



**Strategic Corporate Social Responsibility in the
Beer Brewing Industry**
Case Study of Colorado and Iceland



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**Strategic Corporate Social Responsibility in the Beer
Brewing Industry**

Case Study of Colorado and Iceland

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Thesis for MSc Degree in Environment and Natural Resources

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The motivation for this project was inspired by a class project organized by Dr. Brynhildur Davíðsdóttir during my studies at the University of Iceland. The project evaluated the barriers and drivers to sustainable development in a new brewery. I thank her for her encouragement to develop the class project into a thesis study and her encouragement to work with Dr. Lára Jóhannsdóttir in incorporating Corporate Social Responsibility into the research. I am passionate about the use of Corporate Social Responsibility as a concept for industry because it is an inclusive tool that allows for a sustainable future. Corporate Social Responsibility has the potential to be an accessible framework available to corporations from the micro- to macro-levels to ensure progressive development through alignment of economic, social, and environmental strategies.

Abstract

The beer brewing industry has been growing rapidly across the globe with significant economic, environmental, and social impact. The beer brewing industry is traditionally an economically profitable industry that can offer substantial opportunity for economic growth in regions heavily dependent on tourism such as the State of Colorado in the United States and Iceland. Alcohol production is considered a controversial industry associated with the significant negative environmental and social cost of alcohol consumption. The beer brewing industry is tasked with reconciling the positive growth opportunities with the negative effects of alcohol consumption through proactive development. This study examines the drivers and barriers that dictate sustainable development within the beer brewing companies included in the study and evaluates how Corporate Social Responsibility (CSR) has and could be utilized by the companies. To determine this, six semi-structured interviews (12 in total) were completed in each Colorado and Iceland with representatives from beer brewing companies. The interviews were coded into themes using the SWOT and PESTEL tools and then analyzed using the United Nations Sustainable Development Goals (SDG's) and Global Reporting Initiative (GRI) Standards. Only two companies interviewed had formal CSR reporting practices and subsequent interaction with the SDG's or GRI. No formal reporting was required nor completed by other companies. These companies were shown to have minimal interaction with the SDG's but still incorporated varying levels of CSR themes into their business practices. Drivers and barriers that influence the development of sustainable solutions in the beer brewing companies in each Colorado and Iceland were identified. This research contributes to the study of CSR in small to medium sized companies in controversial industries and provide practical information on how strategy can be developed towards sustainable development.

Útdráttur

Bjórgerð vex hratt víða um heim og hefur í för með sér umtalsverð efnahagsleg-, umhverfisleg- og félagsleg áhrif. Bjórgerð er efnahagslega arðbær atvinnugrein sem skapar talsvert tækifæri fyrir efnahagslegan ágróða á stöðum sem háðir eru ferðamönnum eins og Colorado fylkið í Bandaríkjunum og Ísland. Framleiðsla og sala á áfengi er umdeild atvinnugrein (e. controversial industries) með marktæk neikvæð áhrif á umhverfið, auk þess að fela í sér samfélagslegan kostnað vegna áfengisneyslu. Bjórgerð þarf því, með forvirkri þróun, að samræma raunhæfan vöxt greinarinnar og neikvæð áhrif af áfengisneysluí þessari rannsókn eru skoðaðir hvatar og hindranir sem tengjast sjálfbærri þróun og bjórframleiðslu og það hvernig áhersla á samfélagsleg ábyrgð fyrirtækja (SÁF, e. CSR) kemur fram hjá þeim fyrirtækjum sem eru til skoðunar. Til að komast að niðurstöðu voru sex hálf stöðluð viðtöl tekin í Colorado og á Íslandi (12 samtals) við aðila í bjórframleiðslu. Viðtölin voru kóðuð og þemagreind með hliðsjón af SVÓT og PESTEL verkfærunum og síðan greind með hliðsjón af heimsmarkmiðum Sameinaða þjóðanna (SP) um sjálfbæra þróun og Global Reporting Initiative (GRI) skýrslugerðarstaðlinum. Einungis tvö þeirra fyrirtækja sem voru til skoðunar tóku mið af heimsmarkmiðum SP eða GRI, t.d. með því að gefa út formlegar sjálfbærniskýrslur. Önnur fyrirtæki gáfu hvorki úr skýrslur, né heldur var þrýstingur á þau um að gefa út slíkar skýrslur. Tengsl þeirra við heimsmarkmiðin voru því takmörkuð, en þó virtust ýmis hugtök á sviði samfélagsábyrgðar tengjast starfsemi þeirra. Skilgreindir voru hvatar og hindranir sem áhrif hafa á þróun sjálfbærra lausna við bjórgerð í Colorado og á Íslandi. Rannsókn þessi bætir við þekkingu á samfélagsábyrgð í litlum og meðalstórum fyrirtækjum í atvinnugrein sem telst umdeild auk þess sem hagnýtar upplýsingar koma fram um það hvernig tengja má stefnumörkun slíkra fyrirtækja betur við sjálfbæra þróun.

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1 Introduction

1.1 Background

Corporate Social Responsibility (CSR) is a management concept in which a corporation involves the pursuit of social and environmental activities, beyond the scope of the legal requirement, with the financial operations of the company (Blowfield & Murray, 2014). As clarified by the European Union, CSR is a collaboration of business strategy and stakeholder engagement with environmental, social, ethical, and human rights concerns (Chandler, 2016; Corporate Social Responsibility & Responsible Business Conduct, 2017). CSR therefore offers guidance to companies on how to develop business strategies that can allow for positive development of businesses in a safe and sustainable manner, see the key concepts of the thesis in Table 1 (Blowfield & Murray, 2014).

However, this guidance can come into conflict when viewing industries deemed to be controversial (Lindorf, Jonson, & McGuire, 2012). Controversial industries fall into moral debates and sometimes operate against the objectives of the United Nations Sustainable Development Goals (SDG's) (Lindorff et al., 2012). One example of an industry that falls into this category is alcohol production. The alcohol production industry is documented to be the source of extensive negative environmental and societal impacts (Dünnbier & Sperkova, 2016). However, the alcohol industry has ingrained historical importance and relevance, and therefore, along with other controversial industries, must define itself with progressive standards of development to justify its existence (Feeney, 2017; Ólafsdóttir, 2017; Gatrell et al., 2018).

One primary manner of gaining acceptance in the eyes of widespread culture is the establishment of comprehensive CSR strategies; therefore, evaluating these strategies can be tantamount to learn about the performance of an industry (Verčič & Ćorić, 2018). In comparison to multiple other evaluation tools, the use of CSR performance as a method for evaluating sustainability has gained support as an effective tool in recent years (Epstein & Buhovac, 2010; Büyüközkan & Karabulut, 2018). CSR performance as a concept is defined as the measurable factors that classify the success of CSR strategies, and therefore must be documented and available for evaluation (Gjølberg, 2009). In a review

of 128 articles where CSR performance was used, the review demonstrated the importance and success of CSR performance in receiving measurable metrics that can be analyzed (Büyükoçkan & Karabulut, 2018). In order to measure CSR performance, multiple different frameworks, standards, guidelines, and evaluation tools have been adopted across the globe (Chandler, 2016). The most commonly utilized of the CSR analysis methods are the standards developed by the Global Reporting Initiative (GRI), which have been adopted by over 4,000 organizations globally (Chandler, 2016).

Table 1. CSR Thesis Key Concepts

Key Concept	Definitions from Literature	Thesis Definition
Corporate Social Responsibility (CSR)	<p>CSR: "A responsibility among firms to meet the needs of their stakeholders and a responsibility among stakeholders to hold firms to account for their actions" (Chandler, 2016, p. 4).</p> <p>United Nations: "Corporate Social Responsibility is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders" (What is CSR? UNIDO, n.d.)</p>	CSR is a management concept in which a company incorporates environmental and social interests into their business practices in excess of legal requirements in order to bring value to internal and external stakeholders.
Strategic Corporate Social Responsibility (Strategic CSR)	<p>Strategic CSR: "Policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the community in which it operates" (Porter and Kramer, 2011, p. 6).</p> <p>Strategic CSR: "The incorporation of a holistic CSR perspective within a firm's strategic planning and core operations so that the firm is managed in the interests of broad set of stakeholders to optimize value over the medium to long term" (Chandler, 2016, p. 248).</p>	Strategic CSR is the approach, incorporating environmental, economic, and social dimensions within a company's strategic planning to ensure long-term value for a broad set of stakeholders. CSR strategies are the actions taken by companies to achieve their Strategic CSR.

The alcohol industry includes the entire process of the production of all alcohol-based products, including wine, beer, and spirits, from the growth and acquisition of raw materials to sale of the product to consumers (Lindorff et al., 2012). The alcohol industry is sorted into distinct categories by alcohol types, each of which has a unique subset of industries based on the composition of the product; i.e., the growth of grapes for wine and barley for beer. Therefore, the beer brewing industry, see the key concepts of the thesis in Table 2, in total represents a system beginning at the production and procurement of raw materials (barley, hops, yeast, and water), transportation of materials, production of the beer in a brewhouse, and concluding in the packaging, distribution, and sale of products (Olajire, 2012; Willaert, 2012). Each component of the

process, for example, the brewhouse, can be defined as a business, as well as an economic system that has specific strategies for generating revenue (Lindorff et al., 2012). These specific businesses within the industry work together to form the industry. Therefore, the economic system supporting each component of the the overall business process is composed of multiple individual companies working in that particular business area.

Table 2. Thesis Key Concepts Continued

Key Concept	Definitions from Literature	Thesis Definition
Controversial Industries	<p>Unmentionables: "Products, services or concepts for reasons of delicacy, decency, morality, or even to fear to elicit reactions of distaste, disgust, offense or outrage when mentioned or when openly presented" (Wilson & West, 1981, p. 91).</p> <p>Illicit Businesses: "A Business characterised as being ethically vile may be ... banned by a particular society because of that society's idiosyncratic ethical norms. Elsewhere the business may be tolerated" (Bryne, 2011, p. 498).</p> <p>Controversial Industries: Industries that provide goods and services "that may be regarded as controversial due to evidence of their social and public health costs" (Lindorff et al., 2012).</p>	An industry that faces moral condemnation related to its inherent business offering(s) and operates in opposition to the SDG's due to potential social and public health costs.
The Beer Brewing Industry	<p>Industrial breweries: Corporate breweries that produce over 2,000,000 gallons of beer per year. The companies are owned by large corporations and not individual owners primarily. (Brewers Association, 2019a; Brewers Association, 2019b)</p> <p>Craft brewery: Brewery that produces less than 2,000,000 gallons of beer per year and is owned less than 15% by large corporations. Within the independent craft breweries you have classifications including microbreweries (breweries that produce less than 15,000 gallons per year), brewpubs, taproom breweries, regional breweries, contract brewing companies, and alternating proprietorships. Many independent craft breweries meet the criteria of multiple classifications. (Kleban & Nickerson, 2011; Brewers Association, 2019a; Brewers Association, 2019b)</p>	A business within the alcohol industry that focuses exclusively on the production of beer. The beer brewing industry in the context of this research will refer to independent breweries that produce less than 2,000,000 gallons of beer per year and are less than 15% owned by large corporations.

The beer brewing industry is an emerging industrial sector with the potential for vast expansion (Dunn & Wickham, 2018). Multiple studies have been completed in the United States aimed at identifying the effect craft breweries have on society and the environment (Feeney, 2017; Gatrell et al., 2018). The United States has experienced a significant increase in craft breweries over the last thirty years going from 37 in 1985 to

4225 in 2015 (Gatrell et al., 2018). Ranked at 26th in highest per capita beer consumption globally, the United States has followed an upward trajectory in development of the beer brewing industry (Olajire, 2012). In comparison to Europe, Iceland has a relatively new relationship with beer (Ólafsdóttir, 2017). After 74 years of prohibition against beer in Iceland, legalization in 1989 started a change in the societal view of beer within Icelandic culture (Ólafsdóttir, 2017). Iceland currently ranks 28th in highest per capita beer consumption globally (Olajire, 2012). Much like in the United States, the last 30 years have seen both previously established companies and new brewery companies develop across Iceland (Olajire, 2012).

The impact of the brewing of beer on the environment has been heavily studied over the years (Olajire, 2012; Amienyo & Azapagic, 2016; Milburn & Guertin-Martín, 2019). The brewing process produces multiple environmentally damaging byproducts that have the potential to impact environmental conditions (Olajire, 2012). For example, water and energy consumption, wastewater effluent and solid waste production, and air emissions have all been raised as concerns in the brewery production process (Olajire, 2012; Cimini & Moresi, 2018a; Milburn & Guertin-Martín, 2019). Solutions to reduce the negative environmental impacts in the beer brewing industry are heavily focused on specific elements of production, and how to address these elements such as through carbon capture or water reclamation (Olajire, 2012; Cimini & Moresi, 2018a).

The craft brewery, as described in research from the United States, represents both an economic stimulant and an ingrained element of culture. In the United States craft breweries are frequently situated in renovated buildings and aim to strengthen communities with innovation (Feeney, 2017). Craft breweries are associated with establishing strong city centers that reflect intangible cultural elements (Feeney, 2017), such as representing dynamic places where people can be encouraged to interact with nature through their narratives of local community identity and agricultural systems (Gatrell et al., 2018). Breweries, furthermore, encourage customers to interact with local nature and translate these interactions with community growth (Gatrell et al., 2018). In addition, craft breweries have been shown to support overall community growth, therefore being considered more locally focused and less dependent on globalization than industrial breweries (Gatrell et al., 2018). The craft brewery is consequently stated

to encourage economic growth, development of social community norms, and engagement with nature (Gatrell et al., 2018).

CSR encompasses the environmental, social, and environmental aspects of business. A CSR analysis of beer brewing companies, through the scope of two case studies of industry representatives from the beer brewing industry, one each in Colorado and Iceland, will analyze relevant research in a way that allows for ongoing comprehensive development and implementation of Strategic CSR concepts across the beer brewing industry as a whole. The practical implication of the study is that it identifies drivers and barriers that influence the development of sustainable solutions for the beer brewing industry. The State of Colorado currently has a highly developed and expansive beer brewing industry (Brewers Association, 2020b; Brewers Association, 2020c). Beer brewing is a young, rapidly developing industry in Iceland, having an extensive impact in modern Icelandic culture, with the potential for significant economic development (Statistics Iceland, 2017; Statistics Iceland, 2020). The two locations present the opportunity to compare beer brewing companies at different points of development and with unique circumstances. Solutions identified in the thesis could provide applicable methodologies for breweries across Iceland to develop CSR strategies in an economically viable manner over defined periods of time. The theoretical implication of this research will contribute to the study of CSR in small to medium sized companies in controversial industries and provide practical information on how strategy can be developed towards sustainable development.

1.2 Thesis aim and research questions

The overall aim of this thesis is to examine how Corporate Social Responsibility (CSR) has been utilized within beer brewing companies to ensure long-term sustainability.

Research Questions:

1. What drivers and barriers dictate sustainable development within beer brewing companies?
2. How are external societal pressures driving the development of sustainable brewing activities by companies?

3. How do companies within controversial industries, in this case the beer brewing industry, reconcile sustainable development with negative impacts of their industry and what strategies do they use (CSR, etc.)?
4. What concepts and lessons can be distinguished between the Colorado beer brewing companies and the Icelandic beer brewing companies and vice versa?

In order to achieve the overall aim of the thesis, and answer the research questions proposed, semi-structured interviews with beer brewing industry representatives in disparate environments were carried out.

1.3 Thesis structure

The research is presented in six sections. Section 1 serves as an introduction. Section 2 reviews the existing literature relevant to the topic, the SDG's and controversial industries, CSR and its usage in completing a strategic analysis of industries, the current literature on research about the beer brewing industry in general, and the specific qualities that define the industry in Colorado and Iceland. Section 3 explains the research methods employed in the study. Semi-structured interviews with experts from both Colorado and Iceland were conducted to determine current perspectives of industry representatives and the strategic use of CSR. The use of SWOT and PESTEL tools and the GRI Standards is also outlined. Section 4 presents the interview findings by discussing the overall themes emerging from the analysis of the interview data, presents a comparison between interview answers and the SDG's, and explains the similarities and differences between the cases. Section 5 will be the discussion of the data and reflection of the literature. Research questions are answered and results are analyzed against the received responses and the CSR analysis is presented with focus on the influence of CSR within the two cases studied. Feasibility of sustainable development is discussed in relation to controversial industries. Section 6 presents the final conclusions of the thesis touching upon the future of CSR as a management concept for the beer brewing industry, limitations of the study, strengths of cohesive participation with an emphasis on development of specific industry actions, and respective areas of further research.

2 Literature Review

This section summarizes the current state of literature as it relates to the SDG's, controversial industries, CSR and analytical frameworks of CSR, the beer brewing industry in general, and the specific regional environment and relevance of the brewery industry in each Colorado and Iceland (Lindorff et al, 2012).

2.1 The Sustainable Development Goals and Controversial Industries

Concerns about climate change and global warming and the resulting effects on health and well-being of people worldwide have led to a growing awareness for the natural environment and social issues. In response, the 17 Sustainable Development Goals (Figure 1) were developed by the United Nations in September 2015 (United Nations, 2015). The 2030 Agenda for Sustainable Development outlines specific benchmarks that nations and corporations are striving to meet by 2030 (United Nations, 2015; Kwon, 2017). The SDG's aim to spur development across the environmental, economic, and sustainable dimensions of society at all levels, including governments, non-governmental organizations (NGO's), and industries. (United Nations, 2015). Industries in member nations recognize the responsibility of undertaking actions to minimize their impact across all of the SDG's (United Nations, 2015; Bexell & Jönsson, 2017; Kwon, 2017).



Figure 1. The Sustainable Development Goals (United Nations, 2015)

Discourse comes into play with the SDG's when controversial industries are considered. A controversial industry can be defined as one that faces moral

condemnation, meaning it is considered ethically vile in certain societies (Wilson & West, 1981; Lindorff et al., 2012), see also Table 2. Controversial industries can be further explained as industries whose core operations are in conflict with SDG's (Cai, Jo & Pan, 2011; Lindorff et al., 2012). These industries include alcohol, tobacco, pornography, luxury goods, and prostitution, among others (Lindorff et al., 2012). Controversial industries as defined in this context are generally legal, yet, in certain cases, face potential regional prohibitions or have had a history of such prohibitions (Aqueveque, Rodrigo & Duran, 2018). Studies into the alcohol industry reflect that the alcohol industry has direct negative impacts on 13 of the 17 SDG's (Dünnbier & Sperkova, 2016). The industry is identified to negatively impact the following SDG's: 1-No poverty, 2-Zero hunger, 3-Good health & well-being, 4-Quality education, 5-Gender equality, 6-Clean water & sanitation, 8-Good jobs & economic growth, 10-Reduced inequalities, 11-Sustainable cities & communities, 12-Responsible consumption, 13-Climate change, 16-Peace & justice, and 17-Partnerships free from conflicts of interest (Dünnbier & Sperkova, 2016). The alcohol industry is only identified to not impact the following SDG's: 7-Affordable and clean energy, 9-Industry, innovation and infrastructure, 14-Life below water, and 15-Life on land (United Nations, 2015). This will be expanded in more detail in sections 2.2.1 through 2.2.3 of the Literature Review.

Controversial industries exist for a variety of reasons. The clearest justification is based on their ingrained nature into cultures across the globe (Lindorff et al., 2012). Evidence further reflects that these industries are often economic stimulants, which is especially true for the beer brewing industry (Dunn & Wickham, 2016). The legality of controversial industries is also firmly based in utilitarian theory (Lindorff et al., 2012). Utilitarian theory is grounded in the idea that legality should remain to ensure the minimization of harm caused by the illegal side-effects of prohibition (Lindorff et al., 2012). In essence, if the supply and management of a controversial industry can be controlled, then authority can prevent further damage from bootlegging, external harms, and the like (Lindorff et al., 2012).

Multiple studies have been completed reviewing controversial industries and their engagement with concepts of sustainable development (Cai, Jo & Pan, 2011; Lindorff et al., 2012). The implementation of CSR strategies within companies is a common path to

combating negative discourse associated with controversial elements and negative externalities of their business models (Cai, Jo & Pan, 2011; Lindorff et al., 2012). Research reflects that controversial industries still strive for social responsibility and use CSR to mitigate the harmful effects of their industry (Lindorff et al., 2012). The use of CSR by controversial industries has been demonstrated to result in the positive perception of the company by its employees, who are regarded as important internal stakeholders (Khan & Rahman, 2019). This positive engagement with CSR and the resultant favorable view of the company by its employees has also been demonstrated to correlate with employee retention and commitment to the company (Khan & Rahman, 2019). These positive correlations with retention and employee satisfaction consequently result in financial incentives for the company (Khan & Rahman, 2019). This serves as an example of how CSR can be used as a method for evaluating controversial industries.

2.2 CSR Definition and Stakeholders

Evaluation of the sustainability and environmental performance of an industry is a complicated issue that can be completed in multiple manners. The concept of cultural norms and societal institutions being a driving force behind environmental action has led to an internalized reflection within industries, which in turn has led to progress towards improved environmental conditions (Hoffman, 2010). CSR incorporates the economic, social, and environmental aspects together in a singular management concept that can be evaluated for proficiency (Alonso, Sakellarios, Alexander, & O'Brien, 2018). Proficiency in these three areas can lead to sustainability in a company and establish capital in economic, natural, and societal efficiency (Dyllick & Hockerts, 2002). The economic justification for acting towards sustainability is known as the business case and focuses on the economic value that is added to a company as it relates to environmental impact (Dyllick & Hockerts, 2002). The business case for the pursuit of CSR and sustainability focuses on how companies can increase their economic sustainability through social and environmental efficiency (Dyllick & Hockerts, 2002; Porter & Kramer, 2011).

From its outset, CSR has been defined through numerous definitions with distinct differentiation (Chandler, 2016). According to Carroll, CSR is based on the requirement for accountability to internal and external stakeholders (Carroll, 2015; Chandler, 2016). As there is no standardized definition of CSR across the globe multiple interpretations are

available (Chandler, 2016). The definition of CSR is expanded in definitions to include foresight beyond profits in the company to ensure transparency, fulfillment of regional legal requirements, and a commitment to communities in which they operate (Ditlev-Simonsen, 2010; Chandler, 2016). The European Union definition strives to integrate environmental, social, ethical, and human rights as an essential element of core business strategy, therefore incorporating it into regular practice in conjunction with stakeholders (Chandler, 2016; Corporate Social Responsibility & Responsible Business Conduct, 2017). Overall, CSR serves as a management concept that aims to integrate business activities in a way that meets the overall needs of both internal and external stakeholders (Chandler, 2016). CSR has grown to encompass a plethora of concepts across the world with many corporations selectively choosing which definition to follow (Ditlev-Simonsen, 2010; Alonso et. al, 2018). Studies find that prior to the introduction of CSR as a form of strategy, companies were already accommodating some elements of the CSR management concept into their business practices (Ditlev-Simonsen, 2010).

An important element within CSR is the recognition of the stakeholder (Chandler, 2016; Alonso et. al, 2018). A commonality in CSR is therefore the stakeholder theory (Alonso et. al, 2018). Stakeholders are defined as any entity who is affected or has a reciprocal affect on the organization (either voluntarily or involuntarily) (Chandler, 2016). As seen in Figure 2, stakeholders can be internal (within the company/firm such as employees) or external (customers, NGO's, etc.) (Chandler, 2016). Stakeholder theory asserts that all stakeholders hold value in a CSR perspective, from employees to customers to governments (Alonso et. al, 2018). Therefore, all stakeholders' rights must be honored regardless of position in the operation of the industry (Alonso et. al, 2018). Additionally, all stakeholders, both internal and external, must work together with an aim towards CSR compliance in order to be successful (Alonso et. al, 2018). The use of CSR can be shown to increase trust of stakeholders in the operations of the company (Verma & Singh, 2016).

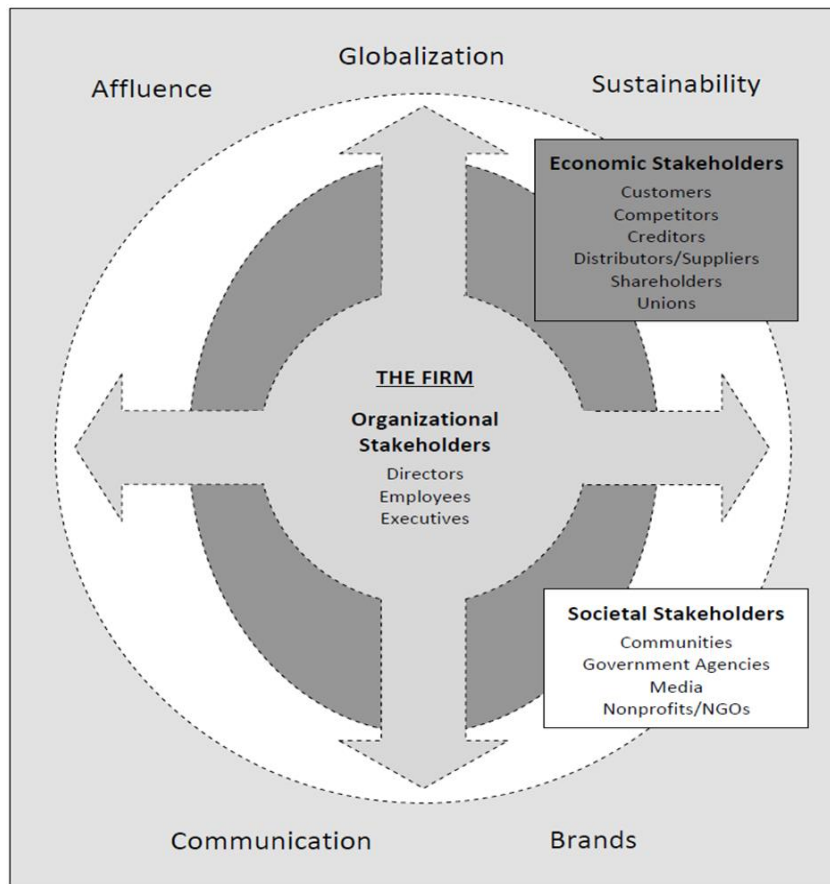


Figure 2. Stakeholder Model (Chandler, 2016, p. 76)

2.2.1 CSR Drivers and Barriers

Sustainability is a paramount concern when identifying drivers of corporate action (Lozano, 2015). Lozano champions a holistic approach in the identification of the drivers towards actions that impact corporate sustainability from an internal, external, and connecting viewpoint (Lozano, 2015). Corporate sustainability is defined as the corporate activities that support the three dimensions of sustainability, economic, environmental, and social, over time in all aspects of the corporate system (Lozano, 2015). Corporate sustainability shares most of the base elements of the definitions of CSR in this thesis, and the elements presented in corporate sustainability literature can support the conclusions of CSR performance analysis. Sustainability and a drive towards environmental action support these elements and can be incorporated through the use of CSR strategies (Klettner, 2014; Jóhannsdóttir, 2015; Chandler, 2016). Companies can achieve progress through undertaking CSR strategies that incorporate the long-term time-scale of sustainability. Company strategy is essential to making CSR an effective

management concept for a company (Chandler, 2016). The incorporation of Strategic CSR allows for companies and industry to adapt in constantly shifting circumstances with competitive advantage (Lindorff et al., 2012; Chandler, 2016).

The identification of the drivers and barriers to a company making the choice to partake in CSR strategies is crucial to understanding CSR as a management concept (Jóhannsdóttir, 2015; Lozano, 2015; OECD, 2015). Drivers can be classified as both internal and external and demonstrate the impact stakeholders have across the entire spectrum of business (Tutore, 2010; Jóhannsdóttir, 2015), see Figure 3. External drivers are imposed on a company from stakeholders that are on the outside of the company, whereas internal drivers are initiated at the behest of the internal stakeholders of the company (Jóhannsdóttir, 2015; Lozano, 2015; OECD, 2015). The categories of drivers used in this thesis can be seen in Figure 3 (Jóhannsdóttir, 2015, p. 688). The influence exerted by drivers is unique within each specific industry and must be identified accordingly (Jóhannsdóttir, 2015). An evaluation of the internal and external drivers that influence implementation of environmental actions can assist in the identification of whether they can stimulate development of environmental strategy (Tutore, 2010).

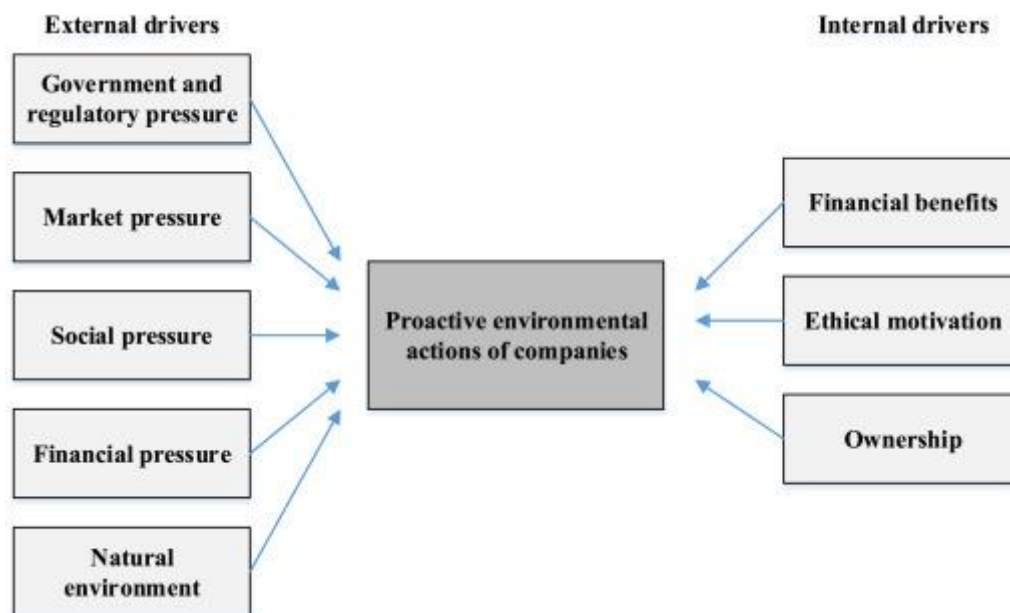


Figure 3. Drivers of proactive environmental actions of companies (Jóhannsdóttir, 2015, p. 688)

Strategic development is a difficult process that requires extensive planning, strategic formulation, and then strategic implementation (Hrebiniak, 2006). This process is dependent on a recognition of what barriers to development exist and how their negative

impacts can be circumvented (Hrebiniak, 2006; Alharty, Rashid, Pagliari & Khan, 2017). Barriers are often industry specific and must be identified to understand what may be preventing the implementation of CSR strategies (Hrebiniak, 2006; Alharty et al., 2017). Internal barriers in small and medium sized industries (SME's) have been classified in research in a variety of ways (Shi, Peng, Liu & Zhong, 2008; OECD, 2015; Caldera, Desha & Daws, 2019). The Organisation for Economic Co-operation and Development (OECD) classifies barriers into three main categories: resources, attitudes and company culture, and awareness (OECD, 2015). Meanwhile, stakeholders in research into Chinese SME's categorized four categories of barriers: policy and market, financial and economic, technical and information, and lastly managerial and organizational barriers (Shi, Peng, Liu & Zhong, 2008). Caldera, Desha & Daws's research into barriers to the implementation of sustainable business practices identified six key barriers, "Lack of financial resources; a lack of time; a lack of knowledge; risks associated with implementing a new sustainable practice; current policies and regulations; and existing organizational culture" (2019, p. 582).

2.2.2 CSR as an Analytical Framework

Strategic CSR defines the ability of a company to gain competitive advantage by gaining the acceptance of stakeholders, specifically the public (Chandler, 2016). One primary way to gain public acceptance is the establishment of a comprehensive CSR strategy with measurable performance standards; therefore, evaluating these strategies can be tantamount to learn about the performance of an industry subject (Verčič & Ćorić, 2018). The use of CSR performance as a method in evaluating sustainability has gained support as an effective method in recent years (Epstein & Buhovac, 2010; Büyüközkan & Karabulut, 2018). In a review of 128 articles where CSR performance is used, the review was demonstrative in establishing the importance and success of CSR performance in obtaining measurable metrics that can be analyzed (Büyüközkan & Karabulut, 2018). In order to measure CSR performance, multiple different frameworks, standards, guidelines, and evaluation tools have been adopted across the globe (Chandler, 2016). The most commonly utilized of the CSR analysis methods are the standards developed by the Global Reporting Initiative (GRI), which have been adopted by over 4,000 organizations globally (Chandler, 2016). Established in 1997, GRI aims to ensure

sustainability is integral to decision making in every organization as presented in the vision of the United Nations (Chandler, 2016; Global Reporting Initiative, 2020a). Within the GRI standards, measurable elements are laid out with specific metrics for analysis (Global Reporting Initiative, 2020a; 2020b). The standards provide a detailed breakdown the information that must be reported by an organization in order to measure success of CSR strategies (Global Reporting Initiative, 2020a; 2020b). The GRI framework can also be linked to the SDG's, as each standard in the framework connects to one of the 17 SDG's (Global Reporting Initiative, 2020b). The standards include three Universal Standards (GRI 101, GRI 102, and GRI 103), and topic specific Standards (GRI 200, GRI 300, and GRI 400), each with their own sub-standards and key performance indicators (Global Reporting Initiative, 2020a). CSR frameworks and instruments are often used in collaboration with other methods to strengthen research findings (Zienko, Rovira, Montiel & Rosa Rovira, 2015; Chandler, 2016). In evaluating CSR against the GRI standards for analysis, the PESTEL analysis tool and a SWOT analysis tool can be used to find themes and trends in data.

The PESTEL analysis tool is seen in Figure 4 showing the six categories for analysis in a company: political, economic, social, technological, environmental, and legal (Figure 4) (Song, Sun, & Jin, 2017; Scanning the Environment: PESTEL Analysis, 2018). The PESTEL tool maps external influences affecting a company and organizes them into different categories for analysis (Song et al., 2017; Achinas, Horjus, Achinas & Euverink, 2019). The PESTEL framework allows a business to find opportunities and identify threats through analysis of the external business environment (Issa, Chang & Issa, 2010). The identification of external forces allows for a detailed breakdown of factors that could potentially impact progress and offer areas of potential correction (Song et al., 2017).

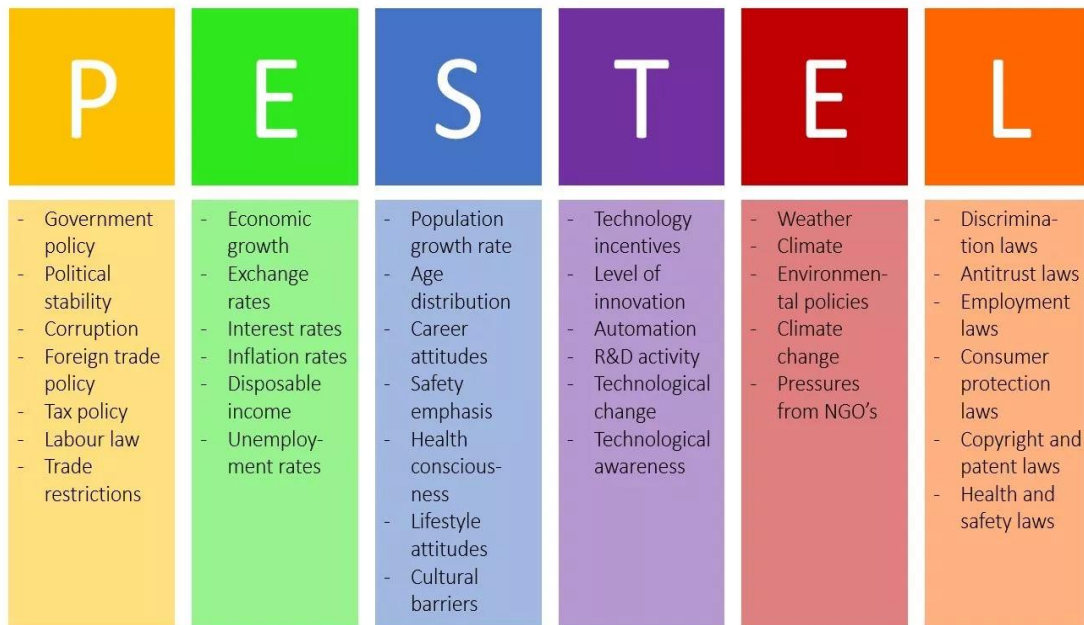


Figure 4. PESTEL Framework (Scanning the Environment: PESTEL Analysis, 2018)

SWOT analysis is another analytical tool that allows for the identification of internal strengths and weaknesses (Chandler, 2016). Opportunities and threats of external origin that impact companies are also identified in a SWOT analysis (Chandler, 2016). The SWOT analysis supports the alignment of strengths and opportunities prevalent in a company while also demonstrating weaknesses and threats (Chandler, 2016). Figure 5 shows the general structure of a SWOT Analysis (Herman, 2017). SWOT analysis is a popular method of analysis based on its simplicity and ease in receiving structured discernable results. SWOT Analysis is, therefore, used across multiple disciplines and fields (Tang, Huanh, Ma & Li, 2018; Kamran & Fazal, 2020).

The SWOT and PESTEL analysis tools have been determined in previous studies to work together in the identification of key issues and assist in effective strategic planning within companies (Mullerbeck, 2015). In summary, extensive literature demonstrates that evaluation of CSR and analytical tools can assist in the study of controversial industries (Chandler, 2016). Specifically, CSR is a tool for progress and analysis of the beer brewing

industry (Lindorff et al., 2012). PESTEL and SWOT frameworks allow for the organization of information for easier analysis against the GRI standards.

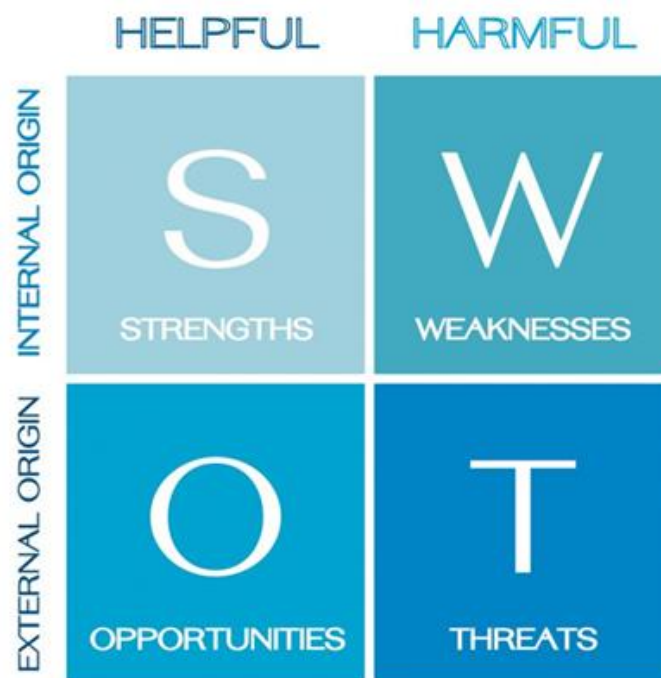


Figure 5. SWOT Framework (Herman, 2017)

2.3 The Beer Brewing Industry

The most frequently consumed alcoholic drink in the world is beer (Colen & Swinnen, 2016). Beer brewing in total represents a system, beginning at the production and procurement of raw materials (barley, hops, yeast, and water), transportation of materials, the production of the beer in a brewhouse, and concluding in the packaging, distribution, and sale of products (Willaert, 2012; Brewers Association, 2019a). The commercial beer brewing industry consists of brewing at all scales, from large-scale industrial brewing to small-scale craft brewery companies (Olajire, 2012; Brewers Association, 2019a). The product output of the brewery is primarily the unit of measure for the size of each brewery and industry and ranges nation to nation (Brewers Association, 2019b). Operations, philosophy, and purpose are diverse across the industry with the unifier being a core base product, beer (Herold, Manwa, Sen & Wilde, 2017; Brewers Association, 2019b). This will be explored in more detail in Section 2.2.2.

Figure 6 is demonstrative of the beer production process, reflecting the inputs required for production of a finished beer product (Olajire, 2012, p. 5). The figure also

demonstrates the physical by-products of the brewing process (Olajire, 2012). A holistic approach requires the consideration of all functions of a company and the resultant impacts on society (Lozano, 2015). To that end, multiple studies have been completed aimed at identifying the effects breweries have on society and the environment (Olajire, 2012; Feeney, 2017; Gatrell et al., 2018).

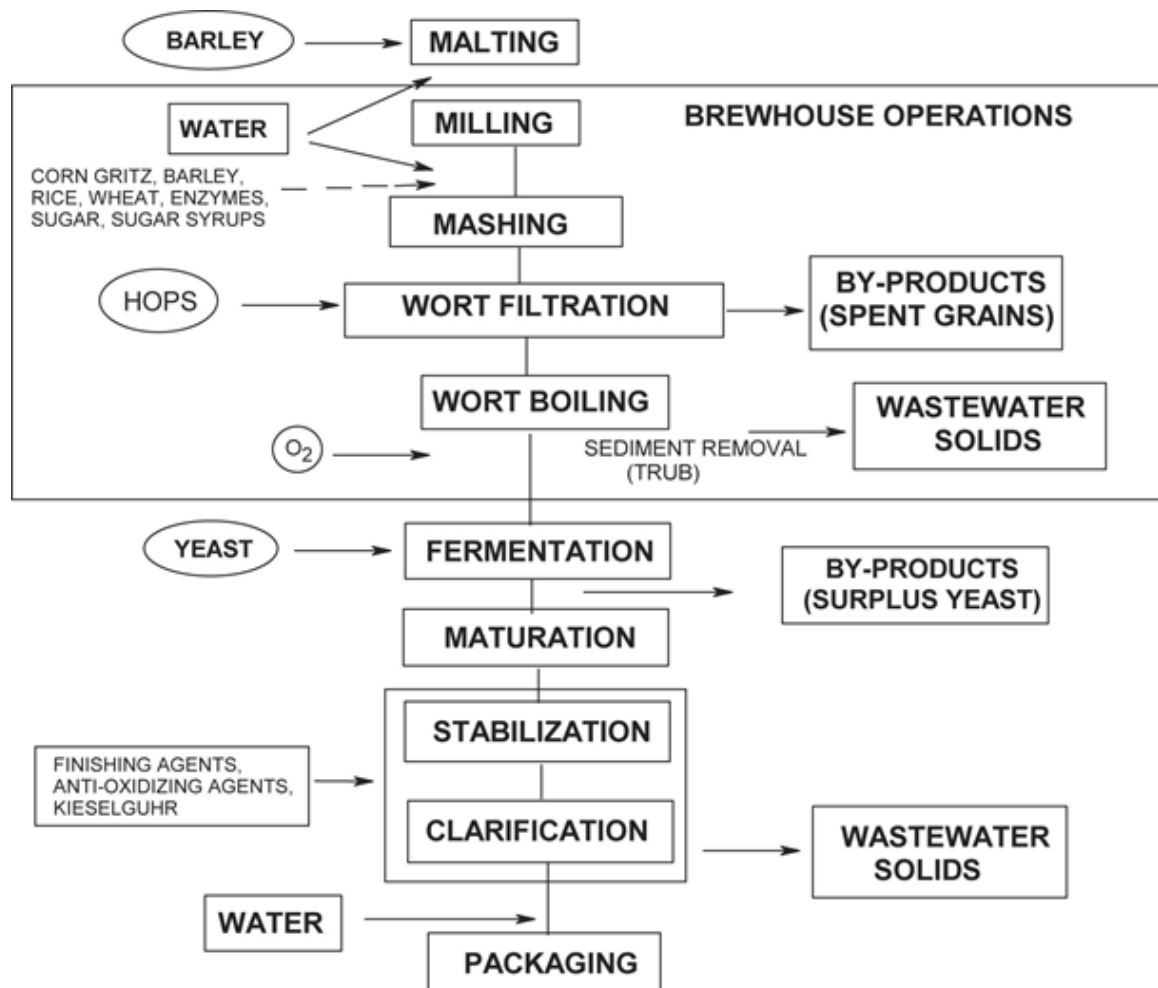


Figure 6. Beer Production Outline (Olijare, 2012, p. 5)

2.3.1 The Environmental Impact of Brewing

The environmental impact of the brewing of beer has been heavily studied over the years. A key element of research regarding the beer brewing industry centers on the direct outputs of the brewing process (Hospido, Moreira & Feijoo, 2005; Garnett, 2007; Olajire, 2012). As seen in Figure 7, the brewing process, from resource extraction to final products, produces multiple environmentally damaging byproducts, which have the potential to negatively alter environmental sustainability (Olajire, 2012, p. 16). Wastewater effluent, solid waste production, and air emissions are all concerns that have

been addressed in the brewery production process (Olajire, 2012). Detailed studies have suggested mitigation techniques aimed at reducing the physical by-products of brewing (Olajire, 2012; Cimini & Moresi, 2018a; 2018b).

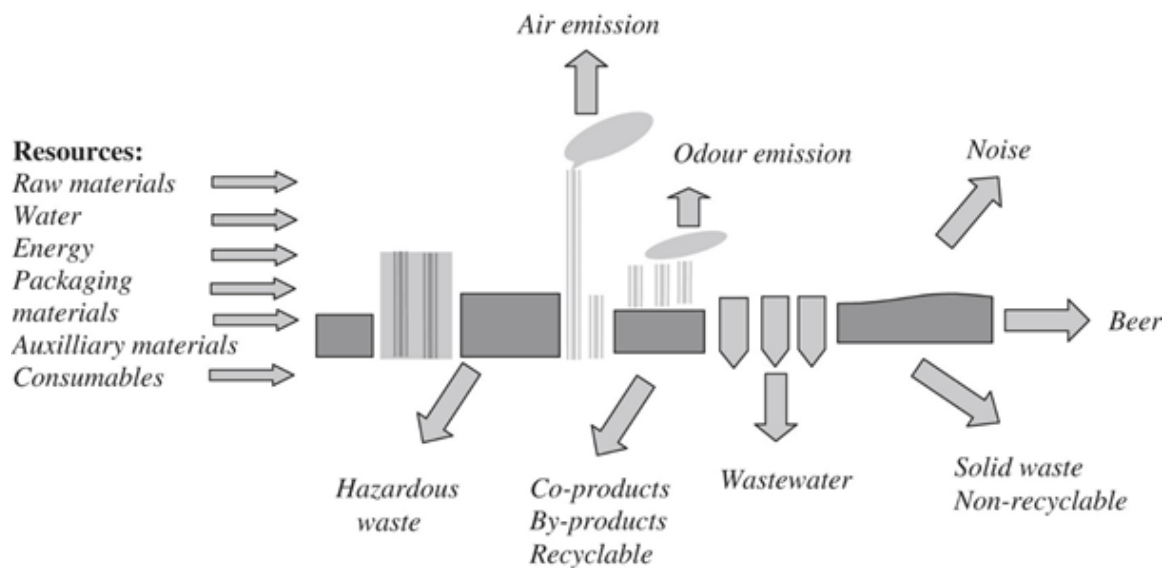


Figure 7. Pollution Outputs of the Beer Production Process (Olajire, 2012, p. 16)

Carbon emissions during the brewing process is one of the most studied components of the production process (Hospido, Moreira & Feijoo, 2005; Garnett, 2007; Olajire, 2012; Cimini & Moresi, 2018a; 2018b). The adverse climate impact of beer production can be quantified through the use of a beer carbon emissions footprint estimation model, which uses specific components to measure carbon footprint across multiple size breweries and beer types (Cimini & Moresi, 2018a). This impact is specifically relevant when comparing it to SDG 13 regarding climate change (United Nations, 2015; Dünnebier & Sperkova, 2016). Beer production, as an example, was demonstrated to represent nearly 1% of the total greenhouse emissions for the United Kingdom in 2006 (Garnett, 2007). A life-cycle assessment of the carbon footprint of beer from cradle-to-grave in Italy identified stages in production with a high potential for mitigation of environmental impact (Cimini & Moresi, 2018a). The study found that the carbon footprint of beer is often shown to be dependent on brewery size with primary elements affecting this being packaging materials and water use (Cimini & Moresi, 2018a). Solutions to reducing the environmental impact are heavily focused on production specific elements such as carbon capture during brewing, reduction of water use, and product packaging for example (Olajire, 2012; Cimini & Moresi, 2018a).

Two factors that significantly increase the environmental impact of an industry are procurement of raw materials and water usage. Across the life-cycle of a product, the carbon emission of importing materials significantly increases the environmental footprint of the product (Cimini & Moresi, 2018a). Production and procurement (transport) of raw materials has been calculated to account for over one-third of the emissions generated in beer production (Hospido et al., 2005). The production of beer is also highly water intensive (Olajire, 2012; Dünnbier & Sperkova, 2016). For each litre of beer that is produced, 298 litres of water are used in production, resulting in the beer brewing industry being in the top tier of industrial water consumption, resulting in a large impact on SDG 6-Clean water (Water Footprint Network, 2009; Olajire, 2012; Dünnbier & Sperkova, 2016). The procurement of raw materials and water scarcity both have significant impact on the environmental impact of beer production on local communities (Dünnbier & Sperkova, 2016; Olajire, 2012) and contribute to overall negative perception of the industry from a sustainability perspective.

Mitigation efforts to reduce the global impact of the beer production process have been researched with advancements in technology allowing for the reduction of negative outputs and limiting the need for water in the process (Olajire, 2012; Cimini & Moresi, 2018a; 2018b). For example, these technologies include automation and clean-in-place technological systems that more efficient in reducing negative environmental outputs (Olajire, 2012; Cimini & Moresi, 2018a; 2018b).

2.3.2 The Social Impacts of Beer Brewing

The beer brewing industry as described in research represents both an economic stimulant and an ingrained element of culture. In the United States, research specifically aimed at craft breweries explains that they are frequently situated in renovated buildings and aim to strengthen communities with innovation (Feeney, 2017). Craft breweries are associated with establishing strong city centers that reflect intangible cultural elements such as retained architecture and community identity (Feeney, 2017). Study of craft breweries in Pennsylvania reflected increased awareness of local folklore and history, knowledge of local events, and community engagement (Feeney, 2017). Craft breweries as an element of culture have also been stated to represent dynamic places where people can be encouraged to interact with nature such as brewery-based cycling and hiking

groups (Gatrell, Reid & Steiger, 2018). Craft breweries have been shown to encourage overall community sustainability by being considered more locally focused than industrial breweries and less dependent on issues outside the local area (Gatrell et al., 2018).

A study, based on the stakeholder theory, completed in 2018 surveyed 218 craft breweries across the United States to evaluate their involvement in the community (Alonso, 2018). Breweries were determined to act beyond profit maximization where community was seen to be tantamount to their business strategy and success (Alonso, 2018). In this case the breweries served as community hubs, providing local support, such as fundraising to local community teams and charities, and contributed to development by reclaiming abandoned buildings and local investment (Alfonso, 2018). The community was viewed as a stakeholder in a majority of breweries, resulting in a civic commitment to the community (Alonso, 2018).

Research reflects that the consumption of alcohol results in multiple social issues (Dünnbier & Sperkova, 2016). The beer brewing industry is identified to negatively impact the following social SDG's: 2-Zero hunger, 3-Good health & well-being, 4-Quality education, 5-Gender equality, 10-Reduced inequalities, 16-Peace & justice, and 17-Partnerships free from conflicts of interest (Dünnbier & Sperkova, 2016). Alcohol has, furthermore, been determined to be associated with increased crime rates and epidemic violence against women around the globe (Dünnbier & Sperkova, 2016). Alcohol related illness and accidents are a significant strain on social societies and are a leading cause of health-related issues for youth (Whiteford et. al, 2013; Dünnbier & Sperkova, 2016). The World Health Organization (WHO) reflects that 3,4 million deaths can be attributed to alcohol consumption each year (Rekve et. Al, 2019).

2.3.3 The Economic Prospects of Beer Brewing

Statistics from 2018 reflect that, in the United States, the craft brewery industry contributed 550 thousand jobs and over 79 billion dollars to the economy (Brewers Association, 2019c, 2020a). Studies reflect that the beer brewing industry also results in substantial socioeconomic gain (Alonso, 2018; Miller, Sirrine, McFarland, Howard & Malone, 2019). This gain results from direct revenue and secondary tax revenue, such as tax gains for the community (Alonso, 2018). The alcohol industry, specifically the craft brewery industry, represents the potential for significant economic growth (Alonso,

2018). The economic strength of the beer brewing industry is found worldwide, including significant growth in Iceland which increase can be attributed, at least in part, to the rise in tourism in the country (Statistics Iceland, 2017). Research reflects that niche craft brewery tourism, which can be defined as tourism centered on beer brewing and visitation to breweries, is increasing and can be an economic stimulant (Dunn & Wickham, 2016). The stimulation encourages growth regionally with development in the tourism sector, including beer tours and events (Dunn & Wickham, 2016). The craft brewery is stated in research to encourage economic growth, the development of social community norms, and engagement with nature, each of which may contribute to making an industry sustainable (Gatrell et al., 2018). While aiming for profit maximization, a study determined that beer breweries serve to increase jobs in local communities thereby increasing capital in the region (Alonso, 2018).

The negative aspects of the alcohol industry are associated with costs associated with harm caused by alcohol (Whiteford et. al, 2013; Dünnbier & Sperkova, 2016). Financial loss associated with alcohol- includes increased costs associated with health care due to alcohol related illness and accident, reduced productivity, and with preventing alcohol related crime (Whiteford et. al, 2013; Dünnbier & Sperkova, 2016). Research estimates the annual economic cost of alcohol to be \$233.5 billion in the United States and €156 billion in the European Union (European Parliament, 2015; CDC, 2019). Findings of increased cost to society associated with alcohol consumption are supported by other research across the globe, including studies from Thailand (Pranee, Phusalux, Sangma & Wongjunya, 2020) and the Netherlands (de Wit et. al., 2019).

2.4 The Beer Brewing Industry in Colorado

The United States has experienced a significant increase in beer breweries since 1985, going from 37 in 1985 to 4225 in 2015 (Gatrell et al., 2018). The United States is currently ranked at 26th in highest per capita beer consumption (Olajire, 2012). The growth in breweries is significant in the State of Colorado. As of 2019, Colorado has 425 breweries, the second highest number in the country (Brewers Association, 2020c). The prevalence of these breweries can be seen in a current search of breweries in Colorado as of October 2020 (Figure 8).

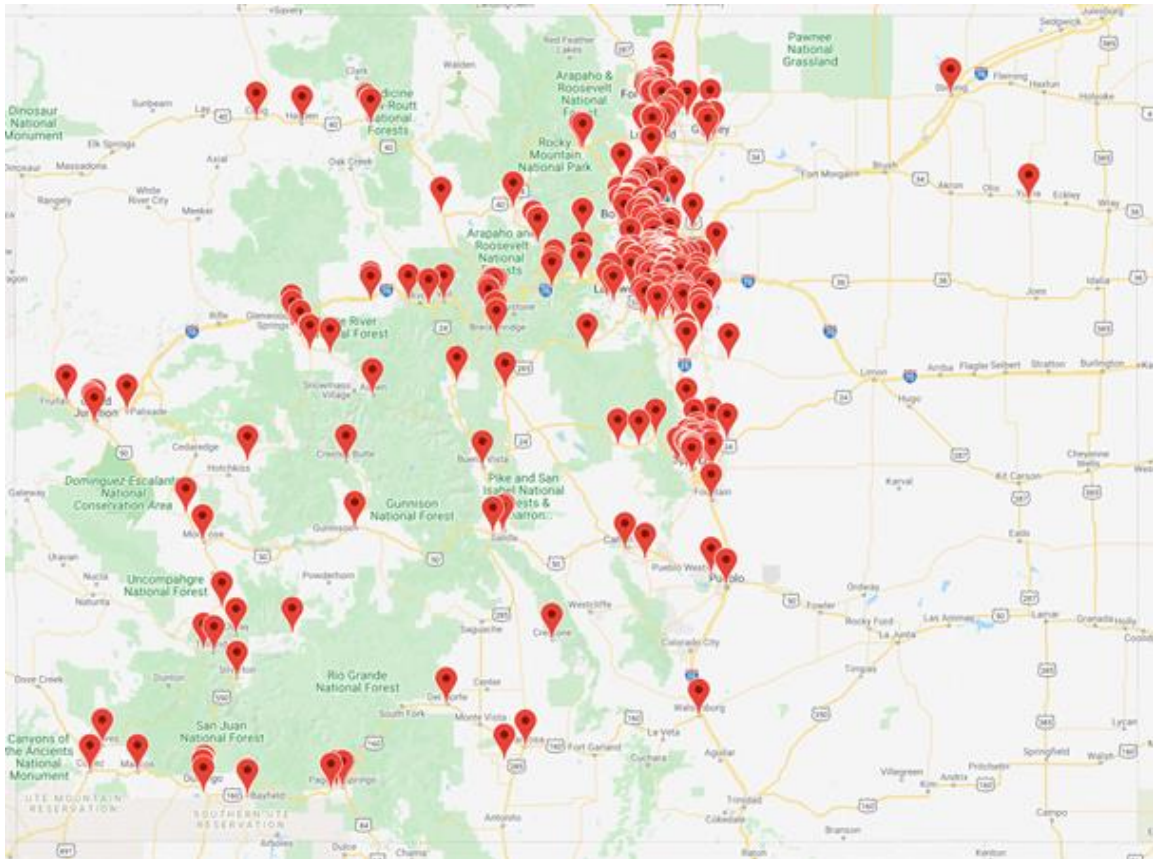


Figure 8. Colorado Brewery Map (Colorado Brewery List, 2020)

Colorado produces 1,529,613 barrels of craft beer, not including industrial beer, per year (Brewers Association, 2020b). Colorado ranks the highest in the nation for economic impact per capita with a rate of \$796 per person from the beer brewing industry. The overall economic benefit generated by the brewing industry in 2019 in Colorado was \$3,2 million (Brewers Association, 2020b; 2020c).

The production and sale of beer in Colorado is regulated through two agencies, the Colorado Department of Public Health and Environment and the Colorado Department of Revenue (Urso & Boer, 2018, State of Colorado, 2020). The Colorado Department of Public Health and Environment regulates the production and environmental impact of breweries (Urso & Boer, 2018). The Department of Revenue regulates the sale and licensing of distributors under the Colorado Liquor Code Article 3, Title 44, Colorado Revised Statutes (State of Colorado, 2020). The alcohol system in Colorado is regulated under a free-market methodology with distribution primarily unregulated, with licensing and sales regulations being the only limitations to the market (State of Colorado, 2020).

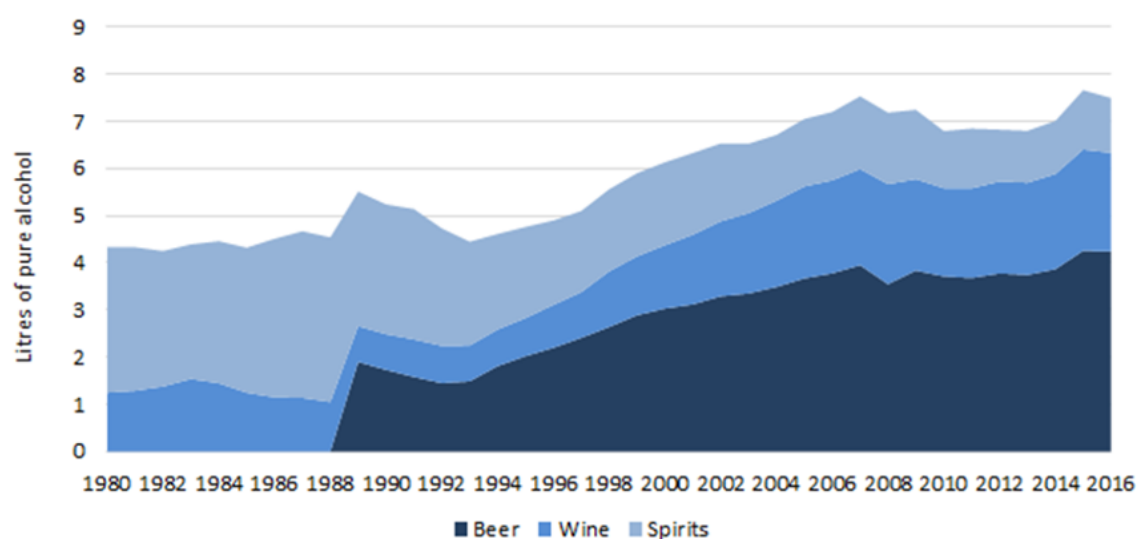
Additionally, local jurisdictions establish their own regulations regarding environmental concerns, such as in relation to water consumption, effluent disposal, etc.

The Colorado Department of Public Health and Environment completed a program in 2018 titled the Sustainable Brewery Initiative (Urso & Boer, 2018). The program offered free technical assistance to breweries with the goal of reducing environmental impact, specifically reducing pollution (Urso & Boer, 2018). Additionally, the Brewers Association across the United States offers significant guidance, including an extensive library of resources, to breweries regarding environmental, economic, and social progress, which is accessible with a paid membership (Brewers Association. 2019a). Overall, the beer brewing industry in Colorado reflects resource availability and action towards environmental sustainability.

2.5 The Beer Brewing Industry in Iceland

Alcohol consumption in Iceland has been growing rapidly; Statistics Iceland reports that between 1980 and 2016 alcohol consumption increased by 73% (Statistics Iceland, 2017; Statistics Iceland, 2020). Total consumption is recorded as being 5.5 litres per capita with a total of 19 million litres being consumed (Statistics Iceland, 2017). The overall economic benefit generated by the alcohol industry in Iceland is 220 Million USD (Statistics Iceland, 2017). As seen in Table 3, current statistics reflect that beer accounts for over half of all alcohol consumption in Iceland (Statistics Iceland, 2017). Iceland ranks 28th on the list of countries with the highest per capita beer consumption (Olajire, 2012).

Table 3. Alcohol Consumption in Iceland 1980-2016 (Statistics Iceland, 2017)



Unlike many countries in Europe, Iceland has a relatively new relationship with beer (Ólafsdóttir, 2017). After 74 years of prohibition against beer in Iceland, legalization in 1989 started a change in the societal view of beer within Icelandic culture (Ólafsdóttir, 2017). Therefore, the last 30 years have seen both previously established companies and new brewery companies develop across Iceland with little research into cultural and environmental impact (Ólafsdóttir, 2017). The development of the craft brewing industry is an emerging industry with the potential for vast expansion across Iceland. At the time of the legalization, established beverage companies were able to rapidly move into beer production, leading to a dominance of certain companies in Iceland.

Following a global trend, the beer brewing industry began to develop in earnest in Iceland (Ólafsdóttir, 2017). In Iceland the industry as of the beginning of 2020 numbered roughly thirty breweries with most operating in a small capacity as reflected in a current search across the country (Figure 9). Most breweries operate an internal taproom where beers can be purchased for on-site consumption, but unlike most countries, retail beer is not sold directly from the breweries (ÁTVR, 2012).



Figure 9. Iceland Brewery Map (Note: Self-created through a www.google.com search)

Laws regarding the production and distribution of alcohol in Iceland are managed by the national parliament Alþingi and are located in the legal code (i. lagasafn). Íslensk lög nr. 75/1998, áfengislög and lög nr. 86/2011 um verslun með áfengi og tóbak. (Alþingi, 2018). The retail sale of alcohol in Iceland operates under a system, which is present in all Nordic countries (excluding Denmark), known as an alcohol retail monopoly (ÁTVR, 2012). Within this system, the sole right to retail sale of alcohol is held by state-owned monopolies, in the case of Iceland, by Vínbúðin-ÁTVR (ÁTVR, 2012). Regulatory activities in the system restrict marketing and advertising of alcohol, disallow profit maximization, limit availability of alcohol by limiting store numbers and opening hours, and require brand-neutrality so no preferential treatment exists for suppliers or products (ÁTVR, 2012). The alcohol monopoly system operates with the intention of reducing and preventing the negative effects of alcohol consumption (ÁTVR, 2012; 2019a; 2019b). The Nordic monopolies all operate within CSR reporting schemes that take responsibility through a Code of Conduct for social (human rights, working conditions, anti-corruption) and environmental concerns (ÁTVR, 2012; 2019a; 2019b).

Eleven theses regarding beer could be located in Skemman database for Iceland with topics focused around beer culture, advertising (e.g. Advertising alcohol: a rhetorical analysis of light-beer advertisements by Gísli Sveinn Gretarsson), and marketing elements, including packaging, naming, and sales (e.g. The current situation and future prospects of beer export from Iceland by Haukur Guðmundsson) (Heim | Skemman, 2020).

2.6 The Beer Brewing Industry and COVID-19

In the final months of 2019, a new virus, SARS-COV2 (commonly known as the coronavirus or COVID-19) began to spread across the globe (Rothan & Byrareddy, 2020). The dangers associated COVID-19 has led to a global public health emergency that has had a significant impact on all aspects of life (Rothan & Byrareddy, 2020). The changes within the beer brewing industry caused by the COVID-19 pandemic are a new component in the analysis of the industry (Maida, 2020). In the United States, the difficult economic situation has impacted the beer brewing industry in a myriad of ways, including breweries converting production capacity to make hand sanitizer or attempting to market, distribute, and sell their products outside their internal taprooms (Fallows, 2020; Thomas & Bullied, 2020).

In the United States, resources and information are being catalogued through the Brewers Association to provide guidance to members the beer brewing industry (Brewers Association, 2020a). Reopening guidelines, federal health checklists, research polls, etc. are being published consistently based on the situation as it evolves (Brewers Association, 2020a). The impact of COVID-19 on the beer brewing industry in Iceland has led to a temporary closure of breweries and taprooms (O'Donnell, 2020). In June 2020, an online company called Bjórland began selling beer online in protest of current sales laws and limited access due the COVID-19 (O'Donnell, 2020). Additionally, a new law was proposed (but has not yet been ratified) to allow the online sale of alcohol in Iceland without traditional government regulations mandating sales through ÁTVR-Vínbúðin (O'Donnell, 2020). The unique nature of the pandemic is an unpredictable factor in future of the industry and will be discussed in this research.

2.7 Summary of Literature Review

This literature review outlined the current knowledge relevant to this study. Achievement of the SDG's and environmental performance are a primary concern for governments worldwide (Kwon, 2017; United Nations, 2018). Controversial industries, including the alcohol industry, are working towards positive reinforcement of their public images by adopting strategy aimed at supporting this goal (Lindorff, et al., 2012). One such is CSR, which is a management concept aimed at positive development of industry in a safe and sustainable manner while meeting the needs of its stakeholders (Chandler, 2016). CSR strategies have demonstrated success within controversial industries in increasing environmental, social, and financial processes (Lindorff et al., 2012). The GRI standards and the PESTEL and SWOT tools can be used in the evaluation of controversial industries such as the alcohol industry (Chandler, 2016; Global Reporting Initiative, 2020a). Beer is the most consumed alcoholic product on the planet (Brewers Association, 2020b). Research has demonstrated the beer brewing industry results in a significant negative environmental and social impact globally (Olajire, 2012; Cimi & Moresi, 2018a). In contrast, some research reflects positive economic and social by-products of the brewing industry (Dunn & Wickham, 2016). The brewing industry in Colorado is extensive and well-developed, with documented evidence of action towards environmental performance (Urso & Boer, 2018; Brewers Association, 2020c). Meanwhile, Iceland

operates under a unique system that has had little research completed (ÁTVR, 2012; Ólafsdóttir, 2017). Overall, Iceland represents an area ripe for research into the potential development of the brewing industry and its sustainability impacts.

3 Research methods

This section will detail the research methods employed in order to address the aim of the study and the research questions proposed. First, the selection of interview participants is explained (Clifford, Cope, et. al, 2016). The use of semi-structured interviews and interview framework is outlined to explain the process of data collection (Chandler, 2016; Roulston & Choi, 2018). Following this, the management tools of SWOT and PESTEL are outlined in more detail than Section 2.2.2 and the method of data analysis using GRI Standards is explained (Chandler, 2016; Song, Sun, & Jin, 2017).

The overall aim of this thesis is to examine how Corporate Social Responsibility (CSR) has been utilized within beer brewing companies to ensure long-term sustainability.

Research Questions:

1. What drivers and barriers dictate sustainable development within beer brewing companies?
2. How are external societal pressures driving the development of sustainable brewing activities by companies?
3. How do companies within controversial industries, in this case the beer brewing industry, reconcile sustainable development with negative impacts of their industry and what strategies do they use (CSR, etc.)?
4. What concepts and lessons can be distinguished between the Colorado beer brewing companies and the Icelandic beer brewing companies and vice versa?

To meet the overall aim of the thesis, and answer the research questions, a qualitative research comparing two case studies of industry representatives in two locations, Colorado and Iceland, was completed. Qualitative methods were selected based on its ability to obtain explorative, descriptive and explanatory information from individuals (Babbie, 2015). A selection of interviews with industry experts from a variety of different positions in brewing companies was completed in Colorado and Iceland. These semi-structured interviews were recorded, transcribed, and then analyzed (Clifford, et al., 2016).

3.1 Case Selection and Selection of Interviewees

Colorado was selected as the comparative for Iceland in the study based on having the second largest number of craft breweries in the United States and being ranked first in per capita economic impact of the brewing industry in the United States at \$796 (Brewers Association, 2020b; 2020c). The long established and progressive beer brewing industry in Colorado serves as a contrast to the emerging brewing industry in Iceland. Additionally, Colorado is the home state of the researcher allowing for ease in obtaining transportation and lodging in order to complete data collection.

Colorado currently has an estimated 425 active beer breweries in the state (Colorado Brewery List, 2020). Selection of interviewees was determined based on purposive sampling, where interviewees were selected based on direct experience with the topic area, specifically the operation of a brewery, the actual brewing of beer, and/or business relations with breweries. (Clifford et al., 2016). A review of breweries was completed with a preference toward breweries that listed CSR or sustainability on their websites. During the selection of interviewees, it could be observed by the researcher that multiple breweries across the State of Colorado actively advertise environmental sustainability programs that occur in their breweries. Additionally, external industry-wide resources, including the Colorado State Brewery Initiative, were contacted to get an external perspective on the topic (Urso & Boer, 2018). Communication with breweries led to a recommendation to contact the Brewers Association, which provided extensive information and a plethora of resources on their website (Brewers Association, 2020a).

A Google search identified a total of 31 active breweries in Iceland at the time the search was conducted in June 2019. E-mail requests were sent to all breweries within the capital region. The selection of breweries was limited to the capital region based on the limited ability of the researcher to travel. ÁTVR-Vínbúðin, the state-owned representative of the Icelandic alcohol monopoly, was also contacted for an interview for an external perspective.

Individual business websites (some breweries do not have a public e-mail address and operate with an internal messaging system), e-mail, and Facebook were used as the primary communication methods to request interviews for the study (Clifford, et al., 2016). Interview requests specified that the interviews could be completed face-to-face

or digitally based on the participants' schedules. Interviews were scheduled through e-mail communication based on the availability of the interviewees. Meeting locations were determined for the convenience of the interviewee with particular care given to ensuring that the interview had limited distractions (Roulston & Choi, 2018). All interviews were completed in person with the exception of one interview, which occurred over Skype.

Interview requests were sent to 14 brewery companies in Colorado with two referring the researcher to the Brewers Association. Only four companies were willing to take part in the study. Similar results were found in Iceland with 10 requests sent to brewery companies with only five responses received. Requests sent to external participants (The Craft Brewery Association and Sustainable Brewery Initiative in Colorado; ÁTVR-Vínbúðin in Iceland) all received responses. All respondents who agreed to be interviewed were interviewed resulting in a total of 12 interviews, nine with brewery companies and three external participants. A total of twelve interviews were completed in the study, six each in Colorado and Iceland. A list of completed interviews reflecting the titles and affiliations of participants can be found in Table 4. Participants were informed that upon completion of the study they would receive a copy of the results.

3.2 Semi-structured Interviews

The primary method of data collection for the research is semi-structured interviews. This method was chosen in order to understand individual experience as it relates to broader issues within the industry (Clifford, et al., 2016). Open-ended questions were utilized to get information about the perceptions, understandings, and feelings of industry experts interviewed (Roulston & Choi, 2018). Informed consent was received from all participants to use their name and affiliation in the thesis (Roulston & Choi, 2018). The decision was made by the researcher that as a result of the significant disruption in the industry caused by the COVID-19 pandemic, and the resulting potential change in the financial situation of some of the companies, that the thesis would remain closed for a period of three years before identification (This is discussed in Section 3.4 in more detail).

Table 4. Interview Participants

	Name	Job Title	Affiliation	Date of Interview	Interview Location	Coding ID
Colorado	Lindsey Smith	Energy Efficiency & Sustainability Engineer	Denver Beer Company	2019-01-31	Denver Beer Company, 4455 Jason St., Denver, CO 80211	C1
	Nick Hilborn	Head Brewer	Rocky Mountain Brewery	2019-06-03	C2 Brewery, 625 Paonia St, Colorado Springs, CO 80915	C2
	Derek Boer	Pollution Prevention Specialist	State of Colorado Department of Public Health and Environment	2019-06-03	CDHS, 4300 Cherry Creek Drive South Denver, Colorado 80246	C3
	Corey Odell	Sustainability Learning and Development Coordinator	Odell Brewing Company	2019-04-26	Odell Brewing Company, 800 Lincoln Ave., Fort Collins, CO 80524	C4
	Matt Gacioch	Sustainability Ambassador	Brewers Association	2019-06-04	Cerveceria Colorado, 1635 Platte St, Denver, CO 80202, United States	C5
	Carole Cochran	Owner	Horse & Dragon Brewery	2019-06-19	Skype Interview	C6
Iceland	Jóhann Axel Guðmundsson	Brewer	Gæðingur Öl	2019-11-11	MicroBar Kópavogi, Nýbýlavegur 8, 200 Kópavogur	I1
	Andresj Petros	Head Brewer	Bryggjan Brugghús	2020-01-14	Bryggjan Brugghús, Grandagarður 8, 101 Reykjavík	I2
	Sigurður Snorrason	Co-founder & President	I3 Brewery	2020-01-14	I3 Brewery, Skipholt 31, 105 Reykjavík	I3
	Sigurpáll Ingibergsson	Product and Quality Manager	ÁTVR-Vínbuðin	2020-01-16	ÁTVR-Vínbuðin, Stuðlahals 2, 110 Reykjavík, Iceland	I4
	Jóhanna Fríða Dalkvist	Product Manager				I5
	Alyson Hartwig	Brewmasters Assistant	Borg Brugghús	2020-01-30	Aleppo Café, Tryggvagata 13, 101, 101 Reykjavík	I6
	Málfríður Guðný Kolbeinsdóttir	Lean Specialist and Sustainability Ambassador	Ölgerðin Egill Skallagrímsson	2020-01-30	Ölgerðin Egill Skallagrímsson, Grjóthálsi 7-11, 110 Reykjavík	I7

Interview guides were developed in order to organize the conversation to elicit responses relevant to the aim and objectives of the research (Roulston & Choi, 2018). The interview guides were developed based on a singular interview guide completed for a similar study doing a CSR comparative study between countries (Runquist, 2016). The interview guide was adapted for relevance to the topic of beer brewing. Interview questions were open-ended and organized into sections to clarify topic themes: background, brewery specific questions, relationship with policy, relationship with public, external reporting and standards, drivers, and barriers (Roulston & Choi, 2018). A standardized interview guide was used for all interviews completed with brewery companies to ensure consistency. The interview guide was edited for the completion of interviews external to breweries (Brewers Association and Sustainable Brewery Initiative in Colorado; ÁTVR-Vínbúðin in Iceland). The interview guides are available in Appendix 1, and it was provided in advance of interviews when requested.

Interviews lasted between 34 and 86 minutes. Interviews were voice recorded at the knowledge of the participant using an Evistr Digital Voice Recorder. Informed consent was received from all participants to allow the recording of the interviews (Roulston & Choi, 2018). Additionally, the researcher took detailed notes over the course of all interviews. After the interviews, the researcher manually transcribed each of them. (Note: Due to a technical issue with the voice recorder, one interview was not recorded and is therefore documented based on the notes taken during the interview.) Editing occurred in the transcriptions to eliminate side conversations that the research deemed as not relevant and to remove filler words. Quotations are presented with minimal grammar editing.

3.3 CSR Framework for Analysis

CSR allows an industry to be analyzed at all levels of the organization (Chandler, 2016). Strategic CSR is the ability of a company, to gain competitive advantage in the financial market (Chandler, 2016). By evaluating beer brewing companies from a strategic CSR perspective, the aims and objectives of the study can be laid out in a manner that allows for comprehensive analysis. To complete the strategic CSR evaluation, two tools were utilized to analyze the findings of the data, a PESTEL Analysis and a SWOT Analysis. The discussion of the results of this analysis is structured around the SDG's and GRI standards

to identify specific standards that can be adopted by companies in strengthening the sustainability aspect (Global Reporting Initiative, 2020b). The SDG's and GRI standards were aligned with the themes identified in the results to allow interpretation based on literature and established standards (Global Reporting Initiative, 2020b).

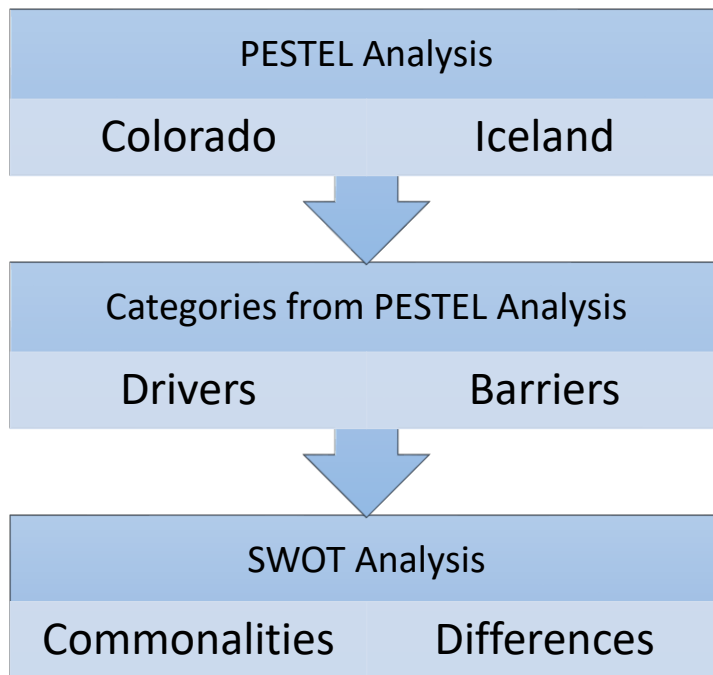


Figure 10. Flowchart of Analysis Process (Note: Graphic created by researcher)

The format of the PESTEL analysis has been previously discussed in Section 2. Long-term decision making, investment strategies, and sustainable business innovation strategies can be developed by utilizing PESTEL analysis in strategic development. The tool allows for an analysis of factors that are influencing activities in a company. The identification of forces allows for a detailed breakdown of factors that could

potentially be impacting progress and offer areas of potential correction.

SWOT analysis is another analytical tool that allows for the identification of internal strengths and weaknesses (Chandler, 2016). Opportunities and threats of external origin that impact companies are also identified in a SWOT analysis (Chandler, 2016). The SWOT analysis allows for the alignment of strengths and opportunities prevalent in the industry while also demonstrating weaknesses and threats (Chandler, 2016). Utilizing the information from the PESTEL analysis allows for elements to be organized within the SWOT structure. The SWOT analysis is presented in the discussion of this research.

The SWOT and PESTEL analysis tools have been determined in previous studies to work together in the identification of key issues and assist in effective strategic planning within companies (Mullerbeck, 2015). Each of these tools were utilized to analyze each of the

two case studies from Colorado and Iceland and allowed for the analysis of overall themes identified from the studies. They were used to analyze commonalities and differences between the two geographical case studies as well, see figure 10. The use of the GRI standards identified key issues that currently exist within the beer brewing companies (Global Reporting Initiative, 2020a). Each specific GRI Standard was linked to one of the SDG's and identify the specific areas that are neglected in current management concepts as they relate to CSR (Global Reporting Initiative, 2020b).

3.4 Ethical Concerns

Minimal initial ethical concerns were identified over the course of the study as all interviewees gave their informed consent. One identified concern was the use of some contacts previously known to the researcher in order to obtain access to companies. One of the interviewees in Colorado and one interviewee in Iceland were known to the researcher prior to the completion of their interviews. This prior knowledge did not impact the content of the interviews and was beneficial in establishing further contacts. Ethical concerns regarding the use of data from the companies were clarified with participants by assuring them that the study was looking at overall themes from the two case studies and was not a critique of companies' business practices. Informed verbal consent was received from all participants for the use of their names for direct quotations that are found in Section 4. Interviewees will remain identified, however, the significant change in the industry caused by the COVID-19 pandemic and the potential change in the financial situation of some of the companies created an ethical concern regarding identification. Based on the research being structured with the intent to identify interviewees the choice was made to limit public access to the thesis for a period of three years from the date of completion. The period of three years will allow for stabilization within the industry and the ability to clarify concerns with increased knowledge of the situation.

4 Results

The results from the semi-structured interviews are presented in this section. The interviews were transcribed and sorted into identifiable themes through the use of PESTEL analysis tool. The outcome of the PESTEL analysis is presented in Appendix 2. The PESTEL analysis was used to categorize statements of the interviewees into both positive and negative categories for each case study. Each topic addressed was placed into one of the PESTEL categories and serves as a reference point in organizing the results. The PESTEL analysis allowed for presentation of the results by presenting commonalities between the case studies and identification of which themes were most often addressed. The interviewees are identified by a coding system identified in Table 3.

4.1 Analysis of interviews contents

The themes are generated based on redundancy in answers from the interviews. Figure 11 outlines the four main themes of the interviews: CSR and reporting, drivers, barriers, and sustainable action. The main themes are sub-categorized and are discussed in detail under each of the main themes in sub-sections 4.1.1 through 4.1.4. Themes are presented in this order to first identify commonalities in language, such as CSR and adjacent terminology, and then address the influences that impacted responses, such as limited reporting requirements. Specific themes of the interviewees are then presented regarding drivers, barriers, and current action.

CSR & Reporting	Drivers	Barriers	Sustainable Action
<ul style="list-style-type: none">• CSR and adjacent terminology• Limited reporting• Transparency and greenwashing	<ul style="list-style-type: none">• Ethical Desire• Savings and profit• Regulation• Brand recognition and competition• Social pressure	<ul style="list-style-type: none">• Cost and ROI• Time• Education• Infrastructure• Regulation and reporting• Society and willingness to pay	<ul style="list-style-type: none">• Financial growth• Environmental protection• Community involvement

Figure 11. Themes coded from interviews

Table 5 presents the SWOT analysis that was completed in the research (Tang, Huanh, Ma & Li, 2018; Kamran & Fazal, 2020). It is discussed in detail in Section 5.3.

Table 5. SWOT Analysis of Interview Responses

Strengths: <ul style="list-style-type: none"> • Industry based on passion • Inherent drive towards sustainability • Collaborative industry and limited competition • Societal drive • Access to innovation 	Weaknesses: <ul style="list-style-type: none"> • Cost of innovation and development • Time to Implement • Limited education and knowledge • Infrastructure limitations
Opportunities: <ul style="list-style-type: none"> • Collaboration and team support • “Branding” and competition • Cost reduction and long-term sustainability • Community integration 	Threats: <ul style="list-style-type: none"> • Willingness to pay • No regulatory motivation • Lack of supply chain control • High risk action • Legal constraints

4.1.1 CSR and Reporting

This section will focus on the theme of CSR and reporting, including the use of CSR and adjacent terminology used by the interviewees, limited reporting requirements, and transparency and greenwashing as identified by the interviewees. Questions were posed to understand what management concepts are used and whether external reporting was utilized by the companies. ÁTVR-Vínbúðin and one brewery in Iceland are the only companies who stated they were involved with CSR. ÁTVR-Vínbúðin stated that as the only company legally allowed to sell retail alcohol they were subject to strict regulation due to the harm associated with their product. Meanwhile, the brewery in Iceland who participates with CSR voluntarily chose to sign a climate change declaration from City of Reykjavík and Festa, together with 103 other companies, but FESTA is a non-profit based in Reykjavík focusing on corporate sustainability (Festa – Center for Sustainability, n.d.). A common factor in these two companies is that they represented the largest companies that were interviewed in either case study.

There is one thing that we have different [from] all other companies in Iceland, it is in regulation, we must work with CSR... we are the only company in Iceland [that] has to do it... it was put into the regulation in 2011. It is because of what we are selling it is not good for public health that is why we have to work very closely [with CSR] (I4).

Outside of these two companies, no formalized management concepts were cited by breweries in either Colorado or Iceland, however, extensive references were made to sustainability as a concept used in management of the brewery, with one reference made to triple point (incorporating economic, environmental, and societal concerns into their business plan), one reference to evergreen companies, and two references to triple bottom. Upon further explanation, these concepts all addressed the economic aspect of the business, the environmental impact of the company, and the community or social aspects of their businesses. These terms together all serve to operate within same intention of CSR, but with regionally accepted terminology. This allows for comparisons between management concepts with similar focus on the same overarching goals.

We are an evergreen company, a company that wants to move forward the best way possible into perpetuity forever... sustainability is more than just saving the planet, there is a lot more that goes into it and that is why we want to bring all those pieces together (C4).

We are factoring triple bottom into our business... it is part of our foundation documents and our mission statement and it is part of the employee handbook so they see it modeled (C6).

The use of these terms does not address CSR directly but establishes an adjacent form of reference, where the main points in a CSR definition are present, leading to alignment with the thesis key concepts. One brewery in Colorado who referenced triple bottom line expanded to include all stakeholders in their definition of their management concept. Stakeholders are one of the fundamental aspects of CSR and despite not formally using CSR as their management concept the brewery acknowledged a fundamental principle.

The other one is to treat others ethically, all stakeholders, ethically... but fully half of our foundational documents are based around sustainability (C6).

All interviewees were asked if they had a requirement to participate or report information to any external reporting agencies. ÁTVR-Vínbúðin was the only company that stated they were required to participate in CSR. As stated above, this requirement stems from government regulation mandating oversight of the company based on the negative health effects associated with the product they market. The requirement to report and be accountable is mandatory in CSR in companies with over 250 employees. To assess this participation, it was stated that they report according to the GRI Reporting Standards.

We started [in] 2012 and we have GRI model...it is good to do it because then you know your business. Usually companies do only [the] financial part but we are now calculating everything, with set goals, so we can progress and it is also good pressure on ourselves because then you have set goals and you [can] tell your customers in this report when you have to reach the goals (I4).

All other interviewees stated that they were not required to report on any aspects of the business related to CSR or sustainability. All interviewees stated that their companies were required to report tax information to the government based on the sales in which they report. Specific reporting requirements regarding environmental factors is discussed in more detail throughout Sections 4.1.1-4.1.4. Participation in external reporting as it comes to business practices was limited to self-published information by the companies with no mandated reports outside of ÁTVR-Vínbúðin. In Colorado, interviewees in all breweries stated that the sustainable actions in which they participated were voluntary and did not have external auditing. Action that exceeds what is required by law is categorized as part of Strategic CSR. The voluntary choice to implement sustainable actions further supports the similarity between CSR and the management concepts currently in place in Colorado companies. This voluntary participation is highlighted by one Icelandic company.

No, we are not required... we report CSR on our website that is based on some greenhouse [gas] protocol. It is reviewed through Klappir who verifies what

you are doing is right. It actually is what it is and not just greenwashing or something (I7).

Oversight and transparency were addressed by ÁTVR-Vínbúðin, with their participation in GRI reporting and through voluntary membership of FESTA. The brewery in Iceland participating with FESTA clarified some aspects of what this participation entailed.

We have this in focus, and we work with an organization called FESTA in Reykjavík... and are one of 100 companies to set goals to 2030 to reduce emissions, and we are trying to get 40% [emission reductions] from our activities by 2030 (I4).

No other reporting schemes in this topic area were referenced in the other interviews. The topic of greenwashing - the intentional misleading of stakeholders to make it appear as if actions are more environmentally friendly than they truly are (Chandler, 2017) - was addressed in four interviews. The Sustainable Brewery Initiative estimated that 75% of breweries in Colorado marketed sustainability in some form in their public persona and that more needed to demonstrate action that supported those statements. Transparency was cited in four interviews to be important to breweries in portraying a realistic view of what activities they are participating in, specifically regarding environmental action. One brewery in Colorado stated transparency as a potential economic stimulant for the company. No alternative frameworks were stated in the interviews to be providing oversight or transparency in the industry.

We do everything super environmentally friendly and you really walked the talk and were very transparent and very environmentally friendly I think that could probably help with your sales (C2).

4.1.2 Drivers for Sustainable Development

This section focuses on what the interviewees declared to be the drivers behind engagement with sustainable development in their companies, including internal drivers of ethical motivation, savings and profit. External drivers, including regulation, brand recognition, competitive advantage, and social pressure are addressed in this section. The

complete categorization of drivers, both internal and external, for both case studies is shown in Table 6. Many similarities are identified between the case studies with one additional internal driver, longevity, being spoken about in Colorado, while all other drivers match. The external drivers between the two case studies show different drivers identified by the interviewees and are discussed in more detail.

Table 6. Drivers Identified in Case Studies

	Colorado	Iceland
Internal	<ul style="list-style-type: none"> • Internal desire of owners and employees • Reduction of costs and long-term savings • Company status and branding • Marketability • Longevity • Profit • Responsibility to the world 	<ul style="list-style-type: none"> • Internal desire of owners and employees • Reduction of costs and long-term savings • Company status and branding • Marketability • Profit • Responsibility to the world
External	<ul style="list-style-type: none"> • Environmental regulations • Market competition • Access to resources and education • Consumers want to support socially-conscious companies 	<ul style="list-style-type: none"> • Requirements to externally report information • Government mandates action and compliance • EU Guidelines and international accords • Society dictating actions

The motivations of companies to pursue CSR or sustainable development and internalized ethical motivation were cited in all 12 interviews. An internalized ethical motivation to support sustainable development, from internal stakeholders ranging from front-line employees to the board and CEO, was addressed multiple times in every interview. An adoration for local nature, the desire to work for an environmentally friendly company, and a recognition of personal responsibility for the state of planet were stated as being internal motivators for action. The variety in answers regarding the ethical motivations of the interviewees and the stated motivations of their co-workers was demonstrative that personal ethics were the key factor for most participation.

I think it is a personal responsibility on behalf of the company and all our employees and the community and the owners as well. I like this industry and I want it to be a good thing for the planet not to destroy it...we personally want these changes to happen (C1).

One of those [principles] is [to] be [as] environmentally responsible as we can, you know reduce our environmental footprint as much as possible, and the other is to be a proactive member of our community too (C6).

The internal motivation towards responsible activity had minimal differences between the Colorado and Iceland cases. The size and age of companies interviewed also had no effect on how often ethical concerns were addressed, meaning the importance was universal across the interviewees, and was an essential component of a company's identity. Internal motivation was stated as being important to the interviewees even when there was no secondary benefit identifiable.

Our philosophy it is what we feel [it] is the right thing to do. Sometimes it costs us money, but I think it is worth it. There is no regulatory reason why we should do it. I do not think there is any financial benefit (I3).

In this company, social responsibility is in the DNA (I4).

One common driver behind action stated in the interviews was the well-being of employees of the company. Employees were recognized as a key stakeholder across the interviews and their well-being was important to companies according to the interviewees. Specific reference was made in one Colorado interview to the importance of affordable housing for both customers and employees of their company. The statement explains the importance of operating a company that takes a holistic approach to the community and is not focused solely on profits.

It is not just about the planet or profit it is also about our people as well. We want to sustain our coworkers and our customers as well (C4).

Our experience of this [CSR] has been good. It has showed us if we work in a sustainable or CSR way because we can see the output is good and we have

better profit and people who work here are prouder to work and we have things like equal gender and it is good to have these tools so it is good to be equal (I4).

The ethical motivation behind action was often stated to be the primary source of inspiration. The other internal driver that was regularly brought up in interviews was cost reduction and increased profit through the implementation of sustainable action. Specific actions - economic, social, and environmental - that had an impact on this topic are addressed in more detail in section 4.1.4. It was stated in all six Colorado interviews that there was a financial incentive for pursuing sustainability. The Sustainable Brewery Initiative specifically stated that sustainable environmental actions could decrease costs throughout a brewery. Reductions in energy costs such as heat, less water consumption, and more utility from raw materials were most commonly stated to be actions to save costs. Alternative sources of income such as selling spent grain, the used barley and hops, to farmers and re-purposing waste into secondary revenue sources were additionally stated as actions that some companies have utilized. Financing mechanisms such as government subsidies and clean energy financing were mentioned in one Colorado interview as a means to increase profits in a less conventional manner. Financial gains were stated by interviews to be co-benefits to pursuing sustainable development.

We look at what's the smartest way to do [things] and rarely do we try to justify with ourselves [that] this is the environmentally friendly option. We just say this is the smart way and it is as simple as that. If it is saving us money and if it's saving us all this energy I don't even care about it being environmental. Its smart. That is all that matters to me... We look at trying to save as much money as possible, some people want to reduce their carbon footprint, and I just want to reuse as many things as possible, everyone's goal is different, I am trying to save money (C2).

I think it is common in craft breweries in general because as we are starting there are a lot of competing interests, but saving money is one of the first ones, so if we are able to do things like use less water, less materials, that sort

of thing we are going to do it as long as we can still create a great product (C4).

In Iceland, only three of the six interviewees stated that financial savings and increased profit were a driver for them to pursue sustainability. The interviewees citing financial savings and profit as a driver explained that the current market in Iceland did not allow for a positive return on investment (ROI) for sustainable development action. The costs associated with the technology or changing business practices that would need to be completed were stated to be too high. The interviewees explained that in the future, when more people are demanding this change to occur, the societal drive in essence, then there would be more financial support to participate. The interviewees that acknowledged a financial incentive for action referred to cost savings, as well as potential alternative revenue sources such as profit generated from secondary products, like a beer soap produced by one brewery, as the key drivers.

Beer production...the yeast goes to pigs...It is a closed cycle but also the yeast is used in a soap that is made, a beer soap that is sold in supermarkets (I7).

I more think about how I can save money, but by doing that those choices, they usually align with environmental choices, so how can I save money using less chemicals, how can I save money by using less CO₂, all of these choices end up creating less waste and, you know, less environmental impact (I6).

External drivers for sustainable action include regulation, brand recognition and competitive advantage, and, lastly, social pressure. Regulations and laws in Colorado and Iceland drive breweries to undertake certain actions. In Colorado, the regulations were stated in the interviews to be regionally based with differentiation based on the governance in each county or city. Only one brewery in Colorado stated they were required to report CO₂ emissions. Breweries were required to report wastewater effluent rates depending on location, with one reporting they were not in the city jurisdiction and therefore not required to report them. Tax reporting, health code certification, and a business license to operate were cited in Colorado to be required.

I am required to report taxes...how much beer did I start with, how much is in my inventory, how much beer did I manufacture, and then how much beer is missing from those two things... the breweries in city limits have to show city what they are dumping down the drain, they have to have a monthly report (C2).

We do have to report our CO₂ emissions... we do have to test our wastewater monthly just to make sure what we are sending doesn't have too high of an organic load because we separate that out from the regular wastewater... but other than that environmentally not that much (C4).

One brewery declared that it is easy to get a license to produce alcohol in Iceland and stated there were limited regulations on what could be produced, meaning one license applies for multiple types of alcohol. The requirement to report taxes was the only identified driver in regard to regulation in Iceland. Alcohol production otherwise was not driven by external regulation. The ease in obtaining a license and the ability to produce multiple types of alcohol was a significant difference between the two case studies.

Even though the regulatory is strict in some ways its really easy in many other ways...for example you apply to get a license to produce alcohol and you get the license that is not a problem I think there is a 100% success rate...once your facility is cleared by the health inspector you will get a license (I3).

Alcohol sales in Iceland, unlike for production, are significantly impacted by external regulation. Regulation mandates that ÁTVR-Vínbúðin, which controls 86% of alcohol sales in Iceland, report CSR to the government, resulting in significant regulation impacting the sales of beer in Iceland. However, this statement also means that 86% of all alcohol sales are being completed through a CSR system. Interviewees in Iceland stated that outside of taproom sales, all sales went through ÁTVR-Vínbúðin, creating a single primary buyer for their products.

An identified driver towards sustainable development was participation in brewers' associations or guilds. The guilds were stated in multiple interviews in each Colorado and Iceland to advocate for changes in regulation that can create or ease rules in favor of the

breweries. The availability of these guilds, associations, and in the case of Iceland, the union, establishes a support system for breweries and encourages participation in development. This external support system is important in recognizing the social and community aspects of CSR.

The Brewers Association, they are the largest craft brewery lobbying organization in America... they are based in Colorado and lobby for federal laws. The Brewers Association does it for us so we just leave it up to them (C2).

We have Independent Craft Brewers of Iceland. It is an association of all craft brewers in Iceland and we work together to get these issues addressed (I3).

A theme that arose in five interviews, three in Colorado and two Iceland, was sustainability influencing the brand recognition of a brewery by the public. Brand recognition becomes a key component in the marketability of the brand and can be used to increase profitability and market share of the company. The need to maintain the brand image can drive the brewery to undertake publicity and marketing actions that tout participation in international agreements.

Many breweries see part of their brand tied to commitment to their community environment and sustainability is linked to that (C5).

We had already began thinking about CSR, but I think a part of why we did it was a publicity stunt at the moment, but then it of course developed and I think it is no longer PR or publicity and you can see just a lot of good came from it (I7).

Environmental friendliness was declared to be a competitive advantage in marketing a brewery. A brewery in Colorado acknowledged in their interview that despite competition and competitive advantage, breweries will share information freely. Every brewery that was interviewed in both Colorado and Iceland acknowledged the collaborative nature of the beer brewing industry, and all but one brewery stated they had collaborated with another brewery in some way in the past. Multiple breweries referenced the fact that they are open and willing, if they are not already, to work with

other breweries both in collaborative projects aimed at sustainability or with sharing their knowledge. Three breweries in Colorado referred to a brewery in Denver, which was not interviewed in the project, that is operating a government-supported recycling program that includes multiple breweries across the state.

We think it is a competitive advantage to be environmentally friendly and it is our value to have progressiveness (I7).

Lean on people already in the industry... I don't think most breweries are holding their knowledge as a competitive advantage and that's a big secret, so don't be afraid to ask other breweries or trade organizations and also if they are in the planning stage definitely build that into the business plan (C6).

The researcher asked if there was a social incentive to pursuing sustainability with the response being split evenly, six interviewees saying yes and six saying no, three from each Colorado and Iceland on each side of the issue. Responses stated that overall, there was an acknowledgement and a recognition of issues, with little drive to actually take progressive action. These responses were directly tied to willingness to pay, which will be explored in more detail in section 4.1.3.

There are 250 breweries in Denver so if you're not practicing sustainability then you don't see the same market as everyone else does, so I think that is part of the public demanding that we make changes (C1).

I think the consumer is looking more and more who are socially, environmentally, community responsible ... they want companies that are actually putting something back into the community and the longevity of everyone (C4).

Other drivers that were mentioned in one or two interviews included the ability to become a "niche" brewery, the availability of resources encouraging sustainable action, and the acquisition of environmental certificates. These topic areas offered interesting ideas but were not discussed in substantial detail.

We aren't that into certifications, we want to do the things that certifications are doing... but we don't necessarily need that label, but we do keep abreast of what requirements places like that are actually looking at for other companies so we can see where we may be falling short (C4).

4.1.3 Barriers to Sustainable Development

This section will identify what interviewees declared to be the largest barriers to sustainable development. These include internal barriers such as costs and return on investment (ROI), time and age, and access to education. External barriers such as infrastructure limitations and regulation and reporting are also identified. The complete breakdown of barriers, both internal and external, for both case studies is shown in Table 7. Barriers between Colorado and Iceland were identified to have many similarities in internal barriers with external barriers focused on environmental regulation in Colorado and market regulation in Iceland.

Table 7 - Barriers Identified in Case Studies

	Colorado	Iceland
Internal	<ul style="list-style-type: none"> • Cost • Education and knowledge • Technology cost and low ROI • Time; having short or long-term insight • Infrastructure to support desired change • Interest 	<ul style="list-style-type: none"> • Cost • Education and knowledge • Technology cost and low ROI • Brewery size and need to become profitable before other actions
External	<ul style="list-style-type: none"> • Market conditions • Inelasticity in consumer willingness to pay • No regulations mandating change • Access to technology and infrastructure limitations • Limited control over the supply chain • Sourcing of materials • Water scarcity 	<ul style="list-style-type: none"> • Governmental regulations • No environmental regulations • Alcohol cannot be advertised • High alcohol taxes • No financial incentive • People are not asking for it • Public emphasis on affordability and quality of product

The most commonly addressed barrier across the interviews was the cost of implementing sustainable solutions. All 12 interviews cited cost or unfavorable ROI as the most significant barrier to development. Breweries in both case studies explained that the capital to implement sustainable actions is often significant. One interviewee explained that often people know there is a better option to a practice, but it is too expensive to implement the more sustainable option.

Bigger projects are costlier and we are at a point where we can afford this investment but smaller breweries just don't have the capital to do so. (C1)

If it is not financially sustainable it's not sustainable, so if you have the opportunity to improve your operations over a given time horizon, improve, save money on operating costs and all that is a good business decision and meets with the moral imperatives and it helps people sleep at night. (C5)

The issues associated with cost were regularly linked to the time it takes to gain a ROI. Infrastructure was also explained as a barrier. The size and age of the brewery interviewed corresponded to the activity they were taking towards sustainability. The inability of small or newly established breweries to adapt to sustainable solutions was explained in multiple interviews. These difficulties were stated in five interviews to be a barrier for development. The explanation expanded on the idea that large scale investment was not feasible for most small breweries and their primary focus is to become fiscally sound before broadening into sustainable development. The interviewees stated that they operate on tight margins with few employees and looking at long-term ROI was not a reality for the companies.

When you are running that small of a business...on these small margins generally speaking your team is really spread thinly and doing a ton of jobs, everyone is doing a ton of jobs, so being able pick your nose up off the floor and say hey let's think about the 20 year timeline of our supply chain it just does not happen in most small breweries (C6).

If you look just in the long term you might not be able to keep the doors open that long, but if you only look in the short term you are never gonna realize the long-term benefits (C5).

When asked about what barriers that prevent the development of sustainable solutions in their breweries, education was referenced by five interviewees. In Colorado, the Sustainable Brewery Initiative and the Brewers Association both referenced to their resources and knowledge that is available to breweries in Colorado. All representatives from breweries referenced these resources during the interviews. In Iceland, lack of education regarding specific actions that can be taken was referenced in three of the interviews. The availability of a plethora of educational materials, trainings, conferences, and hands-on guidance in Colorado was a key difference in the two case studies. The three interviewees in Iceland acknowledged that these same resources are not available to them and it creates a barrier.

There is no barrier, it is just a design that has to be taken within the small brewing community and we don't know how to be sustainable without outside help...but that cost money and the small breweries are fragile at the moment (I1).

We are in Iceland water doesn't cost anything really and we tend to squander it... if we would be educated on water usage in breweries we would at least be conscious of how to use it better. (I1)

Four interviewees, one in Colorado and three in Iceland, referred to infrastructure limitations as a barrier to sustainable development. Infrastructure limitations were explained as not having the ability to access a solution due to programs not existing in the local society, not having access to technological solutions, or frameworks to support an action not existing.

The biggest barriers... cost but then after that infrastructure because not a lot of people are doing it, the infrastructure behind it isn't there, so let's say I did want to start implementing some fancier recycling program there isn't really any good recycling centers to take that from me (C2).

I think we have done most of the things that we can do easily. If you want to do something more either the technology is not available. If the technology were available, well it probably is available, but very expensive. (I3).

The most disparate answers in the interviews between Colorado and Iceland were found when it came to regulation. In Colorado, interviewees stated their primary regulatory barriers to be based around the manufacturing of beer, for example, control over what products could be produced. Instead, in Iceland, the regulatory barriers were around the sale and profit from beer. Two interviewees in Colorado declared that regulation related to what they could produce limited their production, while three breweries declared there was no requirement to report CO₂ emissions. All but one interviewee in Colorado declared there was some form of requirement regarding reporting wastewater effluent. The need to dispose of wastewater effluent serves as a barrier because it increases the cost and practices that must be implemented by the brewery. In contrast, breweries like the one in Colorado and the breweries in Iceland that have more leniency in their actions and are less regulated are able to reduce costs. Regulation is not consistent in Colorado and therefore barriers that exist in one location are not necessarily applicable to all breweries. Additionally, two interviewees cited programs in Colorado such as the Green Roof Initiative that mandates all buildings to have some form of air pollution mitigation (a garden, solar panels, etc.) on the roof. Initiatives such as these stimulate action but can serve as a significant barrier if the company cannot handle the financial burden.

The government is 100% in control of what I am allowed or not allowed to do...I can do whatever I want within the bounds they give me (C2).

Larger breweries have wastewater policies from the city... it only becomes an issue when you reach a certain capacity... as far as federal government policy I don't know that there are any (C1).

The lack of environmental regulations in Iceland, as it relates to the beer brewing industry, was referenced as a barrier in two interviews. Interviewees stated that because there was no requirement for companies to dispose of their wastewater effluent in a

specific manner there was no drive to be more environmentally responsible. The lack of environmental regulations is therefore a representative barrier in Iceland.

No, there is nobody recording the environmental, not even the waste...here we just dump it all... we need regulation for (environmental issues) because sometimes dumping caustic into the ocean... but there is no processing plants to care of the waste (I1).

Regulation in Iceland was declared to be a barrier by four of the five interviewees. Alcohol taxes and the inability to sell products directly to consumers were the primary regulatory restrictions that were cited as barriers. The inability to advertise alcohol products, as allowed in Colorado, was explained to be a barrier to profit maximization in Iceland.

We are being strangled by alcohol taxes... taxes are about 70% per beer (I1).

The fact that breweries can't sell beer themselves, that you can't put beer into a growler, that is the most sustainable way to take beer to go and that is illegal right now (I6).

ÁTVR-Vínbúðin referenced a barrier for them to be the regulation which limits their ability to show preference with the industry. While mostly cited as a positive thing, one is where this was a barrier to sustainable development was when they were prevented from posting about the type of packaging that has the lowest carbon footprint because it could be perceived as a preference for companies that can only afford to package their product in one type of container.

Because we have to be impartial. It was unfair because if people don't buy glass, buy aluminium, don't buy from the craft breweries, and that's a problem, we can't do that (I4) ... And we don't want to do that (I5)... even though we have a smart solution we cannot do it (I4).

All interviewees were asked what they felt were the most common social pressures facing the beer brewing industry and if they felt there was social pressure to become more sustainable or environmentally friendly. Three interviewees stated that there was

not social pressure to become more sustainable, nine stated that there was pressure from the public to become more sustainable. Of the nine interviewees that stated there was social pressure, five addressed the issue of willingness to pay. Willingness to pay was explained to be the willingness of the consumer to pay a premium or additional cost for any increase in price associated with brewing a more environmentally friendly beer. The five interviewees stated that consumers had an expectation for companies to become more sustainable and environmentally friendly, but the consumers were not willing to absorb any additional cost. This was therefore cited as a barrier to development because there is no financial incentive to pursue development if the customer will not pay for the increase in the cost of the product. The interviewees explained that a majority of the sustainable actions they could implement would come with associated costs. These costs would need to reflect in the product, but consumers are unwilling to pay that increase, meaning the business case for action is negative. Companies cannot fiscally afford to action that does not create a net return.

It is hard to get a handle on that (economic development) when there is inelasticity on consumer willingness to pay more for the products, and there is so much competition, and one-way people are trying to compete is to keep prices very low (C6).

Will the public pay more for a sustainable beer? I think there is a definite stated vs revealed preference as it comes to consumers in general and not just in beer... I think people are willing to say they want sustainability a lot more than they are willing to pay for it. But I think there is a growing consumer base that makes sustainability a priority (C5).

4.1.4 The State of Sustainable Action

This section will discuss the current real actions companies declared they are engaged in with regards to sustainable development with emphasis on the themes of financial growth, environmental action, and social and community action. In looking at engagement, the SDG's were looked at as topic areas of focus for the beer brewing industry. None of the interviewees made direct reference to the SDG's throughout the interviews, but multiple projects that connect to one or more of the SDG's were

referenced. The number of interviews in which engagement was made with one of the SDG's is shown in Figure 12. SDG 4 – Quality education, SDG 9 – Industry innovation, SDG 14 – Life below water, SDG 15 – Life on land, SDG – Peace and justice, and SDG 17 – Partnerships for the goals were not addressed in any interviews. Environmentally based SDG's including SDG 6 – Clean water and SDG 13 – Climate action were the most commonly addressed goals, followed by SDG 8 – Economic growth, which corresponded to the sustainable actions taking place in companies.

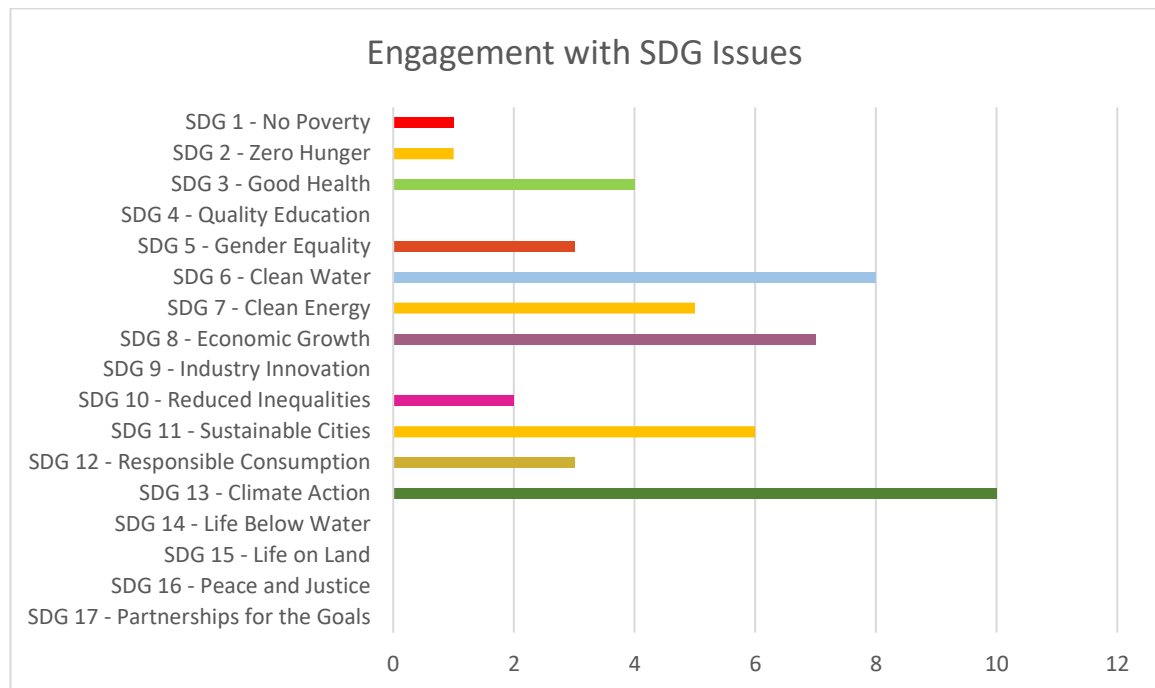


Figure 12. Engagement with Number of SDG Issues

Financial growth was addressed in every interview. The ability of companies to remain solvent from a financial perspective was referenced across all interviews. The base survival of the company was paramount to all the interviewees.

They are trying to do all the stuff in order to run business and sustainability, I think is not just in the beer industry, but for a lot of small businesses...we definitely want to get to the point where we can be sustainable, but until that we just need to succeed (C5).

Everybody has their say, generally if it is a good idea and we see a benefit from it whether it is monetary or social or its marketwise we will take the ideas (I1).

The ability of breweries to sell beer directly out of their facilities was cited by every Icelandic brewery representative interviewed as a significant barrier to development. Movement towards changing this rule was declared by one brewery as being in the advocacy phase. ÁTVR-Vínbúðin stated approval of the idea of selling alcohol directly out of the breweries but also addressed the importance of the current distribution model.

Where we make more progress is making it legal to sell beer directly out of the breweries and that may actually happen (I3).

Most of the brewers in Iceland... are worried if it would be private because they would have to send their product around Iceland, they can't just send it to one place and we transport it to everyone, they would have to do it all themselves and it is very expensive and the little ones would probably not make it through because then their product would be much more expensive than it is now (I5).

Financial investment in electricity mitigation, including technology that reduces energy use, and renewable energy sources was identified by three interviewees in Colorado as the easiest ROI in financial development. Small-scale and large-scale actions were declared in the interviews for making long-term impacts. Two breweries in Colorado have invested in solar arrays on their roofs to generate renewable energy. As part of the interview, the researcher was able to see one of the solar arrays, which can be seen in Figure 13. Both companies stated that these large investments were possible due to long-term investment and the use of government financial rebates.

Electricity is the quickest and simplest ROI, investments in lowering electricity (C6).

This past year I think I saved just by very minimal monitoring and staging production differently... I saved 4 kWh of energy per barrel which is on the order of thousands of dollars a year in electricity and pretty small changes made that happen. So imagine what big changes could do (C1).



Figure 13. Rooftop Solar Array (Photo Credit: Bradley Butzin)

Additional areas that were discussed in two interviews each were the ability of breweries to obtain tax credits, an opportunity that is available in specific regions and is currently something that is being pursued in Iceland. Financial employee incentives to change their personal transportation choices were stated to be occurring in two breweries in Colorado. These external financial sources have the ability to incentivize action towards sustainable development and represent a driver that could be expanded on in the future.

There is a provision in the European Union to give small manufacturers up to a 50% discount on the alcohol tax... it is not in Iceland or Sweden... that is something we are trying to get going. (I3)

We encouraged all of staff to carbon neutral their back and forth to work... and staff chose to do so... and then in the last year, I have seen changes that people here and the people who make decisions here have started to make decisions, not just based on cost, but also related to the environment. (I7)

The actions being taken towards environmental sustainability by breweries represented a majority of what was discussed over the course of the interviews. All interviewees acknowledged some form of program aimed at reducing the environmental impact of the company. Changes in energy usage, as explained earlier, demonstrated significant areas for capital savings. Energy consumption was addressed by all breweries in Colorado and in three interviews in Iceland. The prevalence of renewable energy in Iceland was acknowledged by three Icelandic breweries as an ingrained benefit to operating in Iceland. Hot geothermal water, available in Iceland, was also acknowledged to have expanded usage in Iceland compared to Colorado with alternative uses like heating the parking lot at ÁTVR-Vínbúðin. The access to plentiful renewable energy and hot geothermal water is a key element that increases the positive/negative environmental impact of beer brewing in Iceland. In contrast, interviewees in Colorado stated that solutions like monitoring energy usage and trying to reduce energy consumption were the most practical options.

Start small, turn the lights off, turn the heat off when you're not there. If you have the money, invest in automated heating and cooling systems that you can set and walk away from... If you can't recycle repurpose it. We used our grain bags as trash bags for a while... start small and work your way up and once you start seeing cost savings from reducing utilities. (C1).

In Iceland we use renewable energy, the energy we have, we use electricity and hot water, both are what you would call renewable, they come from sources that are plentiful in Iceland, so that is definitely something we benefit from (I3).

All interviews in Colorado acknowledged clean water and water scarcity as an issue, while only two interviews in Iceland addressed water. Despite acknowledgement of water being an issue in Colorado, the only solution presented was the use of technology aimed at retaining heat and hot water. The dumping of wastewater effluent in Colorado was monitored in all but one brewery, whereas in Iceland no specific regulations were cited for wastewater effluent, with three breweries stating it was disposed of into the regular drainage system with no prior treatment to mitigate environmental harm.

Colorado is losing water sources...you can implement things to minimize water loss. I think that is the most important thing (C1).

My current focus is on water even though, economically, it is currently not a threat to production, it is by far our cheapest material but we are brewing in a very arid, traditionally arid, environment (C6).

Waste and recycling were cited in all interviews as an area where action is being taking to reduce environmental harm. From composting, to reusing materials, to collaborative recycling programs spanning multiple breweries, solutions regarding waste were the most commonly addressed activity currently occurring in breweries. Reusing spent grain as feed for livestock was cited in nine of twelve interviews. Composting was addressed in three interviews in Colorado and one interview in Iceland. Recycling in some form was referenced in every brewery interview. Recycling as a sustainable action therefore can be representative of an entryway into sustainable development because it is the solution most frequently cited by interviewees.

Waste is a big deal...waste is easy to manage and people choose not to manage it... we reuse all of grain so none of that is sitting in a landfill, we recycle everything we possibly can, we are composting all food, anything that comes in or out of our tap rooms is compostable or recyclable... we mandated all of our food trucks to use compostable materials only when they are at our taproom (C1).

If there was an overall push to reuse materials it could reduce footprint and cost as well. If you weren't having to bring in new glass or paper or things like that, and it is something multiple breweries could get into together if they are using the same materials (C4).

The supply chain and the sourcing of materials as it relates to sustainability was addressed briefly in five interviews. It was explained in one Colorado interview that sourcing raw materials locally may reduce the carbon footprint by as much as ten times their current levels. The caveat to this as explained in two interviews is that the companies must have the ability and the regional capability to produce raw materials,

specifically barley and hops. Brewers that were interviewed acknowledged the importance of purchasing local ingredients, which two interviewees say is done as much as possible, but none explained other sustainable solutions. ÁTVR-Vínbúðin was the only company that acknowledged any pressure over the supply chain of their products. As the largest company interviewed and the monopoly of sales in Iceland, the ability to exert influence over their supply chain is not representative of the experiences of other interviewees.

We try to use locally sourced materials as much as possible but unfortunately Colorado isn't the best growing region for hops or barley but we do purchase some that is grown locally in Colorado (C4).

Yes [we look into the supply chain]. We have also a program system to do risk assessment in supply countries (I4)... And every year we ask our suppliers something about environmental responsibility so they know we are looking at this (I5).

Packaging was addressed as an environmental concern in two Colorado interviews and two Icelandic interviews. In Colorado concerns about packaging were related to access to recycling facilities. ÁTVR-Vínbúðin completed a life-cycle assessment (LCA) on the carbon footprint of the different types of alcohol packing options (Figure 14). The LCA determined that aluminium is the best option for the packaging of beer products. ÁTVR-Vínbúðin stated that to the best of their ability they are encouraging breweries to use aluminium in order to minimize the impact of packaging. ÁTVR-Vínbúðin stated a recognition of the inability of smaller companies to afford aluminium canning machines and their inability to specifically promote one form of packaging over another. The level of influence ÁTVR-Vínbúðin can exert on breweries serves as both a barrier and a driver for breweries.

We have started weighing the bottles, both wine and beer, because we want to have it light because it is better for the environment (I5).

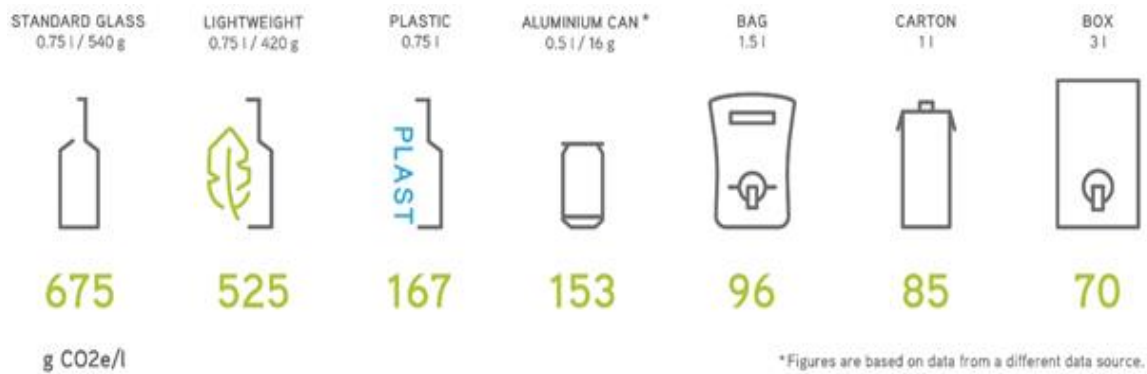


Figure 14. Carbon Cost of Alcohol Packaging (Grétarsdóttir, 2019).

We have to minimize the carbon footprint.... we sell 22.6 million litres of beer last year (2019) it was about 60 million gross beer most of what we are selling is beer and the good thing is that 87,4% is aluminium. 13% is glass, so it is very good because the glass has a four times bigger footprint than aluminium (14).

The distribution system for beer in Colorado was stated to vary based on the size of the brewery, with all breweries handling local distribution and using distributors for anything outside their home jurisdiction. Distribution of beer in Iceland is handled by ÁTVR-Vínbúðin, which has set goals to reduce the impact of its distribution fleet by 2030. Reykjavík Brewing Company stated that for local distribution they purchased a bike for deliveries, but the system was not reliable. Odells Brewing Company and Ölgerðin Egills both installed charging stations for electric cars at their facilities. An example of this can be seen in Figure 15.

We are going to go with our whole fleet to electric cars and we just started off by putting 10 electric chargers outside... for our big fleet there are no electric cars that we can use to deliver the products but we are trying...hydrogen cars there so we are part of European project that is trying hydrogen cars to deliver the products (17).



Figure 15. Electric Car Charging Station (Photo Credit: Bradley Butzin)

A question was posed to all interviewees about how climate change will affect the beer brewing industry. Three people, two in Iceland and one in Colorado, stated that they do not consider climate change in their decision-making. The reasoning by one interviewee was that it is too much of a macro issue for a small company to focus on at this time and it would be a future concern. Another interviewee explained focusing on climate change was essential because beer is a luxury product, and without addressing the larger issues, the industry could fade in future times of struggle. These contrasting opinions are demonstrative that not all members of the industry agree on focus areas for development.

Climate change is a real issue and everyone can do something about it whether its small or large and we're kinda going big with it, but we definitely started small and there is always a place you can begin trying to mitigate climate change. (C1).

I think it is a responsibility of breweries to have [climate change] in mind in whatever they are doing because we are using natural products, natural resources... I think it is our responsibility to make sure first and foremost we are maintaining the longevity of our products but we have to think of that on a much larger scale (C4).

All interviewees were asked about their companies' participation with charity or actions towards community involvement and every interviewee, referred to participation with charity organizations in their communities. The charities that were mentioned were at all scales with large institutions like breast cancer research (I3) to specific fundraisers for a single child in the community (C4). Two interviewees explained that they have internal programs that encourage and sponsor individual employees in their pursuit of charity endeavors. In Colorado a common form of charitable donation that was cited was the "gift of beer" where a keg or container of beer is gifted for a fundraising or auction purpose. This form of charity was not referenced in Iceland outside on-site events.

We have an outreach coordinator and her job focuses exclusively on our connection with non-profits that we have been working with for years, we have three areas of giving, education, human resources, and environment, so we are constantly donating both product and money to organizations that we have some smaller reaches and then we have some larger one (C4).

We have done charity...participate in "Mustache March". Put up a barber's chair and have them shave for a fee and all the money goes to a cancer society (I3).

One interviewee specifically referenced advocating for sustainability as a social cause itself as both a topic of advocacy and its ability to be a support for the community.

We are planning to do sustainability September so we will brew a beer for that and proceeds will go to some sort of charity for sustainability or trail building or the national parks foundation (C1).

The health effects of alcohol were only addressed in two interviews. ÁTVR representatives discussed in detail and provided documentation explaining the purpose of the Nordic liquor monopolies to implement strict age limits and limit access to alcohol in an attempt to minimize the health effects on the public. Another interviewee in Iceland acknowledged beer to be unhealthy, but did not make any other reference to the health effects of alcohol. References to preventing drunk driving was mentioned in three interviews and is a secondary health risk. As stated above, multiple industry representatives stated they support health related causes such as breast cancer research.

We try to do fun and wholesome things, with that said, we make beer, which is also not considered maybe healthy, so we try to associate with biking and drink responsibly, we always say when we do bottles of beer we always put a label on it that says enjoy responsibly. (I3)

Overall, the social impacts of beer on the community were summarized by the Brewers Association explaining the positive potential of breweries in communities.

Craft breweries are at this point seen as a benefit to a community and for the most part they are. They try to be family friendly, dog friendly, all these things to not be kind of a taboo place, this underground dark world that only the ne'er-do-wells go to. And a part of that is sustainability in the broad sense so a lot of small breweries will do charity runs or a charity tap... something that specifically benefits something someone in their community... that is a great way to get excited about going to your neighborhood brewery... consumers get really excited about that (C5).

5 Discussion

This section will address answers to the four research questions posed in this study: (1) what drivers and barriers dictate sustainable development within beer brewing companies; (2) what external societal pressures are driving the development of sustainable brewing activities by companies; (3) how do companies within controversial industries, in this case the beer brewing industry, reconcile sustainable development with negative impacts of their industry, and what strategies do they use (CSR, etc.); and (4) what concepts and lessons can be distinguished between the Colorado beer brewing companies and the Icelandic beer brewing companies and vice versa. The discussion will examine the themes of drivers and barriers, controversial industries, the two case studies, and the future of the industry.

5.1 Discussion on Drivers and Barriers

Overall, the drivers dictating sustainable development in the beer brewing industry were identified to be consistent across Colorado and Iceland (Table 6), while significant differences were identified in the barriers (Tables 7). As explained by Jóhannsdóttir (2015), the influence exerted by drivers is unique in each industry; therefore, a visual representation of the drivers for the beer brewing industry as explained by interviewees is shown in Figure 16.

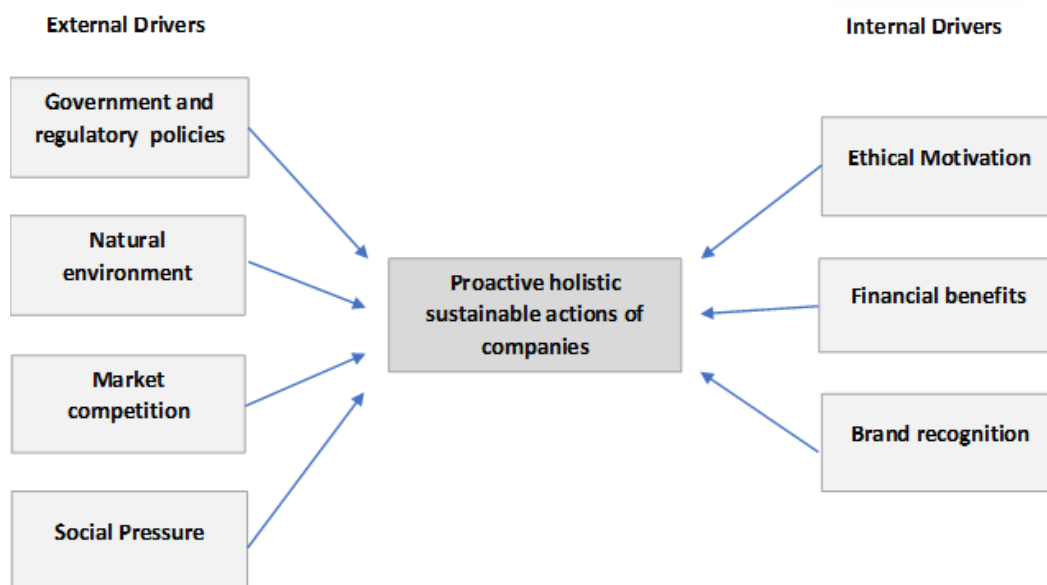


Figure 16. Proactive holistic sustainable actions of companies (Note: Created by researcher based on Jóhannsdóttir, 2015, p. 688)

The primary drivers of sustainable action were stated to be an internal ethical motivation and financial motivation. These drivers were found across all organizational stakeholders, with people in all positions declaring them as the main motivators behind action (Chandler, 2016; Alonso et. al, 2018). As supported by Khan and Rahman (2019) internal ethical motivation increased personal satisfaction in the company the interviewees worked for and served to mitigate any stigma with their employment. This could be seen when multiple interviewees referenced their satisfaction with what the breweries were doing as part of community initiatives and charity in both Colorado and Iceland. This supported research by Feeney (2017) that showed sustainable actions by companies lead to overall community benefits and support the feeling that breweries were positive members of the community. The commitment to communities aligns with the conclusions of Ditlev-Simonsen (2010), that the benefits of sustainable development go beyond only profits, a conclusion supported in the interviews.

Financial benefits and positive brand recognition are the next most common internal drivers. In contrast to the conclusions of Carrol (2015), financial benefits were not consistently recognized as the most prominent driver, and in some interviews were declared to not be a driver at all. The oversight in the direct financial benefits of sustainable development by the interviewees could be explained by a lack of education and awareness into available solutions and how they can lead to cost savings. A majority of the financial benefits discussed in the interviews were about energy savings or long-term benefits associated with technology, while many solutions mentioned in interviews with representatives of larger companies, were unknown to smaller breweries.

The impacts of external drivers were centered in four main categories: government and regulatory policies, the natural environment, market competition, and social pressure (see Figure 16). The two case studies each had unique government and regulatory policies that drove a majority of decisions. In Colorado, these regulations primarily focused on environmental regulations, whereas in Iceland they were focused on sales and distribution regulations. Based off of Chandler's Stakeholder Model (2016) (Figure 2), societal stakeholders were the primary force behind these regulatory actions, as opposed to economic stakeholders (Alonso et. al, 2018). In comparing the model by Jóhannsdóttir (2015) (Figure 3) and the model of the beer brewing industry created in

this research (Figure 16), the financial pressure was removed. This was done due to available external financial pressure being mentioned only twice in the interviews, in both instances in regard to potential financial incentives in Colorado to pursue environmental rebates. Otherwise, financial pressure was referenced as a barrier that discouraged action being taken. The social pressure for companies to become more sustainable is a driver, but was also determined to be a component in the most essential barrier to development.

A full breakdown of barriers is presented in Figure 17. Internal barriers were similar between Colorado and Iceland, with cost and ROI, education and knowledge, infrastructure limitations, and the size and age of the brewery being mentioned in the interviews. Willingness to pay and market conditions were considerations addressed in both case studies. Government and regulatory policies were discussed in both case studies, but in different contexts, while alcohol taxes and water scarcity were unique to Iceland and Colorado respectively. These items are discussed in more detail in Section 5.3. Overall, the barriers that were ascertained for the beer brewing industry were similar to the six key barriers listed by Caldera, Desh, and Daws (2019), with a lack of finances, time, knowledge, and regulations being common themes.

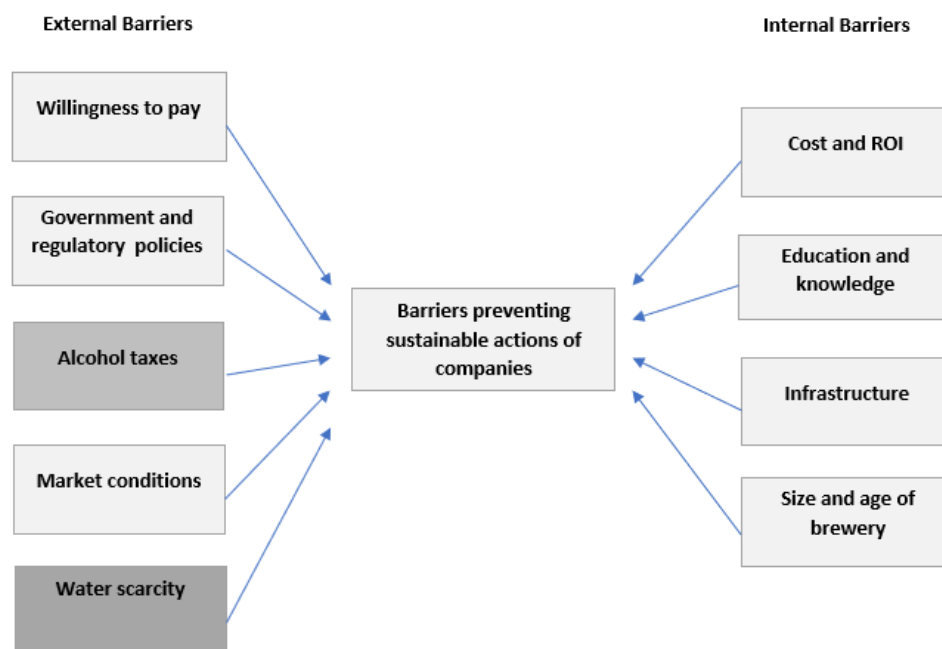


Figure 17. Barriers preventing sustainable actions of companies (Note: Created by researcher based on Jóhannsdóttir, 2015, p. 688)

The most significant finding about barriers to sustainable development in the beer brewing industry addresses the research question of how external societal pressures are driving the development of sustainable brewing activities by companies. It was a consensus across the case studies that society is moving in the direction of conscientious advancement in the areas of sustainable development. Interviewees provided examples of what the expected development will include, namely action supporting the prevention of climate change and the reduction of waste in the brewing process. These match the issues discussed by Olajire (2007) and Hospido et al. (2005) as primary areas of development. Garnett's (2007) focus on the reduction of the carbon footprint of the beer was also a theme that that was addressed by interviewees. However, despite stating this is where action is heading, interviewees also acknowledged that consumers in both case studies were unwilling to pay for any price increase in the cost of beer that might be caused by this action.

The discrepancy between society dictating action be taken on sustainable development and the unwillingness of consumers to pay for any potential price increase in the cost of beer was identified as the biggest barrier in the case studies. As explained by Dyllick and Hockerts (2002), a company must see an economic value to taking sustainable action or they cannot make a business case for adopting sustainable development. A majority of the other barriers identified in the case studies, including the cost of technology and implementing changes, limitations in access to infrastructure, and market and profit limitations, all include some form of financial burden for companies. As shown in the research of Porter and Kramer (2006; 2011) without a potential financial value increase, no increased competitive advantage to offset the costs, and without regulatory enforcement requiring change, beer breweries do not meet the conditions cited in literature to motivate companies to undertake change. Overall, external societal pressures are encouraging breweries to implement sustainable development, yet at the same time society is resistant to absorbing the financial burden to encourage change.

Another common theme identified in discussions of barriers to sustainable development in the beer brewing industry concerned the relationship with the size and age of breweries. Barriers such as education, time, and supply-chain management were often tied together by interviewees when discussing size and age. The case studies

demonstrate this trend, with multiple interviewees stating that smaller breweries would not be able to implement some solutions that are available to larger and more established breweries. The opinions of the interviewees in this research agreed with the determination by Cimini and Moresi (2018) that the carbon footprint of beer is proportional to the size of the brewery. Smaller companies have less capital to invest, and often employees have more work responsibilities, resulting in less available time and less access to information to educate themselves on the tools that might be available to them. As explained by Hrebiniak (2006) and Alharty et al. (2017), the recognition of the barriers impacting development is essential to developing solutions.

5.2 Discussion on Controversial Industries

Literature classifies the alcohol industry as a controversial industry, yet representatives interviewed in this project did not classify the industry in the same manner as Cai, Jo, and Pan (2011) and Lindorff et al. (2012). This view establishes difficulty in answering the research question of how companies within controversial industries, in this case the beer brewing industry, reconcile sustainable development with negative impacts of their industry. Both case studies revealed plentiful acknowledgement of the economic and environmental impacts of beer brewing explored by Dünnbier and Sperkova (2016), but little emphasis was made on the social impacts of the beer brewing industry, especially regarding the impacts on health shown by Whiteford et al. (2013) and Rekve (2019). In total, awareness of the controversial nature of the beer brewing industry appears limited among proprietors of breweries.

According to Dünnbier and Sperkova (2016) alcohol has a direct impact on 13 of the 17 SDGs, and therefore, a breakdown of the SDG's that were addressed in each of the two case studies (Table 8). The most commonly addressed SDG's in the interviews focused on environmental and economic topics. Engagement with the socially focused SDGs was often limited: engagement with SDG 1 – No poverty and SDG 2 – Zero hunger, addressed in one interview each; SDG 10 – Reduced inequalities, in two interviews; and SDG 3 – Good health, in four interviews (Figure 12). In addressing the social impacts of the beer brewing industry, interviewees most commonly cited engagement with charity and their local community to address this dimension of sustainability and CSR. While this corresponds with the findings of Feeney (2017), it also raises the question of how the

significant social impacts of the beer brewing industry can be further mitigated in the future (Whiteford et. al, 2013; Dünnbier & Sperkova, 2016; Rekve et al., 2019). Lindorff et al. (2012) supported embracing utilitarian theory and focusing on harm minimization and mitigation of the impacts of alcohol consumption.

Table 8. SDGs addressed in each case study based on the listed alcohol impacted SDG's according to Dünnbier and Sperkova. (Dünnbier & Sperkova, 2016)

<i>Alcohol Impacted SDG's</i>	<i>Colorado</i>	<i>Iceland</i>
<i>1 – No Poverty</i>	✓	
<i>2 – Zero Hunger</i>	✓	
<i>3 – Good Health</i>	✓	✓
<i>4 – Quality Education</i>		
<i>5 – Gender Equality</i>	✓	✓
<i>6 – Clean Water</i>	✓	✓
<i>8 – Economic Growth</i>	✓	✓
<i>10 – Reduced Inequalities</i>	✓	✓
<i>11 – Sustainable Cities</i>	✓	✓
<i>12 – Responsible Consumption</i>	✓	✓
<i>13 – Climate Action</i>	✓	✓
<i>16 – Peace and Justice</i>		
<i>17 – Partnerships for the Goals</i>		

Strategic CSR policies were implemented in two of the companies in the case study in Iceland, while multiple companies in Colorado incorporated similar management concepts aimed at sustainable development. Strategic CSR was the only established management concept with definable characteristics that was addressed in the case studies. As explained by Chandler (2016), Strategic CSR offers a management concept that can operate for all stakeholders in the company, while fulfilling the environmental, economic, and social dimensions of sustainable development. The use of Strategic CSR by controversial industries to mitigate their impacts is supported in the literature of Lindorff et al. (2012). To format CSR strategies in business plans, the GRI Standards can be used as a guide.

The two companies in the Iceland case study that currently utilize CSR as a management concept both use GRI Standards for the reporting of their CSR performance. As explained by Büyüközkan & Karabulut (2018), transparency and auditing are essential to the successful implementation of CSR. In the two companies using CSR in Iceland the GRI Standards provided that oversight (Global Reporting Initiative, 2020a; 2020b). The

GRI Standards align to specific SDG's and offer specific business disclosures that can be incorporated in a strategic CSR business plan to start mitigating the social impacts of alcohol. The GRI Standards are available internationally and offer specific disclosures that could be incorporated into a company of any size. Overall, the implementation of Strategic CSR in cooperation with GRI Standards was identified as the only definable long-term solution identified to have fitness for achieving sustainable development in the beer brewing industry.

5.3 Discussion on Case Studies

The case studies in each of Colorado and Iceland were demonstrative in identifying overarching elements influencing the beer brewing industry. Overall, the two case studies aligned regarding the strengths and weaknesses that exist within the industry and the internal origin elements as defined by Herman (2017) in the SWOT analysis, shown in Table 5. This alignment is mostly a result of the industry representatives that were interviewed being passionate and ingrained in their industry. The redundancy in the answers demonstrated clear understanding of the positive aspects of the industry, specifically the economic opportunity addressed in literature (Gatrell et al., 2018). Furthermore, the interviewees in both case studies supported the research of Alonso (2018) and Miller et al. (2019) that the economic gains translate into improved social conditions and environmental development. Commonalities in the two case studies were identified in the motivations of stakeholders and a knowledge about the weaknesses impacting social and environmental impacts of the industry in both countries (Hospido, Moreira & Feijoo, 2005; Garnett, 2007; Olajire, 2012; Chandler, 2016).

The external origin elements of the SWOT analysis, the opportunities and threats, as defined by Herman (2017), are where it can be determined that Colorado and Iceland do not provide for a practical solutions-based comparison. The regional differences in the functionality of the market, the regulatory structures, and the access to infrastructure were too disparate in the two case studies to compare solutions. Colorado's open sales market (State of Colorado, 2020) and the monopoly system in Iceland (ÁTVR, 2012) are too functionally different to relate potential solutions to each other. The regulatory structures identified by the interviewees were different in ways that were both positive and negative. In Colorado, a plethora of environmental regulations decreased the

negative impacts of brewing but impacted the economic opportunity. To the opposite point, limited environmental regulations and easy access to licensing in Iceland were damaging to the environment, but lowered costs and increased economic opportunity. The isolated nature of Iceland, while viewed as the start of research as a contrast to Colorado, resulted in infrastructure barriers that could not be compared. The prohibitive costs and access associated with technology and solutions for the sourcing of raw materials were not comparable. Additionally, the access to renewable energy and plentiful high-quality water in Iceland created a significant difference in prioritization between solutions in each case study.

One item that was expected to serve as a similarity between the two case studies was the impact of tourism on the beer brewing industry. As explained by Dunn and Wickham (2018), the tourism sector can have a significant impact on the industry and serve as a financial benefit for the market. This item was not addressed by any interviewees and therefore, could not be discussed. The interviewees lack of acknowledgment could support the assessment that breweries are generally focused on their local communities and not the tourism sector.

The case studies of Colorado and Iceland each contributed to the response to the research question on what concepts and lessons can be distinguished between the Colorado beer brewing companies and the Icelandic beer brewing companies and vice versa. The key element identified from the case studies was the opportunity for access to information. The Brewers Association specifically referenced a willingness to share information and collaborate with brewers across the world.

5.4 Discussion Summary and the Future of the Industry

Sustainable development in small to medium sized breweries is an ongoing process. Overall, the completion of two case studies determined that company representatives see an internal ethical drive to implement sustainable development in beer breweries. Financial benefits from cost savings and market competitiveness are supporting environmental and social action by companies. The barriers preventing action are based primarily on building a business case where the economic futures associated with implementing sustainable action balances against the market constraints on price determined by consumers. External barriers such as access to education, infrastructure

limitations, and regulatory inconsistencies further limit progress towards sustainable development in breweries.

Awareness of the controversial nature of the beer brewing industry is limited in the breweries included in the study. On a micro-scale, the issues associated with alcohol are often missed by industry representatives. The case studies determined that engagement with the issues presented in the SDG's is minimal, especially in relation to the impact alcohol has on social issues across the globe. Strategic CSR policies have the opportunity to increase awareness of the controversial nature of the industry, and through their adoption solutions can be developed. The GRI Standards offer specific metrics that companies can adopt to address the most pressing issues through a holistic approach.

The case studies in each of Colorado and Iceland were demonstrative in identifying overarching themes influencing the beer brewing industry. Commonalities in the industries were identified in the motivations of stakeholders and a knowledge about the environmental impacts of the industry in both countries. However, the case studies were demonstrative in showing that the two cases were not comparable. The regional differences in the functionality of the market, the regulatory structures, and the access to infrastructure, are too disparate to make a cohesive comparison for practical purposes. However, identifiable lessons could be gathered from each case study that could impact each country.

The future of the brewing industry is currently in a state of flux due to the COVID-19 pandemic. Since the completion of the interviews, one of the companies in Iceland that had a representative participate in the research has closed due to the impact of the pandemic. In Colorado, while brewery taprooms were forced to close or limit access to taprooms, they were legally able to remain open for direct external sale of beer to consumers during the pandemic (Brewers Association, 2020a; Fallows, 2020). The Brewers Association also provided frequent guidance to breweries on how to adapt to changing COVID-19 rules and regulations across the United States (Brewers Association, 2020a). Meanwhile in Iceland, taprooms in Iceland were required to close, and while they were still able to distribute through ÁTVR-Vínbúðin, closure of the taprooms limited a significant source of income for them (O'Donnell, 2020). Actions such as a proposed law permitting online beer sales in Iceland are still pending (O'Donnell, 2020). These

circumstances demonstrate the positive and negative aspects of the state of the beer brewing industry. Regulatory constraints on the sale of alcohol in Iceland are limiting the possibility of innovative solutions to combat the limitations brought on by the pandemic. However, as seen in the SWOT analysis, the industry is generally collaborative and comes together in their support for one another. Solutions are being proposed to combat the negative impacts on the pandemic on the industry in both Colorado and Iceland.

The SWOT analysis demonstrated some of the greatest strengths within the beer brewing industry. Interviewees were clear in their declaration that beer brewing is a passion industry with stakeholders who have an inherent awareness of the need for sustainable development. As explained by Chandler (2016), Strategic CSR allows for companies and industry to adapt in constantly shifting circumstances with competitive advantage. A future incorporating Strategic CSR presents the possibility for the industry to increase its resiliency in the future to global crises like COVID-19, build a viable future in a world of economic uncertainty, and work towards the minimization of harm caused by the social and environmental impacts of beer.

6 Conclusion

This research contributes to the study of CSR in small to medium sized, non-industrial, companies. The case studies reveal the drivers and barriers that are affecting the development of sustainable solutions in the beer brewing companies in each Colorado and Iceland. The research specifically highlights the lack of external financial pressure to implement CSR or sustainable development by beer brewing companies. The study contributes to the discussion regarding the issue that exists between external social pressure for sustainable development and the willingness to pay for products by consumers for that action. The findings suggest how the CSR is presented within the two cases analyzed and that sustainable development is a goal limited by practical realities and not motivation. The research further contributes to the study of the discourse that exists between controversial industries and their impact in the world. The research compares the internal recognition by companies of their impact on the SDG's versus what evidence says is their impact. The case studies contribute information on how companies manage their impacts across the environmental and social dimensions of sustainability and the inconsistencies that can be found in chosen actions.

The practical implication of the study creates the opportunity for barriers to be dissected and resolved at a manageable scale. For employees within the industry, this research presents some practical perspectives of what strategies have been successfully implemented by companies to achieve sustainable development goals such a focus on reducing energy costs with small changes, finding secondary uses for waste such as cardboard and spent grain, and collaboratively advocating for regulatory changes. The information could be used to support companies that are able and willing to try offsetting their net negatives with proactive, positive development.

This research was based on qualitative research methods that are susceptible to bias on the part of the researcher. Additionally, respondents to interview requests were primarily people who already demonstrated a preexisting knowledge of sustainability, which creates a potential participant bias. A key limitation in the research was the ability to recruit interviewees for the research, with multiple requests receiving no response in both case studies. In order to maximize the amount of perspectives received, all respondents who agreed to participate were interviewed, resulting in a total of 12

interviews, nine with brewery companies and three with external participants. This sample is, therefore not a thorough representation of the industry, but is sufficient to demonstrate differences between the two cases selected. The scope of the research was limited based on these factors and presents a limited picture of the industry as a whole. Another limitation of the research was the lack of formal reporting of information in the industry, requiring data to be based mostly on triangulation from the interviews. The lack of formal reporting also required the researcher to connect the interviews to the SDG's and GRI Framework through interpretation and conjecture based on the interviews rather than through documented evidence. An unforeseen weakness present in the research results from the period during which it was completed, as the extensive disruption to the brewing industry that has occurred as a result of the COVID-19 pandemic could not have been foreseen. Between the period in which interviews were completed and the completion of the research the world economy has changed significantly, resulting in vastly different and turbulent economic circumstances, including the closure of one of the breweries that participated. However, this does present a future opportunity for research into the direct effects of the COVID-19 pandemic on the beer brewing industry. Future research could expand on the work presented in this research by growing the scope and scale of the study. Research could expand both in volume, increasing the number of interviews, and interviewees - and with avenues that incorporate more external stakeholders, such as completing public surveys or supply chain interviews, into the research process. In order to further understand the impact of CSR in the beer brewing industry, more breweries, likely macro- or corporate breweries with formal CSR plans and reporting schemes, could be evaluated to analyze strategy and implementation. Furthermore, case studies of programs aimed towards the implementation of social and environmental development by breweries should be completed to understand the feasibility and strategy required to develop growth in these areas. The beer brewing industry is a collaborative industry full of dedicated and passionate individuals. The dedication to product quality can be translated into a productive and positive path towards sustainable development that offsets the negative effects of beer consumption. This research presents a step in understanding the growth potential of harm minimization for a controversial industry, in this case the beer brewing industry.

References

- Achinas, S., Horjus, J., Achinas, V., & Euverink, G.J.W. (2019). A PESTLE analysis of biofuels energy industry in Europe. *Sustainability (Switzerland)*, 11(21), Sustainability (Switzerland), 1 November 2019, Vol.11(21).
- Alharthy, A. H., Rashid, H., Pagliari, R., & Khan, F. (2017). Identification of strategy implementation influencing factors and their effects on the performance.
- Alonso, A. D., Sakellarios, N., Alexander, N., & O'Brien, S. (2018). Corporate social responsibility in a burgeoning industry: a stakeholder analysis. *Journal of Strategy and Management*.
- Alþingi. (2018, January). 75/1998: Áfengislög.
<https://www.althingi.is/lagas/148a/1998075.html>
- Amienyo, D., & Azapagic, A. (2016). Life cycle environmental impacts and costs of beer production and consumption in the UK. *The International Journal of Life Cycle Assessment*, 21(4), 492-509.
<https://link.springer.com/article/10.1007/s11367-016-1028-6>
- Aqueveque, C., Rodrigo, P., Duran, I.J. Be bad but (still) look good: Can controversial industries enhance corporate reputation through CSR initiatives? *Business Ethics: A Eur Rev.* 2018; 27: 222– 237. <https://doi.org/10.1111/beer.12183>
- ÁTVR. (2012). The Nordic Way Alcohol Retail Monopolies in the Faroe Islands, Finland, Iceland, Norway and Sweden.
https://www.vinbudin.is/english/Portaldata/1/Resources/samfelagsleg/Nordic_way_eng.pdf
- ÁTVR. (2019a). ÁTVR's climate goals. ÁTVR's Climate Goals - Vínbúðin.
https://www.vinbudin.is/english/home/um_atvr/samfelagsabyrgd-og-umhverfi/tabid-2301/atvr-climate-goals.aspx
- ÁTVR. (2019b). Role and policies - Vínbúðin. ÁTVR - Vínbúðin.
https://www.vinbudin.is/english/home/um_atvr/tabid-2400/role-and-policies
- Babbie, E. R. (2015). *The Practice of Social Research - Standalone Book* (14th ed.). Cengage Learning.

- Babor, T., & Robaina, K. (2013). Public health, academic medicine, and the alcohol industry's corporate social responsibility activities. *American Journal of Public Health*, 103(2), 206-214.
- Bexell, M., & Jönsson, K. (2017). Responsibility and the United Nations' Sustainable Development Goals. *Forum for Development Studies: A Changing Global Development Agenda?* 44(1), 13-29.
- Blowfield, M., & Murray, A. (2014). *Corporate responsibility*. (Third ed.).
- Brewers Association. Craft Brewer Definition. (2019a).
<https://www.brewersassociation.org/statistics-and-data/craft-brewer-definition/>
- Brewers Association. Craft Beer Industry Market Segments. (2019b).
<https://www.brewersassociation.org/statistics-and-data/craft-beer-industry-market-segments/>
- Brewers Association. (2020a). COVID-19 Resource Center.
<https://www.brewersassociation.org/brewing-industry-updates/covid-19-resource-center/>
- Brewers Association. National Beer Sales & Production Data. (2020b).
<https://www.brewersassociation.org/statistics-and-data/national-beer-stats/>
- Brewers Association. State Craft Beer Sales & Production Statistics, 2019. (2020c).
<https://www.brewersassociation.org/statistics-and-data/state-craft-beer-stats/?state=CO>
- Büyüközkan, G., & Karabulut, Y. (2018). Sustainability performance evaluation: Literature review and future directions. *Journal of Environmental Management*, 217, 253–267. <https://doi.org/10.1016/J.JENVMAN.2018.03.064>
- Byrne, E. (2011). Business Ethics Should Study Illicit Businesses: To Advance Respect for Human Rights. *Journal of Business Ethics*, 103(4), 497-509.
- Cai, Y., Jo, H., & Pan, C. (2012). Doing Well While Doing Bad? CSR in Controversial Industry Sectors. *Journal of Business Ethics*, 108(4), 467-480
- Caldera, H., Desha, C., & Dawes, L. (2019). Evaluating the enablers and barriers for successful implementation of sustainable business practice in 'lean' SMEs. *Journal of Cleaner Production*, 218, 575-590.

- Carroll, A. B. (2015). Corporate social responsibility (CSR) is on a sustainable trajectory. *Journal of Defense Management*, 5(2), 1-2.
- CDC. (2019, December 30). Excessive Drinking is Draining the U.S. Economy. Centers for Disease Control & Prevention. <https://www.cdc.gov/alcohol/features/excessive-drinking.html>
- Chandler, D. (2016). *Strategic Corporate Social Responsibility: Sustainable Value Creation* (4th ed.). SAGE Publications, Inc.
- Cimini, A., & Moresi, M. (2018a). Are the present standard methods effectively useful to mitigate the environmental impact of the 99% EU food and drink enterprises? *Trends in Food Science and Technology*. Elsevier Ltd.
<https://doi.org/10.1016/j.tifs.2018.05.005>
- Cimini, A., & Moresi, M. (2018b). Effect of Brewery Size on the Main Process Parameters and Cradle-to-Grave Carbon Footprint of Lager Beer. *Journal of Industrial Ecology*, 22(5), 1139–1155. <https://doi.org/10.1111/jiec.12642>
- Clifford, N., Cope, M., Gillespie, T., & French, S. (Eds.). (2016). *Key Methods in Geography* (3rd ed.). London: Sage Publications Ltd.
- Colen, L., & Swinnen, J. (2016). Economic growth, globalisation and beer consumption. *Journal of Agricultural Economics*, 67(1), 186-207.
- Colorado Brewery Map & List. (2020). Colorado Brewery List.
<https://www.coloradobrewerylist.com/brewery/>
- Corporate Social Responsibility & Responsible Business Conduct. (2017, June 28). Internal Market, Industry, Entrepreneurship and SMEs - European Commission.
https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en.
- de Wit, G. A., van Gils, P. F., Over, E. A. B., Suijkerbuijk, A. W. M., Lokkerbol, J., Smit, F., ... & de Kinderen, R. J. A. (2019). Social cost-benefit analysis of regulatory policies to reduce alcohol use in The Netherlands. *European Journal of Public Health*, 29(Supplement_4), ckz185-794.
- Ditlev-Simonsen, C. (2010). From corporate social responsibility awareness to action? *Social Responsibility Journal*, 6(3), 452-468.

- Dunn, A., & Wickham, M. (2016). Craft brewery tourism best-practices: A research agenda. *Annals of Tourism Research*, 56, 140–142.
<https://doi.org/10.1016/j.annals.2015.10.009>
- Dünnbier, M., & Sperkova, K. (Eds.). (2016, July). Alcohol and the Sustainable Development Goals: Major obstacle to development [Editorial]. IOGT International.
- Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business strategy and the environment*, 11(2), 130-141.
- Epstein, M. J., & Buhovac, A. R. (2010). Solving the sustainability implementation challenge. *Organizational Dynamics*, 39(4), 306–315.
<https://doi.org/10.1016/J.ORGADYN.2010.07.003>
- European Parliament. (2015, August 29). Texts adopted - Alcohol strategy - Wednesday, 29 April 2015. © European Union, 2015 - Source: European Parliament.
https://www.europarl.europa.eu/doceo/document/TA-8-2015-0174_EN.html
- Fallows, J. (2020, August 11). How a Small Brewery Can Survive COVID-19. *The Atlantic*.
<https://www.theatlantic.com/notes/2020/08/how-some-small-business-are-surviving-covid-19/614833/>
- Feeney, A. E. (2017). Cultural heritage, sustainable development, and the impacts of craft breweries in Pennsylvania. *City, Culture and Society*, 9, 21–30.
<https://doi.org/10.1016/J.CCS.2017.03.001>
- Festa – Center for Sustainability. (n.d.). Retrieved October 15, 2020, from
<https://samfelagsabyrgd.is/en/about/>
- Garnett, T. (2007). The alcohol we drink and its contribution to the UK's Greenhouse Gas Emissions: a discussion paper. Centre for Environmental Strategy, University of Surrey, UK.
- Gatrell, J., Reid, N., & Steiger, T. (2018). Branding spaces: Place, region, sustainability and the American craft beer industry. *Applied Geography*, 90(C), 360-370.
<https://www.sciencedirect.com/science/article/pii/S0143622816301977>
- Gjørlberg, M. (2009). Measuring the immeasurable?: Constructing an index of CSR practices and CSR performance in 20 countries. *Scandinavian journal of management*, 25(1), 10-22.

- Global Reporting Initiative. (2020a). Consolidated Set of GRI Sustainability Reporting Standards 2020. Stichting Global Reporting Initiative.
<https://www.globalreporting.org/media/wwwvkhymd/gri-standards-consolidated-2020.pdf?g=1f012deb-9693-4b32-a9c2-890d8e609725>
- Global Reporting Initiative. (2020b). Linking the SDGs and the GRI Standards.
<https://www.globalreporting.org/public-policy-partnerships/sustainable-development/integrating-sdgs-into-sustainability-reporting/>
- Grétarsdóttir, J. (n.d.). Weight of packaging. ÁTVR - Vínbúðin.
https://www.vinbudin.is/english/home/um_atvr/samfelagsabyrgd-og-umhverfi/tabid-2388/weight-of-packaging.aspx
- Heim | Skemman. (2020). Skemman. <https://skemman.is/>
- Herman, M. (2017, May 25). Creating a Personal SWOT Analysis. Executive Secretary.
<https://executivesecretary.com/creating-a-personal-swot-analysis/>
- Herold, D., Manwa, F., Sen, S., & Wilde, S. (2017). It's the yeast we can do: Untapping Sustainability Trends in Australian Craft Breweries. *Journal of Asia Entrepreneurship and Sustainability*, 13(3), 58-73.
- Hoffman, A. J. (2010). Climate change as a cultural and behavioral issue: Addressing barriers and implementing solutions. *Organizational Dynamics*, 39(4), 295–305.
<https://doi.org/10.1016/j.orgdyn.2010.07.005>
- Hospido, A., Moreira, M. T., & Feijoo, G. (2005). Environmental analysis of beer production. *International journal of agricultural resources, governance and ecology*, 4(2), 152-162.
- Hrebiniak, L. (2006). Obstacles to Effective Strategy Implementation. *Organizational Dynamics*, 35(1), 12-31.
- Issa, T., Chang, V., & Issa, T. (2010). Sustainable business strategies and PESTEL framework. *GSTF International Journal on Computing*, 1(1), 73-80.
- Johannsdottir, L. (2015). Drives of proactive environmental actions of small, medium and large Nordic non-life insurance companies—and insurers as a driving force of actions. *Journal of Cleaner Production*, 108, 685-698.
- Kamran, M., Fazal, & Mudassar. (2020). Towards empowerment of the renewable energy sector in Pakistan for sustainable energy evolution: SWOT analysis. *Renewable Energy*, 146, 543-558.

- Khan, I., & Rahman, Z. (2019). Striving for legitimacy through CSR: An exploration of employees responses in controversial industry sector. *Social Responsibility Journal*, 15(7), 924-938.
- Kleban, J., & Nickerson, I. (2011). *The U.S. Craft Brew Industry*. Arden: Jordan Whitney Enterprises, Inc. Retrieved from <https://search.proquest.com/docview/877874025?accountid=28822>
- Klettner, A., Clarke, T. and Boersma, M. (2014) 'The governance of corporate sustainability: Empirical insights into the development, leadership and implementation of responsible business strategy', *Journal of Business Ethics*, 122 (1), 145–165.
- Kwon, H. (2017). Implications of the Sustainable Development Goals for global social policy. *Global Social Policy*, 17(2), 206-209.
- Lindorff, M., Prior Jonson, E. & McGuire, L. Strategic Corporate Social Responsibility in Controversial Industry Sectors: The Social Value of Harm Minimisation. *J Bus Ethics* 110, 457–467 (2012). <https://doi.org/10.1007/s10551-012-1493-1>
- Lozano, R. (2015). A holistic perspective on corporate sustainability drivers. *Corporate Social Responsibility and Environmental Management*, 22(1), 32-44.
- Maida, J. (2020, August 26). COVID-19 Pandemic Impact on Global Home Beer Brewing Machine Market 2020-2024 | Technavio. *Businesswire*. <https://www.businesswire.com/news/home/20200826005044/en/COVID-19-Pandemic-Impact-on-Global-Home-Beer-Brewing-Machine-Market-2020-2024-Technavio>
- Milburn, T., & Guertin-Martín, F. (2019). Tapping into Environmental Harm in Brewing: An Exploration of Pollution and Waste in Beer Production. *Critical Criminology*, 1-17. <https://link.springer.com/article/10.1007/s10612-019-09465-5>
- Miller, S. R., Sirrine, J. R., McFarland, A., Howard, P. H., & Malone, T. (2019). Craft Beer as a Means of Economic Development: An Economic Impact Analysis of the Michigan Value Chain. *Beverages*, 5(2), 35.
- Mullerbeck, E. (2015, September). SWOT and PESTEL. Retrieved from: https://www.unicef.org/knowledge-exchange/files/SWOT_and_PESTEL_production.pdf. Retrieved April 1, 2019.

- O'Donnell, S. (2020, June 10). Half Capitalist Venture, Half Protest, Bjórland Sells Icelandic Beer Online. The Reykjavik Grapevine.
<https://grapevine.is/news/2020/06/10/half-capitalist-venture-half-protest-bjorland-sells-icelandic-beer-online/>
- OECD. (2015). Environmental Policy Toolkit for Greening SMEs in the EU Eastern Partnership countries. EaPGREEN Partnership for Environment and Growth.
<https://www.oecd.org/environment/outreach/Greening-SMEs-policy-manual-eng.pdf>
- Olajire, A. A. (2012). The brewing industry and environmental challenges. *Journal of Cleaner Production*. <https://doi.org/10.1016/J.JCLEPRO.2012.03.003>
- Ólafsdóttir, H. (2017). The controversial discourse on beer in Iceland. *Nordic Studies on Alcohol and Drugs*. Vol 29, Issue 1, pp. 25 – 40. <https://doi.org/10.2478/v10199-012-0003-1>
- Porter, M., & Kramer, M. (2006). Strategy & Society: The Link Between Competitive Advantage and Corporate Social Responsibility. *Harvard Business Review*, 84(12), 78-85,88
- Porter, M. and Kramer, M. (2011), Creating shared value: how to reinvent capitalism – and unleash a new wave of innovation and growth, *Harvard Business Review*, Vol. 89 Nos 1/2, pp. 62-77.
- Pranee, S., Phusalux, J., Sangma, W., & Wongjunya, N. (2020). Does Excessive Alcohol Consumption Increase Economic Cost? An Investigation from Thailand. *Systematic Reviews in Pharmacy*, 11(4), 88-93.
- Rekve, D., Banatvala, N., Karpati, A., Tarlton, D., Westerman, L., Sperkova, K., ... & Monteiro, M. (2019). Prioritising action on alcohol for health and development. *bmj*, 367.
- Rothan, H. A., & Byraredy, S. N. (2020). The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *Journal of autoimmunity*, 102433.
- Roulston, K. & Choi, M. (2018). Chapter 15 | Qualitative Interviews. (p. 233-249). DOI: <http://dx.doi.org/10.4135/9781526416070.n15>.
- Runquist, C. B. (2015). Corporate Social Responsibility and Renewable Energy Companies A Comparison of Practice and Policy in Energy Companies in Iceland

- and the United States. Háskóli Íslands, Reykjavík, Iceland. Retrieved from Skemman at <http://hdl.handle.net/1946/23235>.
- Scanning the Environment: PESTEL Analysis. (2018, July 10). B2U - Business-to-You.Com. <https://www.business-to-you.com/scanning-the-environment-pestel-analysis/>
- Shi, H., Peng, S., Liu, Y., & Zhong, P. (2008). Barriers to the implementation of cleaner production in Chinese SMEs: Government, industry and expert stakeholders' perspectives. *Journal of Cleaner Production*, 16(7), 842-852.
- Song, J., Sun, Y., & Jin, L. (2017). PESTEL analysis of the development of the waste-to-energy incineration industry in China. *Renewable and Sustainable Energy Reviews*, 80, 276-289.
- State of Colorado. (2020, September 30). Liquor Enforcement Laws, Rules, Regulations. Department of Revenue – Enforcement. <https://www.colorado.gov/pacific/enforcement/liquor-enforcement-laws-rules-regulations>
- Statistics Iceland. (2017, June 21). Statistics Iceland: Alcohol consumption has increased by 73% between the years 1980 and 2016. <https://www.statice.is/publications/news-archive/health/consumption-og-alcoholic-beverages/>
- Statistics Iceland. (2020). Frequency of alcohol consumption by sex, education and income. https://px.hagstofa.is/pxen/pxweb/en/Samfelag/Samfelag__heilbrigdismal__heilsufarsrannsokn__hegdun/HER01110.px
- Tang, H., Huang, W., Ma, J., & Liu, L. (2018). SWOT analysis and revelation in traditional Chinese medicine internationalization. *Chinese Medicine*, 13(1), 5.
- Thomson, E., & Bullied, A. (2020). Production of ethanol-based hand sanitizer in breweries during the COVID-19 crisis. *Technical quarterly*, 57(1), 47-52.
- Tutore, I. (2010). Key drivers of corporate green strategy. 19th EDAMBA Summer Academy, Sorèze, France, July, 21-27.
- United Nations. (2015). THE 17 GOALS | Department of Economic and Social Affairs. United Nations Department of Economic and Social Affairs. <https://sdgs.un.org/goals>

- Urso, K., & Boer, D. (2018, February). Sustainable Brewery Initiative. Colorado Department of Public Health & Environment.
https://www.colorado.gov/pacific/sites/default/files/DEHS_Sust_BrewersReport_Final_May2018.pdf
- Verčič, A., & Ćorić, D. (2018). The relationship between reputation, employer branding and corporate social responsibility. *Public Relations Review*, 44(4), 444–452.
<https://doi.org/10.1016/J.PUBREV.2018.06.005>
- Verma, P., & Singh, A. (2016). Fostering Stakeholders Trust through CSR Reporting: An Analytical Focus. *IIM Kozhikode Society & Management Review*, 5(2), 186-199.
- Water Footprint Network. (2009). Water footprinting Identifying & addressing water risks in the value chain. SAB Miller.
- What is CSR? | UNIDO. (n.d.). United Nations Industrial Development Organization.
 Retrieved September 16, 2020, from <https://www.unido.org/our-focus/advancing-economic-competitiveness/competitive-trade-capacities-and-corporate-responsibility/corporate-social-responsibility-market-integration/what-csr>
- Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., ... & Burstein, R. (2013). Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The lancet*, 382(9904), 1575-1586.
- Willaert, R. (2012). Biochemistry of Beer Fermentation. In *Food Biochemistry and Food Processing: Second Edition* (pp. 627-653). Wiley-Blackwell.
- Wilson, A., & West, C. (1981). The Marketing of 'Unmentionables'. *Harvard Business Review*, 59(1), 91.
- Zinenko, A., Rovira, M., Montiel, I., & Rosa Rovira, A. (2015). The fit of the social responsibility standard ISO 26000 within other CSR instruments Redundant or complementary? *Sustainability Accounting Management and Policy Journal*, 6(4), 498-526.

Appendix 1: – Interview Framework

Interview Guide for Breweries

BACKGROUND

1. Please explain the history of the company as it relates to sustainability. Has it been a focus since the start of the company or developed over time?
2. What is your position at the company? How long has the position existed?
3. How many people are involved with making environmental decisions? Is your role well integrated into the company or more of a side focus? Is the purpose of environmental programs trained at all levels of the company?
4. What are the most pressing environmental challenges facing your industry? What are you doing to address these issues?

BREWERY SPECIFIC QUESTIONS

5. How much of your company's activities, such as marketing, human resources, etc., are done digitally/online instead of in person? Why is this? Does it affect your CSR?
6. How much of your sales are international? How long have you been selling internationally? How does that affect your CSR? Is there a CSR element to the decision not to sell overseas?
7. Much environmental policy mentions sustainable development and utilizing resources responsibly so future generations have the same opportunities as current generations. What is the biggest challenge you face in making sure this happens?
8. How does climate change play into this future role?

RELATIONSHIP WITH POLICY

9. How much influence does government policy have over you? What is your company's relationship with government (local, regional, national)?
10. What are the most relevant government regulations that are applied to you? Are these helpful or a hindrance?
11. Do you ever work to shape governmental policy? (on what level, in what ways, specific examples)

RELATIONSHIP WITH PUBLIC

12. What are the most common pressures you face from the public (sustainability, water use, public perception)?
13. How has social media influenced how you promote and advocate for environmental sustainability?
14. How does your company stay actively involved in the community? (Charity Partners?)

EXTERNAL REPORTING AND STANDARDS

15. Are you a part of any external reporting or CSR frameworks? If so, what has your experience with framework X been?
16. How long have you been part of it?
17. Is it a helpful framework for your work?
18. Is there any other factor that affects your decisions concerning CSR?

DRIVERS

19. What motivates your company to be more environmentally friendly?
20. Do you find there to be a financial and social incentive to pursuing environmental sustainability?
21. What were your company's motivations for company specific environmental programs?
22. How successful have these programs been?
23. Do you collaborate with other similar companies?
24. Are there any other factor that affects your decisions concerning CSR?

SOLUTIONS

25. What do you view as the biggest barriers to the successful implementation of CSR or sustainability practices in the brewing industry?
26. What advice would you give to a small company looking to start implementing environmental sustainability programs?

Interview Guide for the State of Colorado Sustainable Brewery Initiative

GENERAL

1. What is your name and title? What is your background?
2. What was the genesis of the Sustainable Brewery Initiative? How did you come to be involved in the program?
3. How was the program developed and who runs the program?
4. How does the program work? Who can participate?
5. In your experience, what percentage of breweries chose to participate in the program? How does the size of the brewery impact responsiveness to the program?
6. What do you see as the biggest barriers to breweries choosing to participate in the program?
7. How do you advocate for the program and what education do you provide to encourage participation?
8. Do you believe there is a public demand for breweries to become more sustainable?
9. Are breweries required to externally report information to any organizations or government agencies? If so which?
10. What do you see as the drivers behind sustainable development within the industry?
11. What overall advice would give to breweries wanting to become more sustainable in the future?

BUSINESS

12. In your experience what type of economic benefits do breweries find in becoming more sustainable?
13. How would you describe the financial risk to implementing sustainable solutions?
14. How does brewery size impact the ability of breweries to handle the financial investment in sustainable technologies?
15. Do you see a market shift towards small businesses implementing sustainable solutions? Do you think society is dictating the need for industries to be more sustainable?

ENVIRONMENT

16. What are the most commonly identified environmental impacts caused by breweries?
17. What would you identify as the solutions most impactful in reducing the output of pollutants for breweries?
18. Are there any laws and statutes dictating the behavior of breweries in regard to pollution? What are they?
19. What areas of the brewing industry do you see having hidden environmental impacts?
20. Much environmental policy mentions sustainable development and utilizing resources responsibly so future generations have the same opportunities as current generations. What is the biggest challenge you face in making sure this happens?
21. How does climate change play into this future role?

SOLUTIONS

22. What do you view as the biggest barriers to the successful implementation of CSR or sustainability practices in the brewing industry?
23. What advice would you give to a small company looking to start implementing environmental sustainability programs?

Interview Guide for the Craft Brewery Association

GENERAL

1. What is your name and title? What is your background?
2. What was the genesis of the Brewers Association? How did you come to be involved in the program?
3. How many Breweries across the State participate in the association? What benefits come from being a member?
4. How was the association developed and who runs the program?
5. In your experience, what percentage of breweries chose to participate in the association? How does the size of the brewery impact responsiveness to the program?
6. How do you advocate for breweries and what education do you provide to encourage development within the industry? How does this support relate to sustainability?
7. Do you believe there is a public demand for breweries to become more sustainable?
8. Are breweries required to externally report information to any organizations or government agencies? If so which?
9. What do you see as the drivers behind sustainable development within the industry?
10. What overall advice would give to breweries wanting to become more sustainable in the future?

BUSINESS

11. In your experience what type of economic benefits do breweries find in becoming more sustainable?
12. How would you describe the financial risk to implementing sustainable solutions?
13. How does brewery size impact the ability of breweries to handle the financial investment in sustainable technologies?

14. Do you see a market shift towards small businesses implementing sustainable solutions? Do you think society is dictating the need for industries to be more sustainable?

ENVIRONMENT

15. What are the most commonly identified environmental impacts caused by breweries?
16. What would you identify as the solutions most impactful in reducing the output of pollutants for breweries?
17. Are there any laws and statutes dictating the behavior of breweries in regard to pollution? What are they?
18. What areas of the brewing industry do you see having hidden environmental impacts?
19. Much environmental policy mentions sustainable development and utilizing resources responsibly so future generations have the same opportunities as current generations. What is the biggest challenge you face in making sure this happens?
20. How does climate change play into this future role?

SOLUTIONS

21. What do you view as the biggest barriers to the successful implementation of CSR or sustainability practices in the brewing industry?
22. What advice would you give to a small company looking to start implementing environmental sustainability programs?

Interview Guide for ÁTVR-Vínbúðin

BACKGROUND

1. What is your position at the company? How long has the position existed?
2. Could you explain the Nordic Monopolies and how ÁTVR came into being? How was the company established and came into being?
3. Please explain the history of the company as it relates to sustainability. Has it been a focus since the start of the company or developed over time?
4. How many people are involved with making environmental decisions? Is your role well integrated into the company or more of a side focus? Is the purpose of environmental programs trained at all levels of the company?
5. What are the most pressing environmental challenges facing your industry? What are you doing to address these issues?

INDUSTRY SPECIFIC QUESTIONS

6. How much of your company's activities, such as marketing, human resources, etc., are done digitally/online instead of in person? Why is this? Does it affect your CSR?
7. How much of your sales are international? How is the monopoly involved in international sales? How long have you been selling internationally? How does that affect your CSR? Is there a CSR element to the decision not to sell overseas?
8. Much environmental policy mentions sustainable development and utilizing resources responsibly so future generations have the same opportunities as current generations. What is the biggest challenge you face in making sure this happens?
9. How does climate change play into this future role?

RELATIONSHIP WITH POLICY

10. How much influence does government policy have over you? What is your company's relationship with government (local, regional, national)?
11. What are the most relevant government regulations that are applied to you? Are these helpful or a hindrance?

12. Do you ever work to shape governmental policy? (on what level, in what ways, specific examples). How much influence does Vinbúðin have over changes in alcohol policy in 2020?

RELATIONSHIP WITH PUBLIC

13. What are the most common pressures you face from the public (sustainability, water use, public perception)?
14. How has social media influenced how you promote and advocate for environmental sustainability?
15. How does your company stay actively involved in the community? (Charity Partners?)

EXTERNAL REPORTING AND STANDARDS

16. Are you a part of any external reporting or CSR frameworks? If so, what has your experience with framework X been?
17. How long have you been part of it?
18. Is it a helpful framework for your work?
19. Is there any other factor that affects your decisions concerning CSR?

DRIVERS

20. What motivates your company to be more environmentally friendly?
21. Do you find there to be a financial and social incentive to pursuing environmental sustainability?
22. What were your company's motivations for company specific environmental programs? How successful have policies regarding reducing emissions and going recyclable been successful?
23. How successful have these programs been?
24. How has ÁTVR's policies influenced the brewing industry and does it impact how sales are conducted?
25. Are there any other factor that affects your decisions concerning CSR?

SOLUTIONS

26. What do you view as the biggest barriers to the successful implementation of CSR or sustainability practices in the brewing industry?

27. What lessons could be learned from the Nordic Model and applied in other countries?
28. What advice would you give to a small company looking to start implementing environmental sustainability programs?

Appendix 2: PESTEL Analysis

		Political	Economic	Social	Technological	Ecological	Legal
Colorado	Positive	Government policy Sustainable Brewery Initiative City auditing Limited Regulation National conferences Advocacy	Government tax credits Assistance programs Access to other state markets	Advertising resources Collaborative industry Brewers Association forum and resources Community involvement Advocacy groups Good Business Colorado program Charity involvement	Access to technology Clean in place systems Bottling and canning machines Recycling infrastructure Brewers Association resources	Brewers Association guidebooks and resources Access to ingredients Chemical waste processing Spent grain to farmers	Colorado Clean Energy Green Bank Brewers Association assistance OSHA reporting Available Certificates
	Negative	Limited Regulation	High utility costs Shipping costs Equipment Costs	Access to information Responsibilities to drink driving Translating social media into business	Cost of equipment	Water scarcity Access to renewable energy Sourcing of raw materials	Environmental Regulations Waste and Recovery Act White Papers Health and Safety Regulations Licensing
Iceland	Positive	Limited external reporting Required tax reporting Access to the government EU Guidelines FESTA	Majority of sales to Vínbúðin Equal access to market Distribution costs externalized	Union for brewers Independent Craft Brewers Association ÁTVR impartial High customer satisfaction	ÁTVR influencing packaging choice ÁTVR recommendations Access to renewable energy and clean water Electric car hookups	Renewable Energy Plentiful clean water Spent grain solutions Access to recycling ÁTVR influence over packaging	Access to a license to produce Required CSR reporting
	Negative	Nordic monopoly system Inability to sell direct to consumers Limited regulation	Difficult to break into foreign markets Vínbúðin controls pricing and distribution Access to capital Alcohol taxes	Product bad for public health Focus on affordability rather than quality No public drive for sustainability	Access to technology Infrastructure for recycling	No rules regarding waste or CO ₂ recycling Climate not a priority Dumping of caustic materials	Illegality to advertise Alcohol taxes Reporting Regulations Limited health & safety regulations Control over what is produced and sold No reporting requirements

