any action or decision taken as a result of reading this publication or any such information. (p. 11)

It goes on to state in its Enhancing Food Safety through Third Party Certification White Paper (2011):

> Accredited certification does not deliver a guarantee of food safety nor prevent food safety incidents. It provides a proven framework of checks and balances that significantly improves the rigour of the audit process and reduces the risk of food safety failures. Food businesses should not rely solely on third party audits to provide evidence of their food safety compliance. However, accredited third-party certification audits, if used correctly, are worthwhile tools for any food business seeking to implement and maintain behaviours and practices within their facilities. (p.
A company which implements a GFSI standard, for example BRC Global Standard for Food Safety, remains responsible for the food safety programs in their facility without the protection of the standard it has implemented or the organization that mandated the standard.

**Decrease in Consumer Choice**

The retailers, by defining the standards their suppliers must meet, actively limit the amount of choice available to the consumer. The retailer acts as the buyer for the consumer, by not only seeking to protect the retailer’s corporate brand and reputation, but also actively evaluating the quality of the brands it permits on its shelves (Manning & Baines, 2004; Reardon & Farina, 2002). Unlike public health legislation such as the regulations requiring the pasteurization of milk, democratic processes have not made this decrease in choice. In other words, though these standards appear to increase the choice available to consumers, the opposite has occurred.

**Conclusion**

The Global Food Safety Initiative is an expression of the neoliberal doctrine in place throughout the Global North. Purporting to improve food safety, there is little evidence that the benefits of this program are visible to anyone other than the food retailers.

When explored through a political economy framework, the GFSI can be seen as an indicator of the third food regime. The effects of the neoliberal food regime on food safety governance includes a decrease in transparency, co-regulation of food safety and the introduction of cost-benefit analysis. The GFSI itself has transformed food safety governance from the public to the private sphere, with significant consequences, including
the loss of Canadian control of food safety governance, commodification of food safety, deflection of responsibility from the GFSI and a decrease in consumer choice.
Chapter 6: Conclusion

Food safety is a fundamental component of public health and its importance mandates a strong and robust governance system to ensure that the food produced will not endanger the health of Canadians and the global populace. The regulation and monitoring of food safety has become increasingly difficult as our food production systems have grown in size and complexity. Therefore, it is important that society recognize first, the challenges in producing safe food, including emerging pathogens, an increasing number of ingredients and process steps, and the significant distances that food must travel to arrive on our plate, and second, that these challenges represent significant obstacles for both the producers and the governments attempting to oversee the processes.

Food safety concerns, in the form of biological, chemical, and physical hazards arise from a variety of sources including pathogen contamination, processing practices such as pesticide application, and foreign materials from processing or the food itself. The preventative system, Hazard Analysis Critical Control Points, manages these concerns by implementing prevention, reduction, or elimination steps. HACCP is required by national and international food safety agencies through governmental regulations and trade agreements.

These regulations have been developed by democratic processes to ensure society has had a voice in the laws governing their food. The last thirty years, however, have seen a dramatic shift in the governance of society, including the overwhelming adoption of neoliberal doctrine. Under the guise of ‘common sense’ neoliberalism has replaced the Keynesian welfare state, one that supported its citizens, with an extreme form of capitalism reminiscent of classical liberalism. Using the three facets of ideology, governance and public
policy, neoliberalism has shifted the focus of governmental regulations and involvement in society from a protectionist stance to a one that supports and promotes unfettered business practices. This has resulted in the withdrawal of the state from its historical responsibilities and the consolidation of corporations into oligopolies.

The Global Food Safety Initiative is a result of this withdrawal and consolidation. This initiative, developed in 2000 by international food retailers, places strict requirements for food safety on the manufacturers supplying the retail industry, and as a result, these corporations have assumed the responsibilities of government. As such, the GFSI is an important expression of neoliberalism and displays its three facets. Its ideology is communicated through the discourse of ‘supporting the government regulations’ and the lack of demand for evidence indicating it improves food safety and public health. The GFSI also relies on the free market governance, assuming that businesses will act in a manner to protect public health in order to prevent a loss of profits, removing the responsibility for food safety from the government. At the same time, it displays the neoliberal public policy features of privatization and deregulation, and is an consequence of liberalization. Deregulation, in particular, has the consequence changing the GFSI from a private food safety standard to an international regulation and the food retailers into regulatory agencies. It has also resulted in class power restoration; the corporations which lost power during the Keynesian state have regained it through the formation of the food retail oligopolies. GFSI acts directly to support this power restoration.

The political economy framework used to analyze the GFSI and its impact on food safety and food safety governance reveals one further feature of this initiative. The political economy concept of food regimes has been proposed to analyze the placement of
corporations and nations in the food production system, and a first and second food regime are well documented. The literature regarding the food regime concept has proposed that there is a third, neoliberal, regime and some argue that the transition to the third regime is complete. The GFSI supports the premise that the third food regime is in place, through two arguments. First, the GFSI is a neoliberal expression of food safety governance, resulting in the transfer of this facet of public health from the state to the corporation. Second, the GFSI is a neoliberal solution to a neoliberal problem; the rise in neoliberalism in the 1970s and 1980s precipitated the food safety crises in the 1990s, providing the justification for, and driving the implementation of, private food safety standards in the 1990s and the GFSI in the 2000s.

The consequences of a neoliberal approach to food safety include significant changes to both Canadian and international food governance. Within Canada, neoliberalism can be seen to decrease the transparency of the regulatory process, to increase the co-regulation of food safety and to establish a reliance on the cost-benefit analysis to justify changes in food safety regulations. All three products of the neoliberal doctrine result in the erosion of governmental responsibilities, favouring the corporation as protector of public health.

Internationally, the GFSI has become the predominant neoliberal mechanism to regulate food safety. This has had four major impacts on food safety governance. First, it has transferred control of Canadian food safety to not only retail corporations, but to a system outside of Canadian control. Second, it has resulted in the commodification of food safety, an area that has not historically been a commodity. Third, the GFSI has deflected the responsibility for food safety from its own organization to the food safety schemes such as
the British Retail Consortium. Finally, there has been a decrease in consumer choice, as the public has no knowledge of these food safety standards.

**Suggestions for Future Research**

There are several areas for further research into the effects of the GFSI on public health and the food industry. As there is little empirical evidence on the public health benefits of the GFSI an investigation into the impact on foodborne illnesses is warranted. This could be measured by a reduction in the number of illnesses and outbreaks or a decrease in the number of recalls in countries where this standard has been widely implemented. Another area of research could be the effects of the benchmarked schemes on areas of food safety outside of the traditional public health field, for example, an increase in the adoption of genetically modified organisms or novel food production techniques such as food irradiation. Finally, the effects of the GFSI on the food industry could also be investigated. Using Harvey’s (2006) concept of the restoration of class power, an investigation into the stratification of the food industry, companies with a GFSI certification and those without, would also be useful. For example, does the forced adoption of the GFSI create two tiers of food safety, one of larger, primarily multinational companies with this certification, and perhaps small or ethnic food manufacturers who are seen to be inferior because they cannot afford certification. Finally, the perception of these programs by the public should be explored. Does the general populace know of the GFSI or its benchmarked schemes, its implementation methods, or the dearth of information indicating an improvement to public health? Alternatively, what does the food justice movement know of the GFSI, if anything, and what should their role be in (opposing) this system? These questions suggest that there are many areas in which the impacts of the GFSI have yet to be explored.
Final Thoughts

Any system that removes a public health measure from governmental control necessitates a critical analysis of the impacts of this loss of control. This thesis used a political economy framework to examine the shift in food safety governance from its historical place as responsibility of the state to the responsibility of the food retailers through the implementation of neoliberal doctrine. It has found that the development and implementation of the GFSI is a direct result of the rise of neoliberalism in the 1980s and places the global regulation of food within the third food regime. This creates a precedent for the corporate regulation of all aspects of public health, and as such has profound implications for our society.
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