

# **Cleaning and Eating Green: A Review of Local Restaurants**

## **Using Green Cleaning Products**

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## **Abstract**

This thesis begins with a description of the environmental and health effects of traditional cleaning ingredients. It continues with an introduction of the green cleaning industry and investigates alternatives to conventional cleaning products. Then it explores the benefits and costs of green cleaning for businesses, workers, and the environment, and explores green cleaning certifications and standards. The next chapters cover a review of corporate environmental actions that have been undertaken in recent years, as well as the policy context for restaurant cleanliness, through city public health codes, and state and federal worker occupational health and safety. Later, there are interviews with purchasers and decision-makers in the restaurants. These interviews revealed a strong dependence on the use of an environmental consulting firm for recommendations on which environmentally preferable cleaning products should be purchased and used at the restaurants profiled. Finally, the last chapter contains recommendations for other restaurants that want to engage in green cleaning.

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## Introduction

This thesis investigated the decision-making process of restaurants that adopt the use of green cleaning products and the factors that influenced a restaurant's decisions on whether and how to green their cleaning practices. This investigation was worthwhile because it helped to define and outline a path for restaurants that wanted to reduce their usage of toxic chemicals for cleaning purposes. This investigation functioned as a resource for other restaurants that may want to green their daily practices, specifically as they relate to the harm to employees and consumers alike that is caused by the use of toxic chemicals for cleaning purposes.

I am interested in promoting "corporate environmentalism," because I believe that doing good does not have to come at the expense of doing well. By implementing small changes in the types of cleaners that are used daily in restaurants and cafes, companies can easily and quickly create a net positive environmental effect by reducing toxics use.

The phrase "green cleaning products" includes household, institutional, and industrial hard and soft surface cleaners such as window cleaners, multi-purpose cleaners, degreasers, industrial cleaners, disinfectants, cooking appliance cleaners, and dish cleaners, among others.

Green cleaning products are often used as an alternative to more traditional cleaning products that may cause harm to the health of those who

clean with them or those who occupy buildings where they are used. For example, many of these common, non-green cleaning products contain corrosive or strongly irritating substances that may cause skin or eye damage due to exposure (Ferre & Wakefield, 2000). However, green cleaners can significantly improve indoor air quality; reduce cleaning-related health problems and absenteeism, and increase productivity and morale. Health problems associated with some cleaning chemicals include headaches, dizziness, and sensitization (Cleaning Chemical Use in Hospitals: Fact Sheet , 2004). Although few in number, there are some cleaning chemicals that can cause reproductive disorders and major organ or permanent eye damage (Commercial Cleaning: Go Green & Clean Janitorial Services, 2009). In addition, some cleaning product ingredients can also trigger breathing difficulties for people with asthma or other respiratory ailments. One of these respiratory difficulties may include asthma, which is a chronic inflammatory disorder of the airways that impairs breathing, as well as coughing, wheezing, shortness of breath, and/or chest pains (GS-37: Green Seal Standard for Cleaning Products for Industrial and Institutional Use, 2009, p. 6).

      Volatile Organic Compounds (VOCs) are found in many cleaning products. Certain VOCs can contribute to poor air quality indoors and outdoors, including smog formation. They can also cause asthma attacks in some people. (An Introduction to Indoor Air quality: Volatile Organic Compounds, 2011) Also, some cleaning chemicals may contain carcinogens, which may cause cancer in people that are exposed to them.

## **Goal and Purpose**

My main objective was to understand the factors that motivated restaurant decision makers to switch from conventional to less toxic products. My ideals are very much aligned with what Tedd Saunders, Executive Vice President and Director of Environmental Affairs of Saunders Hotel Group, describes as his guiding principles: that corporate environmentalism is good business; that daily choices have long-term effects; that efficiency is the common ally of business and the environment; and that environmental action need not mean lower quality or relaxation of standards (Saunders, 1993).

I am interested in focusing on small restaurants in the Greater Boston area. A study published in the UK found that small and medium sized enterprises have a “low awareness of the overall environmental impact (they have)” and that this “has been a major hindrance to change” (Revell & Blackburn, 2007, p. 405). Revell and Blackburn write that in the UK, there was a perception amongst restaurants that their environmental impact was “negligible” (p.411). The authors note that though the restaurateurs they had interviewed understood that the British public was becoming more and more health conscious, there are not many regulations in the UK that require reduction of environmental impacts (p.415).

## **Methodology**

In order to evaluate the decision-making process that restaurants engage in when deciding to use green cleaning, I selected a number of greater Boston-

area restaurants that regularly use green cleaning products and investigated how they first decided to go green, why they chose the step of purchasing and using green cleaning products, which types of green cleaning products they chose to use and why, and a post-purchase evaluation of the efficacy of those green cleaning products. I also investigated the impacts on their business, both positive and negative.

I selected a range of restaurants of varying physical size and varying number of employees that have engaged in purchasing and using green cleaning products. I contacted the Green Restaurant Association to get recommendations about several restaurants in Greater Boston that have purchased and used green cleaning products at their suggestion. I focused on restaurants that are geared towards a more formal dining experience, rather than a fast food or take-away restaurant.

	Boloco (at 2 Park Plaza)	Lumiere	The Fireplace	Taranta	Sebastian's Cafe
Number of Employees	21	20-25	40	20-22	17

I conducted interviews with decision-makers in these restaurants that allowed the respondents to share with me the relevant information that contributed to their decision-making process of going green and using green

cleaning products. Those who choose to engage in green cleaning practices may be owners or managers, or someone who is responsible for purchasing for a restaurant. I interviewed representatives from five restaurants in the Greater Boston Area. My research focused on asking questions related to how they first became interested in using green cleaning products, what they hoped to achieve by using green cleaning products, and what reactions they have had from their employees as a result.

The major limitation of my study is that all interviewees were from restaurants that were clients of an environmental consulting firm that helped them to become more environmentally friendly in their daily practices. These interviewees were recommended to me by that environmental consulting firm. This method also caused me to have a smaller sample size than I might have otherwise had, in so far as sampling restaurants by size or restaurant type may have lead me to a bigger sample size.

#### Layout of Thesis

The first chapter covers an evaluation the environmental and health effects of traditional (non-EPP) cleaning ingredients. It introduces the Green Cleaning Industry and investigates alternatives to conventional cleaning products, the benefits and costs of green cleaning for businesses, workers, and the environment, and Green cleaning certifications and standards.

The second chapter focuses on corporate greening and environmentally preferable purchasing. I review corporate environmental actions that have been

undertaken in recent years. I then describe that green cleaning in restaurants was really just a subset of a larger trend in corporate greening and more specifically, environmentally preferable purchasing. This chapter covers entities that provide information for environmentally preferable purchasing, such as the Green Restaurant Association and the Responsible Purchasing Network.

The third chapter provides background information that shapes the policy context for restaurant cleanliness. It reviews city and public health codes that restaurants in my study must meet, as well as occupational health and safety requirements that exist at the state and federal level.

Chapter Four contains basic information about my interviewees. There is a summary of the responses received from each of the major question areas. This chapter also features a discussion of the findings, with particular attention paid to the fact that impacts on workers have a greater effect on the decision to purchase environmentally preferable cleaners than price does. This chapter delves into the doubts that were felt by some staff members as they began to use environmentally preferable products, and how management took steps to ensure that environmentally preferable products were given the opportunity to be tested at these sites.

The final chapter contains a synthesis of the responses from purchasers and decision-makers in the different companies with respect to the EPP and the green-cleaning process, as well as recommendations for restaurants on green cleaning based on my findings and recommendations for further research. These

suggestions were based on topics that arose during my interviews, as well as suggestions for improving green cleaning from existing literature.

## Chapter One

This chapter describes what kinds of chemicals are used in cleaning, what some of their hazardous impacts are. It details the environmental effects of non-green cleaning ingredients such as bleach, ammonia, chlorine, and others.

### **What are the major types of conventional cleaning chemicals?**

One of the most concerning classes of cleaning chemicals are disinfectants, specifically due to the risk of negative health and environmental impacts; the active ingredients found in disinfectants are “among the most toxic chemicals that are used in cleaning,” including “quaternary ammonium compounds (quats), chlorine bleach, ethyl and isopropyl alcohol, and phenolic compounds” (Lehman, 2003, p. 49). An additional danger of overusing disinfectants and antibacterial products is that bacteria can, over time, grow stronger and become “resistant to antibiotics and antibacterial agents,” suggesting that people who purchase and use cleaning products should be more discriminating with their use (Lehman, 2003, p. 49).

### **Who is exposed and what are the possible health effects?**

A potential danger is the risk of occupational asthma for those who engage in cleaning work. Specifically, epidemiological studies and case reports have suggested that there is a link between exposure to various cleaning agents such as ethanalamines and chloramine-T and occupational asthma (Makela et al., 2011, p. 121). For example, it is estimated that 4% of the US workforce works as

professional cleaners, which may include cleaning offices, industrial plants, hospitals and homes (Makela et al., 2011, p. 121). Makela et al. state that this work can expose these professional cleaners to not only a large amount of chemical compounds in cleaning agents, but also to organic compounds such as “animal dander, mites and microbes from damp environments, and particles and chemicals that are emitted from building structures (2011, p. 121).” Additional risks to professional cleaners are the respiratory health effects that are associated with professional cleaning, such as lung function abnormalities and chronic bronchitis (Makela et al., 2011, p. 121).

A 1999 study conducted in California, Massachusetts, Michigan, and New Jersey that evaluated work-related asthma (based on guidelines for state health departments) demonstrated that in 4.6% of asthma cases that were work-related, cleaning materials were the “putative agent” (“Cleaning National Parks,” p. 28, 2000). A 1998 bulletin regarding occupational lung disease reported that over 10% of work-related asthma cases reported to the Massachusetts Department of Public Health described cleaning agents such as bleach, chlorine, ammonia, floor stripper, muriatic acid, sodium hydroxide, disinfectants, and detergents as the “suspected asthma agent” (“Cleaning National Parks,” p. 28, 2000). Also, according to the Consumer Product Safety Commission, soaps, detergents, and other cleaning compounds were responsible for 10,252 work-related visits to the emergency room in 1986 (“Cleaning National Parks,” p.28, 2000). The Responsible Purchasing Network cites a 2003 study documented in

the Journal of Occupational and Environmental Medicine that correlated a high association of asthma with exposure to traditional cleaning products. (2008, p. 5) In fact, in this study, 12% of the cases of work-related asthma were associated with workplace exposure to cleaning products (RPN, 2008, p. 5).

The Cleaning Industry Research Institute (CIRI) states that the indoor environment can be defined as “artificially created ecological systems which are made up of a non-living or physical component and a living or biological one” (Cole, 2011, para. 1). They note that physical environments include structural, finishing and furnishing materials and their paints, coating and sealants; also, biological environments can typically include microorganisms, insects, plants, rodents, pets, and humans. (Cole, 2011, para. 1) Furthermore, an “indoor ecosystem” is a smaller environment or habitat that has its own physical biological factors (Cole, 2011, para. 2). These ecosystems are also “pollutant reservoirs that can affect air quality components including exterior and interior wall cavities, ceilings, and air-handling systems, and crawlspaces (Cole, 2011, para. 2).” These reservoirs can also “collect particulates such as dust, fibers, soil and debris that can contain chemical and biological pollutants such as pesticides, lead residues, and microbial insect and animal allergens (Cole, 2011, para. 2).” Cole writes that regular cleaning can reduce the amount of particulates in these reservoirs; but if these are not regularly cleaned, occupant activity and mechanical airflow can cause airborne dissemination (2011, para. 3). He notes that this air born distribution can “contaminate previously uncontaminated

areas and degrade air quality, which in turn may cause adverse health effects in individuals who are susceptible (2011, para. 3).”

CIRI writes that in certain “special environments” such as schools, health care facilities (such as hospitals, rehabilitation centers, nursing homes), daycare centers and home, there are those who are more susceptible to the negative health effects of contaminants and pollutants that can be found in indoor environments (Cole, 2011, para. 4). They describe how spaces contain people who are sometimes susceptible to infections that are possibly life-threatening, like a suppressed immune system, or other dangers such as severe allergies and hyper-sensitivities. These infections are caused and exacerbated by indoor contaminants like environmental mold (Cole, 2011, para. 5).

**How much is released into the environment and what are the impacts on aquatic ecosystems and air quality?**

Certain ingredients in cleaning products are not just harmful to the janitors and other workers who use them regularly, but also to aquatic life in waters that receive wastes that are not adequately treated before disposal. The scope and amount of potentially hazardous materials that are released into our environment as a result of cleaning products is staggering. In fact, approximately five billion pounds of institutional cleaning chemicals and coating chemicals are used in the US each year (RPN, 2008, p. 6) Some examples of potentially threatening chemicals that are frequently disposed of in sewerage are alkylphenol ethoxylates (an “endocrine disruptor”), as well as phosphorous and

nitrogen, which can lead to nutrient-loading in water bodies, which negatively affects water quality. Volatile Organic Compounds in cleaning products also influence indoor air quality and contribute to the formation of smog in outdoor air.

Other risks include phosphates from detergents, which cause nutrients to overload aquatic ecosystems (RPN, 2008, p. 4). These excess nutrients cause algae blooms to form on the water's surface, which in turn blocks out sunlight and reduces plant growth in the water beneath. If these plants stop the process of photosynthesis, they cease producing oxygen, which is necessary for a healthy aquatic ecosystem (RPN, 2008, p. 4). Without a sufficient supply of dissolved oxygen, fish and other aquatic creatures begin to die, and only one pound of phosphorus from disposed detergents can cause the growth of over seven-hundred pounds of algae (RPN, 2008, p.4).

Alkylphenol ethoxylates (APEs), mentioned above, have been under scrutiny for years due to the fact that they are very unlike other cleaning agents, as they "break down into more toxic, less biodegradable metabolites that display estrogenic properties" (McCoy, 2007, p. 14). Another type of APE, nonylphenol ethoxylate (NPE) is a surfactant that is found in many cleaning products, and they persist as an ingredient in institutional cleaning products (McCoy, 2007, p. 14). In fact, 260 million lbs. of NPEs were consumed in the US in 2004, and they are quite heavily used in Asia for the purposes of textile processing; additionally, companies like Dow Chemical, the Huntsman

Corporation, and Rhodia claim they are safe and continue to use them in the manufacturing process. (McCoy, 2007, p. 14).

**What is green cleaning, and what are the ways that green cleaning can mitigate or prevent the impacts of conventional cleaning products?**

Risks are associated with the processes of manufacturing, use, and disposal of traditional, toxic chemicals. The benefits of switching to environmentally preferable cleaning products are that these risks can be reduced. Specifically, indoor air quality improvements, the reduction of health problems that are associated with the use of toxic cleaning products, and the decrease in absenteeism caused by the use of toxic cleaning products are benefits that can be enjoyed by companies that switch to environmentally preferable cleaning products (Environmentally Preferable Cleaning Chemicals: A Buyer's Guide, 2008). However, a study conducted by INFORM, a national environmental research organization, found that the use of hazardous chemicals could be reduced by 13% if janitors “used fewer chemicals, substituted chemicals that were less toxic, installed mats and regularly vacuumed and avoided products in aerosol cans” (Lehman, 2003, p. 49).

Environmentally Preferable cleaning materials can both lower costs associated with work-related injuries and simultaneously better worker performance through improved worker safety and increased air quality. The EPA specifies that the potential for a cleaning product to cause health problems depends generally on both the concentration and the formulation of the

cleaning product's ingredients, as well as the manner in which the product is stored, used, and disposed of (Wakefield & Ferre, 2000, P. 28). However, by choosing cleaning products that decrease the amount of harmful emissions, a company can better protect worker's health. For the purposes of this thesis, a "green cleaning product" is a cleaner that has met necessary guidelines and criteria in order to be certified by Green Seal, Ecologo, or another third-party entity that certifies products. The next chapter of this thesis covers initiatives for corporate greening that can help to mitigate the negative health outcomes that were outlined in this chapter through more socially responsible purchasing and corporate practices.

## **Chapter Two**

This chapter is a review of corporate and governmental environmental actions that have been undertaken in recent years, specifically Environmentally Preferable Purchasing (EPP) and environmental marketing. It explores EPP support for businesses, such as the Responsible Purchasing Network and the Green Restaurant Association. In summary, this chapter has an overview of corporate greening initiatives and socially responsible purchasing.

In the 1970s the federal government began to regulate the “manufacture, usage, and disposal” of various chemicals due to concern regarding their “potentially adverse” effects on human health and on the environment (Elwood & Case, 2000, p. 78). Because of this, many private companies started to track and alter their own chemical purchases in order to better act in accordance with federal laws and regulations (Elwood & Case, 2000, 78). However, many companies have decided to expand upon their original initiatives to comply so that they might provide cost-savings and appeal to “a broader environmental ethic” by deciding to take voluntary environmental initiatives (Elwood & Case, 2000, p. 78).

### **What are Environmentally Preferable Purchasing and Environmental Marketing?**

Environmentally preferable purchasing can be defined as “selecting

products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose” (Elwood & Case, 2000, p. 71). For the purposes of this thesis, it is important to note that this definition originated from a federal executive order: Executive Order 13101 in 1998 (Elwood & Case, 2000, p.71); in fact, very few private companies have defined environmentally preferable purchasing. In the original EPA report *Private Sector Pioneers: How Companies Are Incorporating Environmentally Preferable Purchasing*, Elwood and Case note, however, that a number of private companies have begun to incorporate the principles of environmentally preferable purchasing that are consistent with the recommendations of the Environmental Protection Agency in their professional practices (Environmental Protection Agency, 1999, p. 2). Specifically, these EPA recommendations concern toxic material content, energy-efficiency, and “adverse effects to workers, animals, plants, air, water, and soil” (EPA, 1999, p. 2). The EPA report *Private Sector Pioneers: How Companies Are Incorporating Environmentally Preferable Purchasing* is the basis for a later article of the same name that is also mentioned in this thesis.

Environmentally preferable purchasing can be viewed as an extension of other ethical issues that have been part of policies and behaviors of corporate entities for years --- for example, the controversies associated with genetically-modified foods in the late 1990s (particularly in Europe) were the cause of much debate and the impetus for environmental action (New, Green, and Morton,

2000, p. 35). Certain activist groups have recommended consumers not make purchases from specific firms that have engaged in potentially environmentally unfriendly practices. (New, Green, and Morton, 2000, p. 35).

Environmental marketing is not a new idea; it has existed for about thirty years in the business world (Polonsky, 2009, p.118). It has also been known as “ecological marketing,” “sustainable marketing,” and “green marketing.” The American Marketing Association describes the “social marketing” perspective of “green” or “environmental” marketing as “the development and marketing of products designed to minimize negative effects on the physical environment or to improve its quality” (Polonsky, 2009, p.118). This definition is applicable to the practices of many firms today, as they attempt to minimize environmental harm while making financial profits for themselves and consumers during commercial exchanges (Polonsky, 2009, p.118).

Polonsky writes that the four “Ps” of marketing are price, place, promotion, and product (2009, p. 119). Environmental marketing builds on these four concepts, as environmental marketing may result in product-redesign, changes in logistical processes, the communication of new information to customers regarding these changes, and the possible altering of prices of new goods for consumers (Polonsky, 2009, p. 119).

### **The Restaurant Industry**

The Green Restaurant Association focuses on helping restaurants to become more sustainable in their daily practices. The restaurant industry

specifically is a great place to start, as the GRA writes on their website:

“Americans spend forty-four percent of their food budgets on food consumed away from home - \$1,078 per person annually - dining at over 945,000 restaurants. Tapping into the consumer need and want to eat out offers a great opportunity to reduce the restaurant industry’s ecological footprint and affect change. The 1,500 scientists who signed the Call for Action at the Kyoto Summit summed it up: ‘There is only one responsible choice -- to act now’” (source: <http://dinegreen.weebly.com/>).

The Green Restaurant Association cites that “45% of consumers surveyed said that it was very important that their restaurants use environmentally friendly cleaning supplies” (Parpal, Society for Hospitality and Food Service Management). These quotes above illustrate the fact that the restaurant industry is an important place for change to take place.

### **What Governmental Initiatives exist?**

The Federal government spends approximately \$230 billion annually on a wide variety of products and services and creates an enormous “environmental footprint” (EPA, Greening Your Purchase of Cleaning Products: A Guide for Federal Purchasers, 2010). In 1995 the Environmental Protection Agency established the Environmentally Preferable Purchasing Program in order to aid Executive Agencies with the purchasing of environmentally preferable products and services (EPA, Greening Your Purchase, 2010). This step was taken in direct

response to Executive Order 12873, which contained guidelines with respect to federal acquisition, recycling, and waste prevention. In 1998, Executive Order 13101, "Greening the Government through Waste Prevention, Recycling, and Federal Acquisition" guided Executive Agencies to "consider... a broad range of factors including: elimination of virgin material requirements; use of bio-based products; use of recovered materials; reuse of product; life cycle cost; recyclability; use of environmentally preferable products; waste prevention (including toxicity reduction or elimination); and ultimate disposal" when these Agencies are making purchasing decisions and that they should "modify their procurement programs when appropriate." (EPA, Greening Your Purchase, 2010).

An article published in the Journal of Chemical Health and Safety notes that, of the two million chemicals that are now in existence, only a few hundred of these have been adequately tested for their potential to cause cancer, liver, or birth defects, and 35,000 serious accidents occur each year with household products (Gonzalez, 2009, p. 15). In seeking to secure a clean and healthy working environment in some of their DC offices, the US Department of the Interior in 1998 began an initiative to contract for custodial services (e.g. window washing, floor stripping, maintain restroom supplies) using environmentally preferable cleaning products and other supplies (Dept. of the Interior Focuses on Cleaning Products, 2010, para. 1). In determining which environmental characteristics would be mandatory under the contract, the DOI sought those

that would be healthier for its employees (e.g., cleaners that would minimize irritation to the respiratory system, eyes, and skin) (DOI Focuses on Cleaning Products, 2010, para. 2). Though the DOI only evaluated five categories of cleaning products, they did require the successful bidder to “meet or exceed the mandatory criteria for all nineteen cleaning products that were used at the Department of the Interior buildings,” which included: no sealed aerosol spray cans, no carcinogens, no hazardous wastes, and no pollutants that are outlined in the EPA 33/50 Program 17 Priority Pollutants (DOI Focuses on Cleaning Products, 2010, para. 4). The DOI gave more favorable consideration to bidders who included products with certain desirable characteristics, such as: minimal skin, eye, and respiratory irritation; biodegradability; avoidance of undesirable or unnecessary dyes and fragrances; and recyclable containers and minimization of non-recyclable waste (DOI Focuses on Cleaning Products, 2010, para. 5).

The Environmental Protection Agency recommends that agencies choose the products that will most successfully “maximize beneficial environmental attributes while simultaneously minimizing environmental effects that are consistent with considerations of both price and performance” (Elwood & Case, 2000, p. 71). They also encourage agencies to “evaluate the multiple environmental impacts of each and every product throughout the life-cycle of the product, such as acquisition of raw materials, manufacturing, packaging and distribution, use, and disposal” (Elwood & Case, 2000, p. 71). Though the guidelines mentioned above are specifically directed towards public agencies,

they are also applicable to private companies. In fact, the EPA specifically recommends that agencies focus strongly on evaluating and preventing the environmental impacts of “toxic material content” (Elwood & Case, 2000, p. 71), a key issue with regards to many cleaning products.

### **What corporate initiatives exist?**

An increasing number of companies are now engaging the purchasing and use of environmentally preferable chemicals, for example companies such as DaimlerChrysler and PSE & G. In *Private Sector Pioneers: How Companies are Incorporating Environmentally Preferable Purchasing*, Elwood and Case write about how DaimlerChrysler saved \$45 million and reduced their pollution impact by 110,580 tons in 1997; the majority of the savings was the consequence of more careful screening and tracking of all their chemical purchases in order to eliminate excess purchases, by substituting less hazardous chemicals when possible (significantly decreasing disposal costs), reducing the quantity of plastic resins purchased (reducing costs and increasing opportunities for in-house recycling), and investing in energy-saving measures (Elwood & Case, 2000, p. 77). The authors write that PSE & G saved over \$2 million through streamlining its purchasing process and reducing their quantity of chemical suppliers from two hundred seventy to nine. This allowed the company to both reduce excess inventory as well as reduce disposal costs for chemicals that are “unnecessary” and “outdated” (Elwood & Case, 2000, p. 77).

According to research and interviews that were conducted by Elwood and

Case, many companies have reported “anecdotal evidence from their interactions and feedback from customers that suggests consumer concern regarding the use of environmentally friendly products and practices. In fact, many companies have received phone calls or conducted surveys from both current and potential customers to request specific environmental information about environmental attributes of their products” (Elwood & Case, 2000, p. 72). A Roper/ International Research Associates press release in 1995 reported that 64% of people across the world agree with the statement that “protecting the environment is the most important concern, even at the expense of economic growth” (Elwood & Case, 2000, p. 72). More recently, a Gallup Poll in 2014 found that “Americans said the environment is a priority over economic growth by a 50%-to-41% margin” (Swift, 2014).

Michael McCoy writes about recent actions taken by the private sector of the cleaning products industry to become more sustainable. One example of this successfully marketed corporate environmentalism is the 2007 decision by P & G, the largest laundry detergent company in the world, to design a hydrophobic surfactant system that solubilized oily soils in cold water, when it’s enzyme suppliers developed proteases and carbohydrases that are effective on insoluble dirt residues in cold water (McCoy, 2007, p. 13). He writes that laundry detergents feature prominently in the national discussion regarding environmentally preferable cleaning because they tend to be “purchased in large volumes, are mixed with water, and are then washed down the drain” (2007, p.

13).

In October 2006 Wal-Mart began a program that sought to encourage the use of “preferred ingredients” in detergents and in other chemical-intensive products. Wal-Mart has the second highest annual sales of any publicly traded company in the world (McCoy, 2007, p. 13), and the environmental initiatives announced in this program are wide-reaching. McCoy writes that in September of 2006, Wal-Mart launched a plan at the Clinton Global Initiative to evaluate and quantify “the ability of their 60,000 suppliers worldwide to reduce packaging. It was estimated that this plan would save 323,000 tons of coal as well as 67 million gallons of diesel fuel from being burned annually” (McCoy, 2007, p. 13). Additionally, Wal-Mart also pledged to remove and substitute twenty “chemicals of concern,” including nonylphenol ethoxylates or NPEs, which is a surfactant class that is found in various cleaning products (McCoy, 2007, p.14).

However, as cited above, Wal-Mart is able to have a very direct, almost immediate impact on what kinds of environmentally-preferable cleaning products are available to purchasers, specifically because Walmarts are so prevalent. This can have a “dramatic influence” on consumer perception (McCoy, 2007, p. 14). Michael McCoy writes in Chemical and Engineering News, for example, that when Wal-Mart created its “chemicals of concern,” Ernie Rosenberg, the president of the soap and detergent association remarked, “Once it’s on a list, public pressure and retailer pressure is what hits the chemical. It may get regulated down the road, but for consumer products, that

may be irrelevant” (McCoy, 2007, p. 14). Because Wal-Mart is a public company, “it can immediately present changes in protocol and purchasing to both suppliers and consumers without engaging in the deliberative process that governmental agencies” are obliged to follow (McCoy, 2007, p. 14).

Environmentally preferable purchasing with regards to cleaning products has been employed by the restaurants profiled in this thesis as a method for ensuring a safe and healthy indoor environment. For many of the restaurant owners and chefs I interviewed for this thesis, it was simply a component of the process of becoming more environmentally sustainable in all their aspects of business operation.

In investigating environmentally friendly and environmentally-oriented purchasing by private firms, it is important to clearly define what “corporate environmentalism” is. *In Sustainable Strategies for Industry: The Future of Corporate Practice* the authors note, “How do environmental ideas diffuse through corporate entities? As these ideas diffuse, the role and the objectives of a firm change in response to the social, political, and economic demands of environmentally-oriented goals” (Hoffman and Ehrenfeld, 1998, p.56).

Often, the easiest method for “greening” within a corporate entity is through procurement of a more environmentally-friendly product rather than the traditional cleaner that has previously been used (New, Green, and Morton, 2000, p. 41). This particular method is common in the practice of purchasing environmentally-preferable cleaning materials, done after an analysis of

“technical information” and “manufacturers’ claims.” (New, Green, and Morton, 2000, p. 41). The effects of this purchasing decision are immediate, and “there is the financial encouragement of an extra sale to the provider of (a) green good” (New, Green, and Morton, 2000, p. 41).

### **The Responsible Purchasing Network**

The Responsible Purchasing Network, which was created in 2005 and is the first nationwide network of “procurement-related professionals” who are focused on environmentally and socially responsible purchasing, maintains a database of products that features over 1,600 products from 229 manufacturers that are certified by EcoLogo and/or Green Seal (Responsible Purchasing Network [RPN], 2008, p. 2). Green Seal and EcoLogo manage and provide programs for environmental certification which define cleaning products as sufficiently “green” (RPN, 2008, p. 2). The RPN Purchasing Guide states that the criteria for defining certain cleaning products as green “were developed through extensive, public, consensus-based processes consistent with the ISO 14020 and 14024 environmental label guidelines” (RPN, 2008, p. 2). The RPN notes that both EcoLogo and Green Seal perform on-site audits at the manufacturing facilities of these cleaning products, and conduct on-site testing as part of their certification process (2008, p.2).

The Responsible Purchasing Network also recommends that companies maximize the benefits of green cleaners by:

- “Streamlining procurement processes so that only those cleaners

that are required for established uses are purchased (RPN, Cleaners: Best Practices, Section 7)

- Improving the training of employees in order to ensure that custodial workers are using cleaning products appropriately. For example, because 90% of cleaning costs are related to labor (only 2%-5% are chemical costs), facilities may be spending more money than necessary if workers are not using cleaning products correctly (RPN, Cleaners: Best Practices, Section 7)
- Using Better Cleaning Equipment, possibly by placing doormats at entryways in order to prevent dirt from entering buildings; by using microfiber mops and cloths to reduce the need for cleaning chemicals; using high efficiency filtration vacuum cleaners to reduce the dust that is generated by older vacuums. Also, High Efficiency Particulate Air (HEPA) Filters are 99.97% efficient at removing particles in the air that are as small as 0.3 microns (RPN, Cleaners: Best Practices, Section 7)”

Regarding issues of cost of environmentally preferable cleaners, the Responsible Purchasing Network has noted that there is, in general, no noticeable cost difference compared to conventional cleaners (Responsible Purchasing Guide: Cleaners, 2<sup>nd</sup> Edition, RPN, p. 1). Some entities have even realized cost-savings within their green cleaning programs by switching to environmentally preferable cleaning fluids. One example of this is TriMet, the

metropolitan area municipal bus and light rail system of Portland, Oregon.

TriMet realized a 70% cleaning chemical cost savings by beginning a green cleaning program in 2008 (Responsible Purchasing Guide: Cleaners, 2<sup>nd</sup> Edition, RPN, p. 10). Other institutional users have also noted that green certified cleaners that have been approved by Green Seal and EcoLogo perform in a manner that is comparable to their non-green counterparts (Laurie Torf, personal communication).

The Responsible Purchasing Network also reports that making the switch from conventional cleaners to environmentally-preferable cleaning fluids can lower the costs associated with the damages caused by potentially hazardous, conventional chemical cleaning products. Specifically, RPN notes that an annual average of six janitors per one-hundred is injured when using harmful chemicals at work. RPN cites data from Washington State that financial losses from workers' compensation work-related incidents reach as high as \$725 per claim, including lost work time. They also note that one in three commercial cleaning products contain ingredients that were deemed "potentially harmful" by a 1999 EPA-funded study (Responsible Purchasing Guide: Cleaners, 2<sup>nd</sup> Edition, RPN, p. 10).

The Responsible Purchasing Network created a "Purchasing Guide" that contains both recommendations for which Green Seal and EcoLogo certified products to purchase, as well as background information about the specific dangers of using conventional cleaners that contain potentially harmful

chemicals. For example, chlorine-based cleaners are considered harmful because they may cause serious damage to the eyes or skin (RPN Cleaners 2<sup>nd</sup> Ed. 2008, p.3).

### **How can companies begin a new green cleaning program?**

The Responsible Purchasing Network recommends that any “green” cleaning policy should reference third party standards, such as GreenSeal or Eco Logo, and also assign staff and designate management responsibilities for the program. Firstly, they suggest that an entity that is seeking to create a full green cleaning program should “form a team comprised of stakeholders that is dedicated to making improvements to their firm’s cleaning program. This team should be comprised of representatives from procurement staff, managers, custodians and facility staff, occupants of the company’s buildings, as well as anyone else who will be affected by the new green cleaning program” (2008, p. 7). The RPN advises that this team should be tasked with:

- design and implementation of a comprehensive cleaning program (2008, p. 7)
- decisions regarding procurement (2008, p. 7)
- oversight of the use and disposal of cleaning products (2008, p. 7)
- measure and report the results (2008, p. 7)

Best practices in this regard would also necessitate an inventory of consumption as well as an accurate measurement of environmental impacts; this is described by the RPN as “establishing a baseline.” However, this task could

very well be challenging for a small business like a restaurant to accomplish, due to limited time and resources. Before any other steps should be taken, they suggest that a company (or any entity that is engaging in environmentally preferable purchasing, such as a public, governmental office) should know exactly which cleaning products are currently in use, and in what quantities they are being used.

The EPA also recommends that when wanting to reduce exposure, one should be sure to provide plenty of fresh air when using conventional cleaning products; throw away unused or little-used containers in a safe manner; purchase conventional cleaning products in quantities that will be used promptly; to keep the conventional cleaning products out of reach of children and pets, and to never combine different household care products unless they are directed to do so by instruction on the product label. These methods can also be accompanied by integrated pest management techniques to reduce the overall need for pesticides (An Introduction to Indoor Air Quality, 2011).

The team that has been assembled and tasked with making improvements to their firm's cleaning program must educate themselves not only regarding what kinds of hazardous chemicals are being used, but also the quantity of packaging waste produced by them (RPN, 2008, p. 7). The RPN provides a helpful "Green Cleaning Pollution Prevention Calculator" (at <http://www.fedcenter.gov/janitor/>) that will estimate environmental benefits of changing to cleaners that are certified by Green Seal. This calculation is based on

evaluations of the hard floor area, the carpeted area, as well as any “special cleaning” that may need to occur (such as a large number of interior glass partitions within the building, as well as large amounts of metal trim). This figure is also affected by whether or not the age of the building is greater than twenty-five years.

With regards to hard floor care, the calculator more specifically evaluates the amount and concentration of sealers, floor finish, finish restorers, floor and baseboard strippers, neutral floor cleaners and dust mop sprays. It also includes in this calculation whether these hard floor cleaning products are in aerosol cans or ready-to-use containers, and if they are Green Seal 37 or Green Seal 40 certified. In order to be Green Seal – 37 certified a cleaning product must meet product-specific health and environmental requirements.

### **What are Green Seal and EcoLogo?**

Green Seal is an independent, third-party certifier of green cleaners, and has certified over 600 cleaning products from 155 manufacturers (Cleaners: Cost, Quality & Supply, 2011, para. 6). EcoLogo, another third-party, independent certifier of green cleaning products, uses multi-attribute criteria before certifying a cleaning product. EcoLogo has certified over 1,200 cleaners as “green,” from over 100 manufacturers (Cleaners: Cost, Quality & Supply, 2011, para. 6).

Green Seal’s standards for cleaning products intended for industrial and institutional use specify that they establish requirements for industrial and institutional general purpose, restroom, glass and carpet cleaners, and that

these are intended for the routine cleaning of offices institutions, warehouses, and industrial facilities (GS-37: Green Seal Standard for Cleaning Products for Industrial and Institutional Use, 2009, p. 6).

Green labeling, green purchasing, and green certification are important to business owners because they can help them understand how to go green and demonstrate to potential customers that they are engaging with a business that is actively working towards ecological sustainability. The Global Eco Labeling Network is a non-profit association of third party, environmental performance recognition, certification and labeling organizations. The two most recognized bodies within the Global Eco Labeling Network that certify cleaning products as “green” are Green Seal and EcoLogo (also known as Environmental Choice). Both have created standards for pH levels, toxicity, VOC levels, eutrophication, and skin sensitization levels that must be met before they can be certified “green.” These standards are frequently based on guidelines set by the International Agency for Research on Cancer, the International Fragrance Association, and the Association of Occupational and Environmental Clinics, among others (GS-37, 2009. p. 12 & 16).

In summary, there are many easily-accessible resources out there that can inform purchasers for commercial entities in regards to Environmentally Preferable Purchasing, such as the Responsible Purchasing Network, EcoLogo, and Green Seal.

### **The Green Restaurant Association**

The Green Restaurant Association certifies restaurants as "green" after they have completed a number of agreed upon steps (each step is assigned a point value). These steps must be included in the GRA's Environmental Guideline categories, which include energy use, water use, waste, disposables, chemical & pollution reduction, sustainable food, sustainable furnishings and building materials, and restaurant must accumulate at least 100 points in order to be certified. You can find these standards online at: <https://www.dinegreen.com/restaurants/standards.asp>. Restaurants are evaluated and then assigned a "star" rating based on the number and types of steps that they have taken. Some restaurants chose to achieve their certification by including the step of switching to environmentally preferable cleaning products (such as Boloco). The following chapters detail the actions of five restaurants that have sought certification through the Green Restaurant Association, as well as the legal requirements that must be met by cleaners used on-site.

The Green Restaurant Association's point system awards 5.25 points to a client restaurant if they use cleaning products that meet the Green Seal GS-37 standards (<http://dinegreen.com/standards/GRACompleteStandards.pdf>), but they award a higher amount of points to restaurants that use cleaning products that meet their own GRA-set standards (a total of 7.75 points). This higher point value for cleaning products that meet the Green Restaurant Association's standards is given because the cleaning product meets the

standards set by the GRA, and are available at [http://dinegreen.com/standards/Chemicals\\_mfg.html](http://dinegreen.com/standards/Chemicals_mfg.html). These highly technical and detailed certification standards are intended to be met by cleaning supplies, but another option could be avoiding these chemicals altogether, by using ionized water sprays, for example. Taranta uses ionized water to “clean the stove and other things,” according to Christopher Titus. He told me in the course of his interview that one of the reasons he used it to replace all of their previously used bleach products was that it is non-toxic, and it cleans. However, he told me it cost about \$400 to \$500 each.

## **Chapter Three**

In this chapter, I review the policy context for restaurant cleanliness including city public health codes, as well as Massachusetts and Federal requirements in order to present contextual information regarding the requirements of restaurants in the US. The purpose of this chapter is to explain how policies and regulations affect the cleaning decisions of restaurants in Boston, Newton, and Brookline.

### **Restaurant Requirements at the Federal Level**

This section describes the requirements that must be met at the Federal level, as dictated by the Food and Drug Administration's 1999 Federal Food Code. It also covers the requirements that must be met by toxic substances (such as non-EPP cleaning materials) that can be used in commercial spaces such as restaurants.

Legal requirements in the United States regarding the effects of toxic substances are described in the 1976 Toxic Substances Control Act, which was passed by Congress in 1976. This act applies to restaurants in that the Environmental Protection Agency can regulate new chemical substances prior to their manufacture, import, processing, or distribution for commercial purposes, such as for use in restaurants (ABA SEER Overview of the Toxic Substances Control Act, p.1) . The act consisted of three chapters: 1) Control of Toxic Substances; 2) Asbestos; and 3) Hazardous Response and Indoor Air Pollutants.

This legislation was crafted to ensure appropriate legal responses to data collected from investigation into the health and environmental effects of chemicals that were used in manufacturing and commerce (Bhat, 1996, p.40). This act also requires that the “Environmental Protection Agency both compile and maintain an inventory of chemical substances” (Bhat, 1996, p.41). Also, the Toxic Substance Control Act requires data be catalogued on environmental and health effects of the chemicals that are regulated by the Act, and mandates data be kept of each manufacturer and processor of regulated chemicals as well (Bhat, 1996, p.41).

According to the U.S. Food and Drug Administration Code of Federal Regulations for restaurants, with regards to indirect food additives such as sanitizers, there are certain guidelines that must be followed (Code of Federal Regulations Title 21, Volume 3, 2012). Sanitizing solutions must be safely used on food processing equipment and utensils, as well as on other food-contact articles as well as food-contact surfaces in public eating places (Code of Federal Regulations Title 21, Volume 3, 2012).

Chapter Seven of the Food and Drug Administration 1999 Food Code regarding the labeling and identification of poisonous or toxic materials requires that containers of poisonous or toxic materials bear a legible label by their manufacturer. It further states that “working containers used for storing poisonous materials such as cleaners and sanitizers taken from bulk supplies shall be clearly and individually identified with the common name of the material.”

Chapter three of the Food Code notes that cleaning materials would be considered “food additives,” and that it is “imperative for safety that food supplies come from sources that are in compliance with laws regarding chemical additives and contaminants (“Food Code 2009: FDA Annex 3: Public Health Reasons/Administrative Guidelines” 2009).

“Food additives are substances which, by their intended use, become components of food, either directly or indirectly. They must be strictly regulated. In excessive amounts or as a result of unapproved application, additives may be harmful to the consumer. Unintentional contaminants or residues also find their way into the food supply. The tolerances or safe limits designated for these chemicals are determined by risk assessment evaluations based on toxicity studies and consumption estimates (“FDA Food Code 2013 Recommendations of the United States Public Health Service Food and Drug Administration – Annex 3: Public Health Reasons/Administrative Guidelines, US Department of Health and Human Services”).

At the federal level, the federal Food and Drug Administration food code requires that restaurants sanitize any surfaces that might come into contact with food (“Green Cleaning for Restaurants,” 2011). According to FDA requirements, a cleaner must kill 99.999% of disease-causing microorganisms within 30 seconds in order to be approved for use as a restaurant cleaning agent.

### **Restaurant Requirements at the State Level**

Restaurants in the state of Massachusetts are required to meet

guidelines described in the “Food Protection Program” of the Bureau of Environmental Health (part of the Massachusetts Department of Public Health). All Cleaning Products must sufficiently clean surfaces and equipment as well as meet the regulations that are set out by the Food Protection Program. This document describes the regulations related to Foodborne Illness Investigations. This document also contains guidelines for sanitary operations and procedures for safe and sanitary processing conditions for food items. Specifically, Code 105 CMR 590.000 - State Sanitary Code Chapter X - Minimum Sanitation Standards for Food Establishments states that any chemical sanitizers that are applied to food contact surfaces (“FDA 1999: Food Code: Chapter 7: Poisonous or Toxic Materials,” 1999) will meet the requirements that are outlined by 21 CFR 178.1010 sanitizing solutions. In summary, this section requires that:

“Sanitizing solutions may be safely used on food-processing equipment and utensils, and on other food-contact articles as specified in this section, within the following prescribed conditions: (a) Such sanitizing solutions are used, followed by adequate draining, before contact with food. (b) The solutions consist of one of the following, to which may be added components generally recognized as safe and components which are permitted by prior sanction or approval” (Federal code 21 CFR 178.1010, 2011).

### **Restaurant Requirements at the City Level**

At the city-level, the standards that must be met by restaurants are outlined in the Massachusetts State Sanitary Code. The City of Boston website

notes:

“The Health Division of the Boston Inspectional Services Department administers the Massachusetts State Sanitary Code in Boston. The Massachusetts State Sanitary Code regulates food service practices and restaurant management. Each restaurant is inspected twice a year by professionally certified food safety inspectors. Food service establishments include: restaurants, donut shops, retail food stores, and any other establishment that offers food to the public” (“Health Division: Frequently Asked Questions,” 2014).

The City of Boston requires that restaurants meet certain standards, specifically that food contact surfaces be cleaned and sanitized (Code Number 20-1 (4-501.112/114). Boston requires that for the sanitizing process, “Approved sanitizers should be provided for sanitizing food contact surfaces, equipment, utensils, and wiping cloths. Sanitizers must be used at appropriate strengths and must be used in accordance with the label instructions. An appropriate test kit must be available to accurately measure the concentration of sanitizing solutions used for ware-washing and wiping cloths. Sanitizing solutions shall be done in compliance with part 4-7 of the Food Code (Regulatory Requirements for Food Service Establishments, p.17).

Section 7 of the FDA Food Code, which forms the basis of the adopted guidelines for the City of Boston, states that “only those poisonous or toxic materials that are required for the operation and maintenance of a food

establishment, such as the cleaning and sanitizing of equipment and utensils and the control of insects and rodents, shall be allowed in a food establishment” (p. 156). And, according to the 1999 FDA Food Code, “Containers of poisonous or toxic materials... shall bear a manufacturers label (p.155).”

Restaurants that experience an “imminent health hazard” such as “misuse of poisonous or toxic materials, onset of an apparent foodborne illness outbreak, gross unsanitary occurrence or condition, or other circumstances that may endanger the public health” may face temporary suspensions of their permits for thirty, sixty, or ninety days (CityofBoston.gov). The Mayor’s Food Court web site lists the names of restaurants that have not met the necessary requirements and specifies the reason for their suspension.

In the city of Brookline, where The Fireplace Restaurant is located, the city-level requirements that must be met for cleanliness are enforced by their Environmental Health Office (“Environmental Health”). According to their website:

“The objectives of Environmental health are to protect the public health by maintaining a comprehensive program of environmental health services, which includes inspections, compliance, and enforcement activities, monitoring of environmental hazards, and consultation and guidance to citizens and governmental agencies regarding environmental health issues.”

Similar to the city of Boston, the city of Brookline also adopted the rules

and regulation of the federal 1999 Food Code that originated with the U.S. Food and Drug Administration (“105 CMR: Department of Public Health – State Sanitary Code Chapter X: Minimum Sanitation Standards For Food Establishments,” 2000). So, all requirements that must be met at the restaurants that are profiled in this thesis in Boston must also be met by The Fireplace. The city of Newton, where Lumiere is located, has adopted the 2009 FDA Food Code as the standards their restaurants must follow.

**How does Green Seal’s Standards match up with the legal requirements that Restaurants must meet?**

The Green Restaurant Association recommends products that have been certified by Green Seal, as well as other sources like EcoLogo, (Lisa Mash, Green Seal Employee, personal communication 4/16/15) for restaurants that want to engage in more environmentally preferable purchasing. According to GS-37, which is Green Seal’s “Cleaning Products for Industrial and Institutional Use” the standard that must be met by cleaning and sanitizing products for use in restaurants must meet “product performance requirements and environmental and health considerations for vulnerable populations in institutional settings.” (Green Seal Standards: Cleaning Products & Services).

The following chapters cover questions and answers regarding the purchasing and use of environmentally preferable cleaning materials in five restaurants. They contain a summary of the major question areas that are

relevant for understanding environmentally preferable purchasing for restaurants and a discussion of the findings.

## Chapter Four

This chapter includes interviews and findings, including introductions of interviewees and a summary of interview responses from each of the major question areas, as well as a discussion of interview findings

The interviews included the following restaurants:

1. The Fireplace, located in Brookline, MA is a grill and barbeque restaurant that focuses on using locally-sourced ingredients. It has about forty employees. I spoke with Jim Solomon, owner and chef.
2. Lumiere, located in Newton, MA features elements of a “classic bistro” and also uses ingredients from local farms. They have approximately twenty to twenty-five employees in total. I spoke with Andrew Urbanetti, their Sous Chef.
3. Taranta is located in the North End neighborhood of Boston, MA. It is a mixture of Southern Italian and Peruvian cuisine. I spoke with Christopher Titus, manager.
4. Sebastian’s Cafe at the Harvard School of Public Health is located in the Mission Hill neighborhood of Boston, MA and is part of Harvard University Dining Services. I met with Laurie Torf, the manager. They have seventeen employees.
5. Boloco is a regional chain of restaurants that feature burritos, smoothies, and other food items. They have locations around greater Boston, as well as New Hampshire. I spoke with Chris Nairn, a regional manager at the Boston

Headquarters of Boloco. The Boloco restaurant location associated with the Boloco Headquarters at 2 Park Plaza in Boston has 21 employees.

All of the restaurants that I profiled for this thesis were recommended to me by the Green Restaurant Association (GRA), an environmental consulting firm that is located in Boston, but serves restaurants across the United States and Canada. They assisted Lumiere, Taranta, Sebastian's Café, Boloco, and The Fireplace as they sought certification from the GRA that would acknowledge the various steps they took to become more environmentally conscious in their day-to-day business practices. The GRA has helped these restaurants follow the industry trends of environmental friendliness by assisting them in identifying vendors that stock cleaning products that are environmentally friendly. The GRA recommends cleaning products that have been certified by Green Seal, which is a non-profit organization that provides environmental product recommendations. Over 368,000 people refer to information that is published by Green Seal (Elwood & Case, 2000, p. 77), and they have created a 110-page buying guide that contains environmental and product and service research (Elwood and Case, 2000, p. 77).

When I sat down with representatives from restaurants in the Greater Boston area to discuss the factors that went into their decision-making process and influenced their choice to use environmentally friendly cleaning products, I received a range of responses. This chapter examines those responses from restaurants about why they choose to go green, what were the decisions and

concerns considered beforehand, and what kind of research went into understanding certification standards for green cleaning products.

The main areas of questioning in my interviews were firstly inquiries into what influenced their decision to use environmentally preferable purchasing for their cleaning products. Then, what kinds of challenges or difficulties they may have experienced in the implementation of these new products on site. The interviews then covered any external forces or factors that may have influenced their decisions, as well as how the decision to purchase Environmentally Preferable Cleaning products fit into their company's branding decisions, and what methods they used to gather background information.

To summarize the responses to the first major question area, which was, What were the motivating factors behind their decision to begin using environmentally preferable cleaning products, the overwhelming response from the respondents was that the decision to use them was just as an extension of the overall process of "greening" their restaurants. Andrew Urbanetti of Lumiere said,

"We started looking at the restaurant as a whole --- rather than just (looking at) what we're taking in, but what we're putting out as well. So, in the effort to be a business that is not only profitable, but is also a mediator of good practices on the entire scale, we had to start looking at everything from placemats to to-go bags --- chemically-treated as such, all the way down to the chemicals that are used to clean. So, it was just a logical step to use chemicals

that were more beneficial.”

Laurie Torf of Sebastian’s Café added:

“So, what they chose to do was to put in filtered water on every floor. So, it was just the direction that the building was headed, and it was time for us to do what we could.”

Some respondents listed a desire to improve employee health and to be less impactful on the environment. Jim Solomon of The Fireplace said:

“Environmentally preferable chemicals came from an intention to be less impactful on the environment and less detrimental to the health of workers and customers.”

The following questions for the respondents centered on any challenges that the restaurant may have faced while changing over to environmentally preferable cleaning products. To summarize, some respondents noted difficulties in regards to training, while others told of purchasing issues and dispensing issues. I will explore these challenges in greater detail in the following chapter.

Some respondents noted that there were higher up-front costs associated with changing to green cleaning products due to the high cost of new equipment.

A few respondents relayed stories of difficulty convincing their employees that the new cleaning products would be just as effective as the traditional, non-environmentally preferable cleaning products they had used previously. Andrew Urbanetti of Lumiere said:

“They smell a smell and think ‘Oh, it must be clean. It smells like bleach.’

When, in fact, that’s not the case. Obviously, given pH levels and other mitigating factors --- so, that was one thing...we had a ... problem when we launched --- the “sudsing effect,” --- we use an orange-based cleaner which doesn’t sud, it doesn’t create suds. So, visually, it was like, ‘I don’t know if it’s clean; it’s not sudsy.’ So, there is also the psychological effect.”

Laurie Torf of Sebastian’s Café said:

“Even within our department: ‘Oh, it doesn’t clean as well; it’s not going to do what it needs to.’ And, you know, I said to them ‘Let’s try it for a month, and see how it does. And if it doesn’t work we’ll go back.’ We weren’t going back, but we knew it would work. We had seen the product demo-ed, and there was no reason --- we were doing what we needed to do. If we were washing the floors appropriately, it works fine. If we were one of those places that wash their floors once a week instead of daily, we might have a problem. If you’re doing what you’re supposed to do... getting used to the change is a small hurdle, but they got used to it.”

Another challenge described by Christopher Titus of Taranta was the difficulty for a small restaurant such as his to conduct the necessary research in order to evaluate the efficacy of specific environmentally-preferable cleaners. Though having a small staff allowed for easier, more efficient training with the new, environmentally preferable materials, it was harder for this restaurant to provide employees with the time and funding that are necessary to test different

environmentally preferable options. The assistance of the Green Restaurant Association was very helpful to them in this situation, as the GRA was able to provide samples of environmentally preferable cleaning products that Taranta staff could test out.

The next series of questions asked of the respondents centered on benefits that the restaurants may have had experienced since purchasing and using environmentally preferable cleaning products onsite. Many responses centered on the environmental marketing opportunities that arose from this, as all but one respondent chose environmentally preferable cleaning products as part of the steps necessary to receive a GRA certification. Some others noted positive feedback from staff, saying that they did not experience negative health effects due to the change to more environmentally-friendly cleaning products.

Jim Solomon of the Fireplace said:

“There have been a few: improved employee health with regards to their hands. Some guys had severe drying and chafing with their hands. You’re wondering, ‘Do I change the cleaner, or the guy?’ You are left wondering, ‘What chemicals should we buy? Do I buy gloves?’” But now I have more worker-friendly products.”

Some even expressed a feeling that the management cared genuinely about their health and physical well-being due to this change. Laurie Torf of Sebastian’s Café at the Harvard School of Public Health said, “And with the employees, there is that ‘Oh, you know, they do care about us --- because, we’re

touching the stuff.' They're also not getting that whiff of ammonia when they open up certain cleaning bottles."

The next questions regarded any kind of environmental analysis that the restaurant may have undertaken with regards to their purchasing decisions for environmentally preferable products, including items that reduced energy usage or paper products that were made of partially-recycled content. Specifically, how did any external forces or factors influence the profitability of their business? This question was asked in relation to how making environmentally conscious purchasing choices could improve customer perception for these restaurants. Some responded that they had predicted longer-term benefits financially with regards to a projected decrease in utility bills. Another stated that as long as his restaurant was able to maintain their overall budget, they were willing buy new, slightly more expensive cleaning materials. I assume that this person meant that as long as they were able to maintain their "overall" profits they would be willing to use slightly more expensive green products. Others noted that rather than doing such an analysis, they considered only customer perception and the recommendations for purchasing given to them by the GRA.

In response to questions regarding which types of cleaning products were being used onsite prior to switching to environmentally preferable cleaning products, all my respondents answered with traditional cleaning products, such as ammonia or bleach. All of the respondents ultimately made specific purchasing decisions for environmentally preferable goods based on the

suggestions of the GRA.

The only marked difference in response was from one respondent, when he was asked about the attitudes of neighborhood companies in his restaurant's attempts to "go green." While four out of the five respondents noted that the communities in which their restaurants were located were very environmentally-conscious, one respondent noted a resistance to change and a lack of interest in improvement of environmental practices in the neighborhood where his restaurant operated.

In the course of the interviews, it was confirmed for me that the purchasing recommendations for certain "green" cleaners all came directly from the Green Restaurant Association. I had expected that the restaurants had relied heavily on the GRA's recommendations. This information underscores the importance of having an environmental consulting firm such as the GRA to direct purchasers at restaurants towards vendors who will be able to provide cleaning products that are both environmentally preferable as well as sufficient for state, local, and federal cleanliness requirements. My conclusions about this point can be attributed to the manner by which the five restaurants in this study were selected, through recommendation by the Green Restaurant Association.

With regards to conducting a cost-benefit analysis of the purchase of environmentally preferable cleaning products, one notable difference was observed between Laurie Torf of Sebastian's Café and Christopher Titus of Taranta. Chris Titus stated that both the factors of cost and sustainability are

taken into account, because he described some environmentally preferable cleaning products as “expensive.” He added that his restaurant asked itself, “‘What can we afford; what is the payback on it?’ because, we are still a restaurant that needs to continue to run itself” when making purchases that enhanced their sustainability.

Alternatively, Laurie Torf said that, with regards to environmentally preferable purchasing at Sebastian’s Café, “Costs are coming down a bit, but cost would not be a motivating factor.”

Jim Solomon of The Fireplace in Brookline stated: “I did have the GRA crunch some numbers with regards to utility bills, and a number of decisions I made knowing that the initial expense would be more than I wanted to pay, but the payback was going to be worth it financially over three to five years. It’s kind of a stupid bet in the restaurant business to think three to five years in the future.” He then noted that he had grown up “with a strong social consciousness in Cambridge, Massachusetts, and that he would be willing to take steps in his business that would not be financially beneficial....fortunately in Brookline, a large contingent will do things in accordance with their social values. Even when you don’t benefit on the bottom line, but maybe on the top line.”

The following chapter will feature a more in-depth synthesis of responses from the purchasers and decision-makers that were interviewed, as well as recommendations for other restaurants that want to begin purchasing and using environmentally preferable goods at their restaurants. And finally, this thesis will

conclude with recommendations for further research.

## Chapter Five

This chapter is a synthesis of the responses from purchasers and decision-makers with respect to environmentally preferable purchasing and green cleaning. This chapter also features recommendations for restaurants as they decide to engage in EPP. This chapter also contains recommendations for further research.

In response to the first question about what influenced their decision to “go green” and become more environmentally responsible in relation to environmentally-friendly cleaning products, the overall most common response was that this step was only a part of the whole process of becoming more environmentally-conscious in their general business practices.

When asked about the motivating forces behind the decision to use environmentally preferable cleaning products, Lorie Torf of Sebastian’s Café at the Harvard School of Public Health said:

“It was just more following along in the direction that the building was headed. You know, it was just the right thing to do at that time, and it still is. More people are doing it. And, we never had complaints; we never had people (employees) going ‘Oh my God, my skin is burning.’ We were never using anything that toxic. But, it was a decision to follow what was the right thing.” Additionally, concerns about customer perception, as well as the harshness of the non-environmentally preferable cleaning products, were echoed in my

interview with Christopher Nairn of Boloco when he was asked about the benefits that his restaurant had experienced since purchasing and using environmentally-friendly cleaning products on site:

“I would say customer perception, and we did it to get two-star certification from the Green Restaurant Association. So, that was one of the qualifying factors. So, that has worked out. And other than that, I would just say, you know, just the overall cleanliness of the restaurant has improved. And now, people are wanting to use the chemicals. Before, things were harsh and abrasive, and the smell of them, you know (ammonia) and bleach.”

Also with respect to the harshness and potential risk of traditional cleaning products, Jim Solomon of the restaurant The Fireplace said:

“My decision to use environmentally-safe or less impactful chemicals for cleaning are different from the reasons that I chose to use cleaning products that are not good for the environment. The latter were for general cleanliness and sanitation of the restaurant, because of their effectiveness, and to keep the restaurant clean for staff and customers and sanitation and safety.

Environmentally preferable chemicals came from an intention to be less impactful on the environment and less detrimental to the health of workers and customers. One of the chemicals that the staff uses has no OSHA (Occupational Safety Health Administration) requirements and can be sprayed in the mouth or the eyes; it can be used on stainless steel or dishes or on the kitchen floor. Most serious violations in restaurants are chemical.”

Christopher Nairn from Boloco responded to the same question:

“We went to use Environmentally Preferable cleaning products under guidance of the Green Restaurant Association for our employees and guests. I would say that we didn’t have to purchase new equipment; we just continued our business as normal. The cleaning products are very effective. They were easily incorporated into our already busy system, so they worked really well.”

Mr. Nairn’s response that it was not necessary to buy new equipment in order to use the new environmentally preferable cleaning products follows the guidelines set out by the Responsible Purchasing Network in their publication regarding best practices when it comes to the use of cleaners.

Christopher Titus of Taranta expressed a similar sentiment,. “The green-cleaning part particularly came in a little bit later in our development of going green.” He said that the reasons behind switching to green cleaning products were only the “spokes on the wheel around our hub of being green.” All of the interview respondents expressed variations on the idea that it was just “business as normal” to continue the greening process by using green cleaning products. In general, their environmentally preferable chemicals came from an intention to be less impactful on the environment and less detrimental to the health of workers and customers.

One of the common challenges faced by some of the interview respondents was in convincing staff members that the new environmentally preferable cleaning products were as effective in their use as non-

environmentally preferable cleaning products. Some of the new greener products required that staff members learn how to use new equipment, such as an ionized sprayer, while other chemicals did not produce the same smells as traditional cleaners like bleach, which led some staff members to think that the new greener cleaners were not working as effectively as conventional ones.

Andrew Urbanetti of Lumiere of Taranta mentioned specifically that staff members who did not see suds being created during the cleaning process doubted the efficacy of those environmentally preferable materials.

A number of respondents in the interview series noted that it was not difficult to identify green cleaning materials that would meet requirements for cleanliness in restaurants due to the fact that the Green Restaurant Association did the necessary research on their behalf. Restaurants that are interested in beginning the use of environmentally preferable cleaning products on site may choose to begin by contacting an environmental consulting firm, such as the Green Restaurant Association. The GRA provided guidance to the restaurants profiled here in order to ensure that all recommendations for purchased cleaners met local and federal requirements for cleanliness standards. Also, there are many sources online that restaurants can look to for additional information, such as <http://www.greenseal.org/> or <http://www.ecologo.org/>.

A comprehensive employee training regimen that covers the nature and specifics of how the EPP cleaners actually function, so that staff will trust in the efficacy of the newly purchased products, would be an effective way to

communicate the benefits of environmentally preferable cleaning products. Laurie Torf's quote in her interview reflects this, as do other quotes from Jim Solomon at The Fireplace. The training problems at The Fireplace can also be linked to the high turnover rate of employees, specifically that the employees aren't adequately trained to communicate with their supervisors when the greener product has been used up and requires replenishment. Mr. Solomon said:

"Training has been an issue with one chemical we've turned to for a number of uses. We've run into training issues as well as some purchasing issues and dispensing issues. On a lot of cleaning products you'll see "EcoLab," but we don't use EcoLab... It's out in Canada; we have to email them and then they mail a five or nine pound pail and we have to mix it with water every time. The more sophisticated ones you can just hook up. With the turnover in cleaning jobs, it's hard to keep up. Normally we can just call up a vendor; with this, we have to call Canada and wait a week. We use it sparingly to make it last. Sometimes the guys don't tell me we're out of it. I did just change a number of dishwashing products that were made very easy by Suburban Supply. Suburban Supply came here and demonstrated some products for me. We tried them out for a month, and made a decision to go with them. We use fewer chemicals now, and with Earth Alive we can use cold water."

Christopher Titus at Taranta mentioned training challenges with new and unfamiliar types of equipment. He also notes the connection between adequate

training of employees when using newer EPP cleaning equipment and the maintenance of that equipment. Titus references that improper maintenance due to poor training of staff leads to ionized water dispensing bottles becoming dirty and mold-filled.

Andrew Urbanetti of Lumiere also discusses the importance of comprehensive training for staff to ensure that they understand that EPP cleaning chemicals are just as effective as non-EPP cleaning materials. Compared to Taranta and Lumiere, the only location that noted that the training process for staff with regards to the cleaning process was easier was Boloco.

Specific suggestions for training include having informational charts that show employees how to avoid over-use of chemicals, which decreases the amount of chemicals that wind up in the waste stream, as well as prevent the risk of harm to employees (Tarase, 2014). One recommendation is that due to the high turnover rate of employees in cleaning jobs, having easy-to-understand information regarding usage posted on walls would speed training for new hires. Another suggestion is to assign responsibilities for informing new and older staff about new EPP cleaning equipment and products to a trainer who can explain the nature of how EPP cleaning products work (Tarase, 2014).

Another recommendation for other restaurants that want to switch to Environmentally Preferable Purchasing for cleaning supplies is to include in their marketing and promotional materials information on green cleaning products that are being used onsite. However, none of the restaurants in this particular

study engaged in this. Green Seal notes that information can both make staff realize that management are mindful of their health and well-being, as well as inform their clients that management is cognizant of the health of their employees.

Green Seal goes on to recommend that restaurants that want to engage in green cleaning should meet specific requirements for planning, such as the creation of “standard operating procedures” that govern the cleaning procedures, chemical handling and tracking requirements, equipment maintenance and operation procedures, communication protocols and requirements training and inspection programs, and reporting and record keeping procedures. These guidelines should be made available to all cleaning personnel and clients (Green Seal, p. 7). The restaurants in my study did not take these steps, but if they decided to in the future, it would present a valuable opportunity for a follow-up interview.

There are various other steps that can be taken by other restaurants that may want to make their cleaning processes and products more environmentally-friendly. Ecologic Solutions suggests that one option is to simply inform the restaurant’s supplier that they want to consolidate the total number of cleaners that they use, and can request that their supplier sell them “super concentrates” whenever possible (Doering, 2013). Consolidation of goods will also decrease the amount of containers that need to be recycled.

This study was limited by the fact that there were some things I did not

investigate, such as asking the participants about whether or not public health inspectors had questioned the efficacy of the environmentally preferable purchasing. This information could have given some insight as to whether or not the level of awareness of green cleaners by health inspectors would affect the likelihood of restaurant purchasers to continue buying environmentally preferable cleaning products. Alternatively, further research could also more deeply investigate how the cost of greener cleaning products would change purchasing behavior. This could delve into what other cost-cutting initiatives would have to take place, or what kinds of increases in income would be necessary.

Another step they suggest that can be taken with a supplier is to request one or more sessions with them to verify that the cleaners are being used properly. This can prevent overuse of chemicals, as well as ensure that the associated equipment is being used correctly (Doering, 2013).

### **Opportunities for future research**

Other researchers could continue to investigate Environmentally Preferable Purchasing by restaurants in various ways. One opportunity might be to compare and contrast the efficiency of green cleaning products amongst one another, rather than just comparisons between traditional, non-green cleaning products and Environmentally Preferable ones.

In that vein, a researcher could also investigate differences in pricing between traditional cleaning products and Environmentally Preferable ones. One

could look into the cost differences due to purchasing EPP cleaning products, as well as the costs associated with any new supplemental equipment that is needed.

Another idea would for a researcher to do a series of interviews and surveys of restaurants that have decided to engage in Environmentally Preferable Purchasing, but that did not utilize the services of an environmental consulting firm such as the Green Restaurant Association, as the participants in this study did. Factors that influenced their purchasing choices would be a rich source of investigation. It would be useful also to look into the kinds of research they engaged in before making their purchasing decisions.

One possible avenue for possible research in the future is looking into technologies that may provide similar cleaning abilities without needing to buy products that are Green Seal or EcoLogo-approved. For example, an ionized water dispensing bottle is a piece of equipment that is non-toxic and uses ionized water to clean stains and spills in restaurants.

One could also look into investigating larger restaurant chains that have decided to engage in Environmentally Preferable Purchasing for their cleaning products, and compare and contrast the decision –making and purchasing processes of these larger chains to smaller restaurants.

An investigator could also look into what steps and actions, if any, have been taken by janitors and cleaners themselves in order to use less harmful, more environmentally-friendly products that will not pose the same health risks

for them. They are the ones who are most susceptible to the risks posed by chemicals in traditional cleaning products.

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