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# Operational Efficiency in the Food and Beverage Industry Through Sustainable Water Consumption

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# Walden University

College of Management and Technology

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Christopher Weber

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2019

Abstract

Operational Efficiency in the Food and Beverage Industry Through Sustainable Water

Consumption

by

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MBA, University of Phoenix, 2009

BAS, Western Illinois University, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

April 2019

## Abstract

The scarcity of water poses a threat to domestic and global economic sustainability while inhibiting the operational efficiency of food and beverage industry firms. The purpose of this multiple case study was to explore the strategies some food and beverage industry leaders in the United States used for implementing sustainable water consumption practices to improve operational efficiency. The conceptual framework for the study was stakeholder theory. The primary data source was semistructured interviews with 4 food and beverage industry leaders in Wisconsin who have responsibility for implementing their firms' sustainability practices, and the secondary data source was corporate sustainability reports. Thematic analysis was used to analyze data, which resulted in 4 themes: efficient equipment, stakeholder and sustainability focus, water recycling, and supply chain support. The implications of this study for social change include the potential for leaders in the food and beverage industry to use findings to create more sustainable water supplies and demonstrate greater stewardship of the environment.

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## Dedication

I dedicate this to my wife, Annalie, the person who supported me through 10 full-time years as a doctoral student.

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## Section 1: Foundation of the Study

Water scarcity is a threat to the operational efficiency of some companies in the food and beverage industry (Manocha & Chuah, 2017). Some business leaders struggle with reducing their corporate water footprint because they fail to understand that effective management of water resources is critical to the success of a firm (Guarino, 2017; Helmstedt, Stokes-Draut, Larsen, & Potts, 2018; Zhang, Huang, Yu, & Yang, 2017). Using a qualitative multiple case study design, I explored the strategies some leaders in the food and beverage industry used for implementing sustainable water consumption practices to improve operational efficiency.

### **Background of the Problem**

Population growth, increasing demand for food and water supplies, and accelerating energy requirements impact the amount of water available for use by businesses and industries. Manocha and Chuah (2017) postulated that worldwide population growth might reach more than eight billion people by the year 2030. According to Bieber et al. (2018), the human population will increase by 70 million people per year causing further stress on worldwide food supplies. The growth in population will increase energy requirements necessary for the production of food and beverages (Hasegawa et al., 2018). The connection between food security and energy needs is water, which is the key component required for all other food and beverage industry processes to occur (Manocha & Chuah, 2017).

People, organizations, businesses, and industries cannot function or survive without abundant supplies of water. Most water consumption occurs within the

agricultural industry. The food and beverage industry is a client of the agricultural industry, linking the two industries responsible for the world's largest water consumption footprint (Hoekstra, 2017). To improve operational efficiency, executives and managers in the food and beverage industry require information regarding strategies they can use to implement sustainable water consumption practices.

### **Problem Statement**

The scarcity of water poses a threat to domestic and global economic sustainability while inhibiting the operational efficiency of food and beverage industry firms (Guarino, 2017; Zhang et al., 2017). The food and beverage industry uses intensive and costly manufacturing processes responsible for one of the largest water footprints, with an average firm using 2.5 billion liters of water per year while wasting 80% of the water during production (Barbera & Gurnari, 2018; Bortolini, Gamberi, Mora, Pilati, & Regattieri, 2017; Hoekstra, 2017). The general business problem was that some companies in the food and beverage industry experience billions of dollars in revenue losses because of unsustainable water consumption. The specific business problem was that some food and beverage industry leaders lack strategies for implementing sustainable water consumption practices to improve operational efficiency.

### **Purpose Statement**

The purpose of this qualitative multiple case study was to explore the strategies some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency. The targeted population consisted of executives and managers from two large U.S. based firms from the food and

beverage industry in Wisconsin who had implemented successful sustainable water projects to improve operational efficiency. The implications for positive social change include the potential for executives and managers in the food and beverage industry to gain an understanding of strategies they can use to implement innovative methods of conservation that can help businesses mitigate water security risks that threaten economic growth in local communities.

### **Nature of the Study**

The three research approaches are quantitative, qualitative, and mixed methods (Grootel et al., 2017). Quantitative researchers use closed-ended questions, one or more hypotheses, and numerical data to obtain findings (Molina-Azorín & Lopez-Gamero, 2016; Yin, 2018). I did not gather information using closed-ended questions and did not examine hypotheses, so a quantitative method was not appropriate. Mixed-methods researchers combine qualitative and quantitative methodologies (Grootel et al., 2017). I did not perform hypothesis testing or gather numerical data, so a mixed-methods approach was not appropriate for this study. Qualitative researchers use dialogue, recorded data, and conversations assembled into themes to explore why or how a particular phenomenon is happening (Park & Park, 2016). The qualitative approach was the appropriate choice for this study because I asked open-ended questions through interviews using nonnumerical methods that focused on insight and meaning.

I considered the following three qualitative research designs: narrative, ethnographic, and case study. Some researchers use narrative designs, autobiographies, art, or storytelling to make sense of the world (Schmitt, 2017). I used interviews to obtain

information about firms dealing with water scarcity, so a narrative design was not appropriate for this study. Researchers using an ethnographic design to interpret social groups or portray different cultures (Hammersley, 2018). I did not explore or interpret social groups or different cultures, so an ethnographic design was not appropriate for this study. A researcher conducting a case study uses observations and interviews to explore a phenomenon (Yin, 2018). This was an appropriate design for my study of strategies used by some executives and managers in the food and beverage industry for implementing sustainable water consumption practices to improve operational efficiency.

### **Research Question**

What strategies do some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency?

### **Interview Questions**

1. What strategies does your company use to implement sustainable water consumption practices to improve operational efficiency?
2. How did you identify successful strategies for implementing sustainable water consumption practices to improve operational efficiency?
3. What strategies were unsuccessful for implementing sustainable water consumption practices to improve operational efficiency?
4. What barriers did you encounter while implementing sustainable water consumption practices to improve operational efficiency?
5. How did you overcome the barriers encountered while implementing sustainable water consumption practices to improve operational efficiency?

6. What additional information regarding strategies for implementing sustainable water consumption practices to improve operational efficiency would you like to share that we have not discussed?

### **Conceptual Framework**

Stakeholder theory, established by Freeman (1984), was the conceptual framework for this study. Stakeholder theory consists of two key tenets: corporate legitimacy and stakeholder fiduciary responsibility (Harrison, Freeman, & Abreu, 2015; Wang, Dou, & Jia, 2015). According to the principle of corporate legitimacy, leaders must structure the operation of their firms to benefit the stakeholders. From the perspective of stakeholder fiduciary responsibility, executives and managers must act in the stakeholders' interests to ensure the survival of the organization (Freeman & Evan, 1990). Freeman (1984) argued that the success of a corporation is dependent on the expectations and demands of those with a stake in the firm's activities.

Consumers are increasingly aware of the impact of depleting resources and the threat of water scarcity (Zhang et al., 2017). Corporate leaders face a variety of stakeholder-related issues such as environmental concerns and diminishing aquifers (Boesso, Favotto, & Michelin, 2015; Esposito & Tse, 2018). According to Wang et al. (2015), business leaders who concentrate on sustainable development increase their resources while benefiting the stakeholders and becoming more competitive within an industry. Stakeholder theory provided an effective lens for my exploration of how some executives and managers in the food and beverage industry implement sustainable water consumption practices to improve operational efficiency. Researchers used stakeholder

theory in studies of sustainable management practices (Askham & Van der Poll, 2017). I used stakeholder theory as a lens for my exploration of why business leaders face water scarcity issues and how some leaders in the food and beverage industry are influenced by stakeholders to implement sustainable water consumption practices to improve operational efficiency.

### **Operational Definitions**

*Sustainable water consumption*: The efficient use of water resources using methods to prevent disruptions in production while recycling water and reducing water waste to improve operational efficiency (Barbera & Gurnari, 2018; Bortolini et al., 2017; Guarino, 2017; Hoekstra, 2017; Zhang et al., 2017).

*Water footprint*: Water consumption measured from a particular place, region, location, or geographic area including the volume of water polluted (Guarino, 2017; Zhang et al., 2017).

*Water scarcity*: A situation, event, condition, or status quo in which the amount of water available does not meet all stakeholder demands for water (Vanham et al., 2018).

### **Assumptions, Limitations, and Delimitations**

#### **Assumptions**

Johnson (2012) defined assumptions as unverified facts. I identified four assumptions for this study. First, I assumed that a qualitative method was appropriate for my exploration of the areas related to water scarcity caused by unsustainable water consumption practices by some leaders in the food and beverage industry. Second, I assumed that a case study approach was the most appropriate design. Third, I assumed



that study participants had the necessary background and experience to answer the interview questions and that they would provide honest answers to the interview questions. Finally, I assumed that when business leaders implement sustainable water consumption practices, their organizations' operational efficiency improves.

### **Limitations**

Limitations are weaknesses that a researcher cannot address (Ellis & Levy, 2009). I identified two limitations for my research. First, I limited my study to water consumption practices in the food and beverage industry and did not explore other factors that may contribute to water scarcity in the industry. Second, I limited my study to water consumption practices in the food and beverage industry and did not examine other factors such as corporate earnings strategy that might impact water consumption practices.

### **Delimitations**

Delimitations are the scope or boundaries of a study (Grundy-Warr & Schofield, 2012). I identified two delimitations for my study. First, I studied the water consumption practices of food and beverage industry leaders in the U.S. Second, I studied the water consumption practices of food and beverage industry leaders in the state of Wisconsin.

### **Significance of the Study**

Effective stewardship of water is of benefit to all organizational stakeholders (Barbosa, dos Santos Delfino, & Brandao, 2017; Mumme & Ingram, 1985). Leaders, executives, and managers from the food and beverage industry may benefit from the study findings by learning of strategies they can use to improve operational efficiency by

decreasing their water footprint and creating a more sustainable water supply. Managers and executives in the food and beverage industry who implement water recycling programs reduce operational costs while ensuring that future water resources are available, thereby decreasing the threat of water scarcity (Bieber et al., 2018; Valta, Kosanovic, Malamis, Moustakas, & Loizidou, 2015; Zhang et al., 2017).

### **Contribution to Business Practice**

Efficient water management is essential for the food and beverage industry so that sustainable sources of water are readily available to ensure firms can grow and compete in the marketplace (Guarino, 2017; Zhang et al., 2017). By conducting this study, I discovered methods of contributing to improvements in business practice such as new strategies to reduce the threat of water scarcity. Executives and managers in the food and beverage industry may use findings from this study to identify weaknesses in sustainable water consumption practices and improve their efforts to enhance operational efficiency.

### **Implications for Social Change**

Scholars who promote sustainability have outlined a variety of benefits for all stakeholders, including executives and managers, from most industries (Amui, Jabbourac, Jabbour, & Devika, 2017). Executives and managers from the food and beverage industry may use the research findings to prevent waste, reduce revenue losses, and increase organizational commitment to effective stewardship of water resources, which may increase the operational efficiency of a firm while contributing to positive social change (Siegener, Pinkse, & Panwar, 2018). The social changes could be in the form of plentiful water supplies for communities, a reduction in the cost of water, and greater stewardship

of the environment. Additionally, the implications for positive social change include the potential for executives and managers in the food and beverage industry to gain an understanding of strategies they can use to implement innovative methods of conservation that can help businesses mitigate water security risks that threaten economic growth in local communities.

### **A Review of the Professional and Academic Literature**

I reviewed the literature to include a critical analysis and synthesis of current journals, reports, and seminal works. The depth of my inquiry exhausted all recent data and information available on leadership strategies in the food and beverage industry for implementing sustainable water consumption practices to improve operational efficiency. The literature I examined ranged from a seminal article by Freeman (1984) on stakeholder theory to general information on U.S. water management, including specific information on water scarcity in the state of Wisconsin.

I reviewed 112 references, of which 109 were seminal works, scientific reports, government sources, and peer-reviewed journal articles. Three of the sources were published books or conference papers. Eighty-seven percent (98) of the sources were published between 2016 and 2018, and 97% (109) of the sources were published between 2015 and 2018. I satisfied and exceeded the minimum requirement of 85% peer-reviewed sources because 93% were peer-reviewed journal articles. The general organization of the literature review consists of one third focused on stakeholder theory, one third centered on water consumption practices in the food and beverage industry, and one third covering leadership strategies to improve operational efficiency. I begin the literature review with

the strategy I used for searching and move into the conceptual framework, water consumption practices, U.S. water management, water scarcity in Wisconsin, the food and beverage industry's water footprint, and the operational efficiency of the food and beverage industry. To identify sources appropriate for this literature review, I used a primary and secondary search method.

The primary method involved searching Google Scholar's database and setting the parameters for the most recent 2017-2018 articles. I used this search strategy from 2007 to 2019. Researchers are using Google Scholar at an increasing rate because of the ease of use and the expansive database of peer-reviewed journal articles (Marks & Le, 2017; Mingers & Meyer, 2017). According to Martin-Martin, Orduna-Malea, Harzing, and López-Cózar (2017), Google Scholar's unrestricted coverage of documents and sources is a unique and irreplaceable tool for identifying the most recent scientific and academic research available (Haddaway, Collins, Coughlin, & Kirk, 2015).

The secondary search method I used included locating articles from databases hosted by Walden University and the University of Phoenix. The databases included Business Source Premier, Emerald, Sage, and Science Direct. Using the primary and secondary methods, I searched for and located appropriate peer-reviewed journal articles using the following key words: *water conservation, waste, water consumption practices, sustainability, water footprint, food and beverage industry, water scarcity, social responsibility, stakeholder theory, and water recycling.*

## **Stakeholder Theory**

The purpose of this qualitative multiple case study was to explore the strategies some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency. Stakeholder theory is a widely accepted conceptual framework used by scholars to examine socially responsible business activity related to sustainable projects (Harrison et al., 2015; Newbert, 2018). Organizational leaders wanting to reduce the impact of water scarcity are required to address the needs of stakeholders while also improving a firm's operational efficiency. Stakeholder theory, established by Freeman (1984), provided the conceptual framework for this study. The basic premise of stakeholder theory is that a firm's activities focus on benefitting all stakeholders (Chiu & Sharfman, 2018; Min, Zhenggang, & Jing, 2018), though it is impossible to satisfy all stakeholders (Cui, Jo, & Na, 2018).

The rationale for expanding the parameters of stakeholder theory is that understanding and employing the concerns and needs of all stakeholders enhances a firm's chances of survival and success. Stakeholder theory consists of two key tenets: corporate legitimacy and stakeholder fiduciary responsibility (Eskerod, Huemann, & Ringhofer, 2015; Harrison et al., 2015; Wang et al., 2015). According to the principle of corporate legitimacy, leaders must structure the operation of their firms to benefit the stakeholders (Labelle, Hafsi, Francoeur, & Amar, 2018). From the perspective of stakeholder fiduciary responsibility, executives and managers must act in the stakeholders' interests to ensure the survival of the organization (Freeman & Evan, 1990; Payne & Raiborn, 2018).

Scholars and business leaders have different perceptions and definitions for the term *stakeholder*. Freeman (1984) defined stakeholders as any individual or group affected or influenced by the achievement of a firm's goals. Benlemlih and Bitar (2018) described some central stakeholders as having nonhuman qualities such as the natural environment. Wang (2017) referred to stakeholders as groups or individuals that depend on an organization to achieve goals while firms rely on the stakeholders to support the existence of the company. In contrast to Benlemlih and Bitar, Freeman and Wang's definitions of stakeholders were more appropriate for my study. Because my research focused on sustainable water consumption practices to improve operational efficiency, I characterized stakeholders as human beings or business entities with an interest in a firm's activity.

A stakeholder can be a low-level worker for an organization or a chief executive officer of a firm. Some examples of stakeholders are business leaders, employees, consumers, firms, groups, individuals, shareholders, investors, customers, and organizations (Benlemlih & Bitar, 2018; McGrath & Whitty, 2017; Miles, 2017; Nason, Bacq, & Gras, 2018; Wu & Wokutch, 2015). Some scholars identify stakeholders using primary and secondary groups. According to Freeman (1984), primary stakeholders have direct involvement with a firm, such as employees and customers, and secondary stakeholders are charities and local communities. In contrast, Labanauskis and Ginevicius (2017) defined primary stakeholders as communities, investors, and suppliers and secondary stakeholders as competitors, governments, and advocacy groups. Using expansive parameters, Benlemlih and Bitar (2018) described primary stakeholders as

product characteristics, diversity, the environment, and employee relations, and secondary stakeholders as human rights and local charities. Regardless of the classifications, primary stakeholders are entities or individuals with a direct impact on a firm's operations, and secondary stakeholders are the groups or people with an indirect effect on business activity (Freeman, 1984; Labanauskis & Ginevicius, 2017).

Stakeholders know that water scarcity is a threat, and using stakeholder theory, I was able to gain a perspective of how some food and beverage industry leaders incorporate sustainable water consumption practices. Consumers are increasingly aware of the impact of depleting resources and the threat of water scarcity (Kummu et al., 2016; Zhang et al., 2017). Corporate leaders face a variety of stakeholder-related issues such as environmental concerns and depleting aquifers (Boesso et al., 2015; Esposito & Tse, 2018). According to Wang et al. (2015), business leaders who concentrate on sustainable development increase their resources while benefiting the stakeholders and becoming more competitive within an industry. Stakeholder theory provided an effective lens for exploring how some executives and managers in the food and beverage industry implement sustainable water consumption practices to improve operational efficiency.

Many researchers conduct studies focusing on a stakeholder group such as shareholders or employees. I chose stakeholder theory because I was researching stakeholders' involvement in achieving the business goal of operational efficiency. I selected stakeholder theory because business leaders who apply the theory create a synergy that increases the likelihood of win-win situations for most stakeholders. Business executives should harness the synergy so that they guide stakeholder interests in

the same direction (Freeman & Dmytriiev, 2017). Stakeholder theory is one of the most common approaches to research on sustainability (Newbert, 2018; Rivera, Munoz, & Moneva, 2017), and stakeholder theory is accepted by the research community as a valid method of understanding business organizations (Freeman, Kujala, Sachs, & Stutz, 2017). Water scarcity forces business leaders to implement stakeholder theory involving sustainable water consumption practices to improve operational efficiency.

Some scholars have used stakeholder theory in corporate social responsibility studies. Stakeholder theory is a management theory based on the moral treatment of stakeholders and not a moral-based theory related to management (de Gooyert, Rouwette, van Kranenburg, & Freeman, 2017; Hahn, Figge, Pinkse, & Preuss, 2018; Harrison et al., 2015). Making a distinction between corporate social responsibility theory and stakeholder theory is important because many business leaders view socially responsible behavior as an act performed with respect to profits (Westermann-Behaylo, Van Buren, & Berman, 2016), whereas business leaders using stakeholder theory principles address the needs of all stakeholders with an ethical and equal approach regardless of revenue considerations (Freeman, 1984). Additionally, stakeholder theory is a management theory that applies to operational businesses and not just corporate social responsibility research (Scherer, 2018).

Business leaders from the food and beverage industry must align with stakeholder theory to survive because the historical profit-oriented corporate standard may contribute to water scarcity. Therefore, the prevailing paradigm must shift from corporate earnings (Hardcopf, Gonçalves, Linderman, & Bendoly, 2017) to sustainability (Landrum &



Ohsofski, 2018), which includes good water stewardship leading to operational efficiency. Hickman and Akdere (2017) extended the viewpoint that firms should have a purpose beyond maximizing value and that stakeholders are an end in themselves rather than a method for creating revenue. According to Pige (2017), this paradigm shift relieves business leaders from excessive attention on short-term results and allows them to focus on long-term performance.

The structure of stakeholder theory emerged from the idea that a firm's success depends on stakeholder relationships and that companies would not exist without support from stakeholders. Stakeholder theory researchers support sustainable efforts that include all stakeholders such as shareholders, employees, and consumers (Amui et al., 2017). The stakeholder-centric focus is the key because creating sustainable water supplies to improve operational efficiency requires the support of the stakeholders (Compton, Willis, Rezaie, & Humes, 2018). According to Mbaka and Hood (2017), stakeholder theory accounts for the internal and external stakeholders of an organization, which is similar to Freeman's (1984) primary and secondary stakeholders. Mbaka and Hood postulated that internal stakeholders are employees, managers, and owners of a company. External stakeholders include society, governments, creditors, suppliers, customers, trade associations, and competitors. Regardless of whether stakeholders are internal or external, primary or secondary, business leaders must focus on sustainable water consumption practices to achieve operational efficiency.

Some research on stakeholder theory involves operational research and social responsibility, which depends on the influence some stakeholders possess. De Gooyert et

al. (2017) conducted a study of 144 researchers using stakeholder theory and found that the once close connection between stakeholder theory and operational researchers was lagging. Fassin, De Colle, and Freeman (2017) examined two case studies involving stakeholder theory and concluded that combining stakeholder theory with social movement literature can enhance the understanding of stakeholders' actions, closing the gap between operational researchers and stakeholder theory. Additionally, Fassin et al. discovered that companies depend on stakeholders, which provides stakeholders with advantages over an organization.

Stakeholder theory principles are developing and maturing as scholars discover methods of making the theory applicable to researchers dedicated to management and sustainability issues. The problem is that many researchers disagree on the legitimacy of stakeholder theory and related principles (Fayezi, Zomorodi, & Bals, 2018; Miles, 2017). Richter and Dow (2017) conducted a study of grounded stakeholder theory and concluded that a deliberative democratic approach helps legitimize stakeholder theory. Conversely, Miles (2017) performed a study on 885 explanations and definitions of stakeholder theory using 9,201 data points. Miles determined that stakeholder theory is not legitimized or standardized. According to Miles, scholars should understand that stakeholder theory is a contested and incomplete theory that sometimes misleads researchers. Ching and Gerab (2017) addressed the issue of legitimacy in a longitudinal study of 145 companies over 5 years. Ching and Gerab found that improvements in sustainability reporting act as a signal to enhance the legitimacy of stakeholder theory.

Stakeholder theory consists of two key tenets: corporate legitimacy and stakeholder fiduciary responsibility. Additionally, stakeholder theory is grounded in two principles termed normative and instrumental. Some scholars disagree on the definitions of stakeholder theory terms. According to the principle of corporate legitimacy, leaders must structure the operation of their firms to benefit the stakeholders (Labelle et al., 2018). From the perspective of stakeholder fiduciary responsibility, executives and managers must act in the stakeholders' interests to ensure the survival of the organization (Narbel & Muff, 2017; Payne & Raiborn, 2018).

Researchers use two approaches to examine the tenets of stakeholder theory, which are normative and instrumental. The normative theory addresses business leaders' moral obligations to consider all stakeholders over the stockholders, and the instrumental theory centers on the general benefits that firms receive from adopting a stakeholder focus (Blackburn, Hooper, Abratt, & Brown, 2018; Bundy, Vogel, & Zachary, 2018; Heikkurinen & Makinen, 2018; Miska & Mendenhall, 2018). Aliu, Akatay, and Aliu (2018) asserted that the normative stakeholder theory requires a description of what the stake is and how stakeholders make their normative force known.

Business leaders should know the definition of a stake, stakeholders, and the reasons why managers must address the stakeholders needs to improve operational efficiency. A stake is an interest advanced through a valid normative claim within stakeholder theory principles (Moldavanova & Goerdel, 2018). According to Kury (2017), the normative perspective carries a moral requirement that business leaders should value all stakeholders and their interests, and the instrumental view holds that

when all stakeholders are considered and satisfied, a firm will receive positive returns (Blackburn et al., 2018). Regardless of the assumptions or definitions, business leaders using normative and instrumental theories affect the stakeholders, ultimately influencing a firm's ability to improve water consumption practices to achieve operational efficiency.

### **Water Consumption Practices**

Two of the most important emergencies in most industries are water consumption practices and the availability of water. Water is an irreplaceable commodity vital to human life and business operations, yet water is becoming one of the most sought-after and scarcest resources (Askham & Van der Poll, 2017). According to Barbera and Gurnari (2018), the general use of water has tripled since 1950, and the food and beverage industry consumes significant quantities of water throughout the supply chain and process of manufacturing and distributing products. Barbera and Gurnari postulated that solving issues with water consumption through household conservation has no domestic or global impact because industrial overconsumption and waste are the cause of water scarcity. Economic development and population growth force food and beverage industry leaders to find sustainable methods to keep up with consumer demands while reducing water consumption to improve operational efficiency.

**Water.** The Earth has large bodies of water, and it is important to clarify the type of water that generally applies to firms in the food and beverage industry. Based on a U.S. government geological survey, 99% percent of all water on planet Earth is not available for use, and less than 1% of water is available for human consumption (Klemas & Pieterse, 2015; United States Department of the Interior, 2018). Business leaders from

firms within the food and beverage industry and the agricultural industry are responsible for a water consumption footprint of more than 90% of the available 1% of water available for human consumption (Cao et al., 2018; Feingold, Koop, & van Leeuwen, 2018; Hoekstra, 2017). Therefore, industry leaders employ manufacturing and production processes that result in the consumption of the majority of water available for human use, supporting the need for studies on water footprints and sustainable water consumption practices to improve operational efficiency (Mancosu, Snyder, Kyriakakis, & Spano, 2015).

**Water footprints.** Water footprints are one method that researchers use to track the amount of water consumed to generate a service or product. Water consumption issues are addressed as footprints, which are used as a management tool to measure water use (Marrin, 2016). Approximately 90% of domestic water footprints are attributed to food and beverage related goods (Marrin, 2016). According to Boulay et al. (2018), some scholars disagree on the use of the term water footprint, postulating it should be water scarcity footprint. The disagreements on footprint references are due to the lack of accountability for water that is or will be available in the future. The term water footprints was introduced by various scholars in the 1990s in response to regions of the planet enduring severe water scarcity (Liu, Cao, Li, & Yu, 2018), and regardless of how the terms are defined, the important thing is that researchers and business leaders have a generally accepted method of determining water scarcity and measuring water consumption.

**Water scarcity.** In general terms, water scarcity involves all properties associated with restricted water availability. In specific terms, domestic water problems related to demand and supply have escalated, which poses challenges for food and beverage industry leaders (Liu et al., 2018; Mekonnen & Hoekstra, 2016; Pedro-Monzonís, Solera, Ferrer, Estrela, & Paredes-Arquiola, 2015; Vanham et al., 2018). In some circumstances, water scarcity is caused by unsustainable water consumption practices that business leaders in the food and beverage industry support. For example, in the middle of a historic 2015 drought in California, the chief executive officer of Nestle Corporation conveyed that he would increase water consumption if he could (Jaffee & Case, 2018). Potentially draining aquifers for profit while seemingly ignoring a statewide water crisis is one example of how some business leaders might support measures that appear contrary to sustainable water consumption practices.

**Sustainable water consumption practices.** The concept of sustainability emerged from a scholarly consensus that the Earth should be cared for, nurturing people is important, and that benefits ought to materialize from the efforts. Many business leaders from corporations built their business models on the belief that consumption of raw materials could continue and grow over time; however, achieving sustainability requires responsible consumption (Shrivastava & Guimarães-Costa, 2017). The term sustainability is the action and intention embedded in economic, social, and ecological dimensions (Kurucz, Colbert, Ludeke-Freund, Upward, & Willard, 2017).

According to Dubey, Gunasekaran, and Deshpande (2017), government policies, peer pressure, values, market demands, attitude, resources, behavior, and promotions are

the drivers that shape sustainability. Organizations should consider measures to recycle and reuse water to achieve sustainable long-term growth (Compton et al., 2018).

Sustainable industrial water consumption varies according to factors such as the diversity of an organization, quantity of products, plant capacity, types of processes, automation levels, equipment, and the systems used in cleaning operations (Barbera & Gurnari, 2018).

A byproduct of water consumption practices is wastewater, which contains a variety of elements used during manufacturing processes. Wastewater from the food and beverage industry emerges from heating, cooling, extraction, reactions, quality control, and washing products (Bortolini et al., 2017). In general, industrial water consumption in the food and beverage industry leaves contaminants in the water such as sanitizing chemicals, pesticides, microorganisms, organic and inorganic material, nutrients, metal, and fertilizers (Ma, Vikram, Casson, & Bibby, 2017). Finding efficient methods of removing contaminants is a challenge for food and beverage industry leaders and overall water management.

**Types of water use.** Food and beverage industry stakeholders use water in a variety of ways. According to Compton et al. (2018), water is used for human consumption in manufacturing and production plants, drinking fountains, kitchens, safety equipment, sanitary areas, and activity with different kinds of human contact. Water is used as a raw material to be incorporated into final products such as beer, wine, and soft drinks (Miglietta & Morrone, 2018). Compton et al. indicated that water is used as an auxiliary fluid for chemical solutions and suspensions, compounds, chemical reagents,

and washing operations. Water is used for generating energy through thermal or potential energy and in electrical and mechanical energy (Weber & Hogberg-Saunders, 2018). As a cooling and heating liquid, water is used to transfer heat, remove heat, or cool devices that are too hot (Compton et al., 2018).

**United States water management and consumption practices.** The history of water management in the U.S. involves litigation over water consumption rights, changing political climates, and encroaching environmental regulations. Most cities within the U.S. depend on large volumes of water to produce products and food to manage waste resulting from agricultural, food, and beverage industry processes (Cunningham & Gharipour, 2018). According to Knuth, Behe, Hall, Huddleston, and Fernandez (2018), water resources in the U.S. are deteriorating, and no natural commodity is more valuable than water. U.S. water consumption and management reflect corporate interests, political ambition, economic conditions, environmental standards, and the technology to reach amicable agreements (Boulay et al., 2018).

The pressure of an ever-growing population of consumers coupled with profit-seeking corporations has created a higher risk of water scarcity due to unsustainable industrial water consumption practices. In the U.S., the food and beverage industry is responsible for one of the largest water footprints (Bortolini et al., 2017; Hoekstra, 2017; Jones, Comfort, & Hillier, 2016). A water footprint represents the amount of water used or consumed to produce a given product (Zhang et al., 2017). The agricultural industry uses the majority of water in producing crops (Hoekstra, 2017). The food and beverage



industry consumes the next largest volume of water while being a client of the agricultural industry.

Some industries cross others such as the beverage industry, food industry, beverage processing industry, food processing industry, agricultural industry, and the food and beverage industry. The food and beverage industry and the agricultural industry together create a water footprint that is the highest across all industries (Manocha & Chuah, 2017). The agricultural industry and the food and beverage industry produce products from both industries such as lettuce, fish, and poultry. Therefore, any firm or individual that grows, processes, or sells a food or beverage product is a member of the food and beverage industry. Despite the appearance of a crossover between the industries, business leaders need to understand the impact of water scarcity on the operational efficiency of firms within the food and beverage industry (Guarino, 2017; Zhang et al., 2017).

**Wisconsin industrial water scarcity and consumption.** Few peer-reviewed, published, journal articles on water consumption, by firms within the food and beverage industry in the state of Wisconsin exist. The gap in available literature and lack of information on industrial water use limits a researcher's ability to investigate the strategies food and beverage industry leader's use for implementing sustainable water consumption practices to improve operational efficiency (Rao, McKane, & de Fontaine, 2015). In general, the information available on Wisconsin industrial water consumption is restricted to government websites and proceedings from conferences.

The state of Wisconsin suffers from water scarcity due to overconsumption by industry, which includes the food and beverage industry. According to Marston, Ao, Konar, Mekonnen, and Hoekstra (2018), Wisconsin has several counties with corporate and industrial activity involved in food and beverage production such as dairy and cereal products. Marston et al. estimated that ten percent of the counties across the U.S. are responsible for 75% of the national water footprint, and some food and beverage industry firms operate within Wisconsin counties using unsustainable water consumption practices. An example of industrial water consumption is Foxconn Corporation which proposes to draw nearly six million gallons of water within Wisconsin, but only return half of the water withdrawn (Wisconsin Department of Natural Resources, 2018). This type of industrial water consumption could permanently deprive the residents within the state of Wisconsin of over 700 million gallons of water on an annual basis (Environmental Protection Agency, 2018; Wisconsin Department of Natural Resources, 2018).

Water consumption by food and beverage industry firms in Wisconsin is not as severe as the water consumption proposed by Foxconn Corporation, but is significant. For example, the Miller brewing company, based in Milwaukee Wisconsin, uses over one million gallons of water each day in the process of producing beverages, making the company's annual water consumption over 250 million gallons of water per year (Bumblauskas, 2017).

The origins of water used to produce food and beverages within the state of Wisconsin are difficult to track and quantify. The term local water sources refer to water

resources within the State of Wisconsin. From a domestic vantage point, researchers track water consumption by regions, which have implications that stretch to the borders of the U.S. (Klemas & Pieterse, 2015; Liu et al., 2018). From a local perspective, the water being conserved and recycled by reducing food and beverage industry waste is of considerable significance to the community stakeholders (Marrin, 2016). Reducing household water consumption is important to local water sources, but the effects are minimal in comparison to reducing the local water footprint of the food and beverage industry (Barbera & Gurnari, 2018).

### **Food and Beverage Industry**

The vast majority of water consumption occurs within the agricultural industry. The food and beverage industry is a client of the agricultural industry, linking the two industries responsible for the largest water consumption footprint in the U.S. (Hoekstra, 2017). The food and beverage industry includes all individuals and firms involved in growing, processing, packaging, and distributing food or beverage products for human and animal consumption (United States Department of Commerce, 2018).

Technological solutions exist to the problem of water scarcity caused by unsustainable industrial water consumption practices (Sousa-Zomer & Miguel, 2018). Ample water is available in the U.S.; however, corporate efforts to manage water have lagged (Weinmeyer, Norling, Kawarski, & Higgins, 2017). With proper water management, food and beverage industry leaders can improve operational efficiency by reducing the industry's water footprint.

**The food and beverage industry's byproducts.** Most of the industrial consumption of water occurs within processes that involve producing food and beverages, which results in deposits of undesirable and inorganic material into domestic water supplies. In the U.S., over two million tons of sewage discharges into bodies of water each year (Manocha & Chuah, 2017; Walker, Beretta, Sanjuan, & Hellweg, 2018). Up to 90% of all wastewater goes directly into lakes, oceans, rivers, or stream without filtration to remove bacteria, viruses, helminths, protozoa's, and some dangerous chemicals and pollutants (Cunningham & Gharipour, 2018). The food and beverage industry is responsible for a large portion of water consumption causing the wastewater discharge, which could be recycled and reused to improve operational efficiency.

**The food and beverage industry's water consumption practices.** Business leaders must adapt to changes in the availability of water. Climatic change and the growth of the world population to 8.5 billion by 2030 will force organizations to make drastic alterations to water stewardship practices (Ainscough, Alagappan, Oatley-Radcliffe, & Barron, 2017). According to Manocha and Chuah (2017), industrial business leaders must plan to feed the thriving population growth while current food production already uses more than 66% of the water available. With the increasing human population, researchers predict a higher demand for meat and dairy products putting a greater strain on available sources of water while impeding the operational efficiency of the food and beverage industry.

According to Manocha and Chuah (2017), producing one kilogram of rice requires 3500 liters of water and making one kilogram of beef requires 15,000 liters of

water. In contrast, Esposito and Tse (2018) estimated that producing 1 kilogram of beef only requires 3,500 liters of water. A difference of 77% exists between Manocha and Chuah's estimate and Esposito and Tse's calculations, which appears significant; however, the actual differences might be that one researcher performs calculations from farm to plate, and the other performs estimates based on water consumption from factory to plate (Legesse et al., 2017). Additionally, some food and beverage firms employ more efficient water consumption practices than others, which can cause a gap between a researcher's calculations.

**Operational efficiency of the food and beverage industry.** According to Manocha and Chuah (2017), food and beverage industry leaders from Coca-Cola and Nestle are implementing sustainable water practices of their respective multinational firms. Coca-Cola and Nestle have made effective water stewardship a priority (Walsh & Dowding, 2012) as both organizations have developed zero-water production factories serving as a benchmark for all organizations and industries. Manocha and Chuah observed that Nestle attached a price to water for each milliliter and this price varied by global and domestic regions. Nestle introduced water-saving technologies in locations of scarcity or high cost to address the lack of competent workers in this field (Jones et al., 2016). The changes are the result of companies taking a long-term leadership strategy recognizing that water is necessary for a business to be efficient and abundant water supplies are required if a firm wants to expand and flourish.

## **Leadership Strategies**

Some business leaders in the food and beverage industry lack strategies for implementing sustainable water consumption practices to improve operational efficiency. Business leaders must develop sustainable strategies because of population growth, increasing demand for food and water supplies, and accelerating energy requirements that impact the amount of water available for use by firms and industries (Aivazidou, Tsolakis, Vlachos, & Iakovou, 2018; Bieber et al., 2018). According to Miglietta and Morrone (2018), executives and managers must reconsider all current business processes from different vantage points to develop a new strategy for achieving operational efficiency. Additionally, food and beverage industry stakeholders must be valued, coordinated, and optimized, so that business leaders can achieve and maintain sustainable consumption practices (Govindan, 2018). Business leaders consider strategies that range from external outsourcing from water efficient suppliers to internal changes to production and manufacturing processes.

**External strategies for implementing sustainable practices.** An external strategy to reduce water consumption and improve operational efficiency is to import food and beverage industry related products rather than manufacture or produce them in the U.S. Bijl, Bogaart, Dekker, and van Vuuren (2018) conducted a study related to water consumption practices and concluded that countries could realize a significant reduction in water consumption by importing crops and animal products. Conversely, Dang and Konar (2018) theorized that the impact of importing crops, animal products into the U.S. is difficult to quantify because countries that import experience water surpluses that

encourage the exportation of water-related resources and products. Purchasing imported products forgoes the burden of consuming billions of gallons in water in the process of creating food and beverage products; however, importing for this purpose is only sustainable to the extent that international firms can withstand large volumes of water consumption in order to export food and beverage products to the U.S. (Liu et al., 2018).

Business leaders should consider strategies and campaigns focused on reducing the consumption of animal related foods. The water footprint of any food product originating from an animal is greater than the water footprint of any food product originating from a plant (Eshel et al., 2018). Food and beverage industry leaders could reduce water consumption and improve operational efficiency by focusing on producing plant-based foods while decreasing the production of animal based foods (Legesse et al., 2017). Additionally, food and beverage industry leaders should select animal livestock products that reduce water consumption by choosing and producing animal products with the lowest water footprints because water consumption is greater for beef products than pork or chicken products (Gregorini, Provenza, Villalba, Beukes, & Forbes, 2018; Legesse et al., 2017).

While many business leaders seek to decrease their firms' water footprints through changes in production and manufacturing processes, managers may realize a reduction in water consumption by procuring raw materials and products from suppliers that have more efficient water consumption practices in operation. According to Marston et al. (2018), more than 90% of U.S. firms could consume less water by purchasing materials and products from the most efficient water users, as opposed to converting a

given firm's operations to achieve the same outcome. Contestabile (2018) supports Marston et al. by estimating that 94% of companies could reduce industrial water footprints by switching to water efficient suppliers.

**Internal strategies for implementing sustainable practices.** Water consumption management involves implementing and developing strategies targeting a reduction in the demand for water by conducting an analysis to improve the efficiency of operations and internal equipment. According to Valta et al. (2015), a water consumption analysis helps business leaders create and trace how to reduce water consumption and improve operational efficiency. For example, equipment-leaking water is common during food and beverage manufacturing and production processes and tracing, locating, and repairing water leaks helps reduce unnecessary water consumption (Cairns & Macpherson, 2017). Business leaders should estimate the minimum amount of water consumption necessary within each processing line and identify measures that improve the operational efficiency of all production lines that consume water (Valta et al., 2015). Cairns and Macpherson (2017) conducted a study related to four businesses and found that the overall business water loss to leakage was over 75% and that 32 billion cubic meters of water are lost annually through leaking equipment.

A viable solution to unsustainable water consumption practices is to improve the operational efficiency of firms through new technology that integrates food, energy, and water systems. According to Helmstedt et al. (2018), leaking water is a small part of a larger problem for the food and beverage industry. Helmstedt et al. argued that business leaders could not effectively address water consumption practices without recognizing



the nexus between food, energy, and water. Bijl et al. (2018) supports Helmstedt et al. stating that when water is wasted, energy and food is also wasted, if energy is wasted, food and water are wasted, and if food is wasted, the energy and water used to produce the food was wasted. Helmstedt et al. called for emerging technologies that reduce water consumption and improve operational efficiency through integrated management systems.

Food and beverage industry leaders should consider water recycling and reconditioning as part of integrated systems that reduce water consumption and improve operational efficiency. Meneses and Flores (2016) conducted a feasibility study related to the water consumption practices of U.S. based dairy farms including Wisconsin firms producing milk and cheese products. Meneses and Flores determined that inefficient production of dairy beverages consumed up to 64 gallons of water to produce one gallon of milk and efficient processes used only one gallon of water to produce one gallon of milk. Meneses and Flores estimated that moderately efficient dairy beverage firms use reverse osmosis filtration to reduce water consumption by up to 47%, and highly efficient firms add a drying stage, which reduces water consumption by up to 86%.

Food and beverage industry leaders can implement a variety of automated strategies with integrated systems to reduce water consumption. According to Valta et al. (2015), management should seek out methods of minimizing water consumption such as eliminating the use of water on unrecoverable solid waste. Automated technology can control water overflows and shut down equipment when the water consumption is too high (Valta et al., 2015). Managers should check equipment for water leaks on the

distribution network because unnecessary water consumption is often associated with water leaking (Cairns & Macpherson, 2017). Water used for the purposes of cooling can usually be reused or recovered, and meters should be connected to all processes involving water consumption to record how much water was consumed in production lines (Valta et al., 2015).

An effective water management program aimed at reducing water consumption to improve operational efficiency is a continuous process of finding methods to eliminate water consumption in plant cleaning operations. Implementing measures for dry cleaning (where feasible) and only use water when necessary (Valta et al., 2015). For example, a common belief is that using more water for longer periods is more effective than using less water for shorter periods; however, Fan, Phinney, and Heldman (2018) conducted a study on food and beverage industry cleaning operations and found that the efficiency of rinse water declined with longer rinse periods and higher volumes of water. According to Valta et al. (2015), managers should optimize cleaning programs by washing products and using processes that operate in a sequence to minimize product changes and unnecessary cleaning operations.

Food and beverage industry leaders might consider the strategy of producing and marketing meat substitutes as a method of reducing water consumption to improve operational efficiency. The production of artificial meat uses 82-96% less water than the standard natural meat production from animal sources (Legesse et al., 2017). Mattick, Landis, Allenby, and Genovese (2015) concur with Legesse's findings but add that artificial meat production requires intensive industrial energy, which would ultimately

increase water consumption. According to Hocquette (2016), consumer's acceptance of meat substitutes is questionable making artificial meat production an unattractive strategy for food and beverage industry leaders. For example, a study conducted by Slade (2018) found that if the prices for a hamburger were equal, 65% of food and beverage industry consumers would purchase a beef burger, 21% would buy a plant-based burger, 11% would purchase an artificial meat burger, and 4% would not purchase a burger.

A new strategy available to food and beverage industry leaders is the production of raw fruits and vegetables within vertical or indoor structures. Traditional outdoor production of food like lettuce or tomatoes is a water intensive process where most of the water consumption occurs through evaporation into the atmosphere (United States Department of the Interior, 2018). Conversely, indoor lettuce or vegetable production consumes about 2% of the total water required to produce equal amounts of vegetables outdoors (Al-Kodmany, 2018). Indoor production of fruits and vegetables allows food and beverage industry leaders an opportunity to consume 98% less water, use 96% less land, and use 40 percent less energy to produce the same vegetable products grown outdoors known to have a large water footprint (Al-Kodmany, 2018).

Indoor food production processes consume a small fraction of water when compared with traditional outdoor production of food and beverage industry products. Because of the reduced water consumption with indoor food production, there is no need to clean wastewater, extending the operational efficiency of the processes (Graamans, Baeza, Van Den Dobbelen, Tsafaras, & Stanghellini, 2018). For example, the water that is used during indoor food production of fruits and vegetables, is recycled on a

continuous (e.g., infinite revolving) basis by drip irrigation over the roots of the plants (Al-Kodmany, 2018). Additionally, the lack or absence of soil also reduces water consumption while increasing the operational efficiency with easy harvesting and cleaning procedures (Graamans et al., 2018).

Some business leaders in the food and beverage industry lack strategies for implementing sustainable water consumption practices to improve operational efficiency. The reasons for developing sustainable strategies is population growth, the increasing demand for food and water supplies, accelerating energy requirements, and water scarcity (Aivazidou et al., 2018; Bieber et al., 2018). Business leaders should evaluate all current business processes from different vantage points to develop a new strategy for achieving operational efficiency (Miglietta & Morrone, 2018). Additionally, all stakeholders associated with the food and beverage industry should be valued, coordinated, and optimized, so that business leaders can achieve and maintain sustainable water consumption practices to achieve operational efficiency (Govindan, 2018).

### **Transition**

The purpose of this qualitative multiple case study design is to explore the strategies some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency. In Section 1, I described the study (a) foundation, (b) background, (c) problem, (d) purpose, (e) nature, (f) conceptual framework, (g) operational definitions, (h) assumptions, limitations, and delimitations, and (i) significance of the study. Additionally, I conducted an exhaustive review of recent literature on stakeholder theory, water consumption practices, and

leadership strategies to improve operational efficiency. In Section 2, I examine the project and the purpose of the study focusing on my role as a researcher. I also discuss the participants of the study, research method and design, population, sampling, ethical research, data collection and analysis, and the reliability and validity of the study. In Section 3, I present the research findings of business leaders challenged with reducing water consumption to improve operational efficiency. Additionally, I discuss the presentation of the findings, applications to professional practice, implications for social change, recommendations for action, and recommendations for further research.

## Section 2: The Project

In Section 2, I restate the purpose statement and describe the role I have in this qualitative study. I discuss the participants, research method, design, population sampling, ethical procedures, data collection, and validity of this study. Additionally, I present the details of the data collection, instruments, and techniques for ensuring that the results are reliable and trustworthy.

### **Purpose Statement**

The purpose of this qualitative multiple case study was to explore the strategies some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency. The targeted population consisted of executives and managers from two large U.S. based firms from the food and beverage industry in Wisconsin who had implemented successful sustainable water projects to improve operational efficiency. The implications for positive social change include the potential for executives and managers in the food and beverage industry to gain an understanding of strategies they can use to implement innovative methods of conservation that can help businesses mitigate water security risks that threaten economic growth in local communities.

### **Role of the Researcher**

The role of the researcher in qualitative case studies is different from the role of a researcher in quantitative studies. In qualitative research, the researcher seeks an in-depth understanding of an event through a variety of data sources using words or codes for analysis (Basias & Pollalis, 2018; Symon, Cassell, & Johnson, 2018; Mandal, 2018a;

Yin, 2018). In quantitative studies, the researcher seeks to measure variables using numbers (Grootel et al., 2017; Molina-Azorin & Lopez-Gamero, 2016; Park & Park, 2016). The researcher uses a qualitative lens and perception to gain insight into a phenomenon (Beaulieu, 2018; Janak, 2018); hence, the researcher is the measurement instrument in qualitative studies, whereas in quantitative studies the measurement instrument is a questionnaire, experiment, or survey (Basias & Pollalis, 2018; Symon et al., 2018; Mandal, 2018a; Rogers, 2018; Yin, 2018).

In this study, my role as the researcher involved reviewing the literature, developing semistructured interview questions, selecting and interviewing the participants, securing and reviewing relevant documents, analyzing and interpreting the data, and reporting the findings. I explored and compared the best practices for reducing water consumption to improve operational efficiency. I had no direct or indirect relationship with business leaders, firms, or participants involved with water consumption practices to improve operational efficiency prior to institutional review board (IRB) approval and conducting this study. I adhered to principles in The Belmont Report of 1979 because ethical guidelines are important for protecting human subjects before, during, and after the research (Daku, 2018; Perrault & Keating, 2018). The Belmont Report promoted fairness, beneficence, and respect for people (Friesen, Kearns, Redman, & Caplan, 2017; Perrault & Keating, 2018), which I applied in the treatment of interview participants in this multiple case study.

Though I had no direct relationship with the interview participants in my study, I have personal bias and concerns for the environment, sustainability, and the threat of

water scarcity. Gaikwad (2017) indicated that some people criticize case study research designs because the researcher's preconceived notions of events encourage bias.

Conversely, Smith (2018) postulated that case study researchers provide rich, deep, contextual descriptions of events through triangulation of the data, which helps to reduce bias. To mitigate my personal bias, I used a professionally developed technique called bracketing, which qualitative researchers use to reduce preconceived bias from having an adverse impact on the research process (Fischer, 2009; Vereen et al., 2018; Ward, Comer, & Stone, 2018).

Bracketing is an ongoing self-reflection of a researcher's engagement during the research process. I used bracketing to set aside my assumptions, prior knowledge, and bias so I could focus on the interviews, participants, and data collection with greater clarity (see Archer-Kuhn, 2018; Fischer, 2009; Ward et al., 2018). The process of bracketing to reduce bias involves continuously identifying and recording assumptions about the research topic and checking the data to ensure that the researcher is not imposing a personal viewpoint on the data collected or the study (Thompson, 2018; Fischer, 2009).

To avoid bias, I viewed the data through the lens of stakeholder theory to support the premise that a firm's activities should focus on benefitting all stakeholders (see Chiu & Sharfman, 2018; Min et al., 2018). I made a conscious effort to avoid personal bias even though most researchers display some tendency toward bias in their research (see Vereen et al., 2018). In addition to bracketing, I examined the data for consistency, integrity, and discrepancies. According to Symon et al. (2018), researchers should ensure



the transparency, reliability, and validity of the information provided by the participants. Therefore, I reviewed and validated the material until I achieved data saturation, which involved collected data until no new themes appeared (see Aldiabat & Le Navenec, 2018; Mandal, 2018b; Saunders, Lewis, & Thornhill, 2015). To avoid further potential bias, I adhered to an interview protocol (see Appendix) that promoted consistency before, during, and after the interviews.

Business leaders might benefit from a case study approach using interviews to address reducing water consumption to improve operational efficiency. Water is an essential resource for the food and beverage industry (Hoekstra, 2017). Business leaders from firms in the food and beverage industry and the agricultural industry are responsible for a water footprint of more than 90% of the current 1% of water available for human consumption (Cao et al., 2018; Feingold et al., 2018; Hoekstra, 2017). Additionally, the results of improving operational efficiency may have benefits such as creating sustainable water supplies.

Researchers use interviews for a variety of reasons. According to Basias and Pollalis (2018) and Beaulieu (2018), the rationale for selecting an interview protocol is that interviews reflect the correct approach to answering the research question. By adopting a qualitative methodology using interviews, I gained an in-depth understanding of the participants' perceptions and experiences. Additionally, most firms and business leaders provide data on water consumption through corporate sustainability reports, which usually portray a positive public image (Braam & Peeters, 2018; De Jong, Harkink, & Barth, 2018; Wang, Hsieh, & Sarkis, 2018); however, potential corporate bias

does not discount the value of corporate sustainability reports as reference or cross-reference material.

The interview protocol is a script of what a researcher intends to say before and after an interview. According to Castillo-Montoya (2016), the researcher should share important information with the participants before starting the interview process, and without a script, the researcher is at risk of forgetting something significant. The rationale for writing a script is that a script contains information to help alleviate concerns that the participant may have (Fusch, Fusch, & Ness, 2018; Castillo-Montoya, 2016; Young et al., 2018). The script should include details about the researcher, the purpose of the study, the researcher's contact information, the college or university, and the signing of the informed consent (Fusch et al., 2018; Castillo-Montoya, 2016; Manti & Licari, 2018). Researchers should convey the idea that there might be subsequent contact for data clarification, questions, or member checking (Basias & Pollalis, 2018; Fusch et al., 2018).

### **Participants**

The general eligibility criteria for the participants was that each interviewee worked for a large food and beverage corporation operating in the state of Wisconsin. Additionally, the participants were required to be executives and managers who possess the expertise and relevant skills in water management, sustainability, and methods to achieve operational efficiency. According to Mandal (2018a), Moser and Korstjens (2018) and Wa-Mbaleka (2017), qualitative researchers use purposeful sampling to choose participants that add depth and richness to a study. I used purposeful sampling to

locate and gain access to suitable participants of any gender having the technology to interview via Skype.

Researchers must understand how to gain access to the intended respondents in a study so that the participants meet the general eligibility criteria. To gain access to participants, I obtained IRB approval to conduct the study. After gaining IRB approval to conduct my study, I followed the procedures and narrowed the population to two large firms. I conducted informal meetings with each participant for 10-15 minutes via telephone, introduced myself, and provided contact information by email along with conveying the purpose of the interview and study.

I established rapport with participants by having pre-interview meetings to create working relationships and ensure that participants' characteristics aligned with the purpose of the study (see Castillo-Montoya, 2016). Another reason to conduct pre-interview meetings is to determine whether each participant has the required working technology and tools such as a computer, email, telephone number, and a Skype account or access to use Skype on a computer in her or his workplace or at home (Faulds, 2015; Seitz, 2016). Although technology doubles over time, technological complications develop at the same rate, making it necessary for researchers to mitigate the potential risks associated with technology failures (Reynolds & Lee, 2018).

### **Research Method and Design**

Researchers conduct studies using three basic methods, and researchers make their choices based on factors such as the purpose of a study. The three research methods are quantitative, mixed, and qualitative (Fusch et al., 2018; Grootel et al., 2017; Park &

Park, 2016; Yin, 2018). The design approaches I considered were narrative, ethnographic, and case study. Each research method and design approach has benefits and limitations (Fusch et al., 2018; Mandal, 2018a; Molina-Azorin & Lopez-Gamero, 2016; Park & Park, 2016; Yin, 2018). The method and design chosen depends on the researcher's objectives, including which method offers the strongest probability of achieving the goals (Mandal, 2018a; Park & Park, 2016).

### **Research Method**

Some researchers seek answers to questions using quantitative or mixed-methods approaches in which they attempt to find a relationship between variables using hypotheses and numerical data. Other researchers choose qualitative methods using dialogue, recorded data, and conversations analyzed for themes to explain why or how a particular phenomenon is happening (Ballesteros & Mata-Benito, 2018; Park & Park, 2016). The three research methods are quantitative, mixed, and qualitative (Fusch et al., 2018; Grootel et al., 2017; Yin, 2018).

Quantitative researchers examine the cause of an event and verify the effect of the event on other people. Most researchers are familiar with the concepts of cause and effect, and quantitative researchers seek to find a relationship between those two concepts or variables using a hypothesis (Basias & Pollalis, 2018; Grootel et al., 2017; Park & Park, 2016). Additionally, quantitative researchers attempt to calculate the strength of the association between cause and effect using closed-ended questions, one or more hypotheses, and numerical data to obtain findings (Kilicoglu, 2018; Mandal, 2018a; Molina & Azorin & Lopez & Gamero, 2016). I was not seeking to examine a relationship

between variables, I did not include a hypothesis, and I used open-ended questions; therefore, a quantitative method was not appropriate.

Mixed-methods researchers combine quantitative and qualitative methods, techniques, concepts, approaches, and language into a single study. According to Morgan (2018), mixed-methods researchers must contend with the blurry territory between quantitative and qualitative research. Fusch et al. (2018) contended that a mixed-methods approach involves a great deal of complexity that some researchers are unable to handle. Morgan suggested that some researchers use mixed methods to harness the best qualities of qualitative and quantitative methods. Regardless of individual opinions, researchers who use mixed methods are attempting to discover patterns, test theories and hypotheses, and associate variables or numbers while relying on or uncovering the most suitable set of methods to understand the results (Baskarada & Koronios, 2018; Grootel et al., 2017; Morgan, 2018; Yin, 2018). I did not perform hypothesis testing or use variables or numerical data, so a mixed-methods approach was not appropriate for this study.

Researchers who use a qualitative method are conducting exploratory research to understand the motivation, opinions, and reasons for a phenomenon. Qualitative researchers attempt to describe events in a natural environment in a realistic and holistic manner (Basias & Pollalis, 2018; Kilicoglu, 2018; Roger et al., 2018). Qualitative researchers enjoy and value a creative and fluid environment for research in which the events are flexible and not fixed (Lemon, 2017; Rutberg & Bouikidis, 2018; Young et al., 2018). The focus of qualitative research is why something happens rather than what happened (Park & Park, 2016).

Case studies are popular research designs in the social sciences despite concerns about the credibility of case study data and findings. A case study design is a way for researchers to understand real-life phenomena concerning the relevant conditions (Harrison, Birks, Franklin, & Mills, 2017; Smith, 2018; Yin, 2018). According to Smith (2018), case studies allow researchers to ensure data saturation through the thick or deep and varied sources of information. Enhancing thick descriptions of data with multiple sources allows a researcher to achieve data saturation faster than using one qualitative data collection method (Aldiabat & Le Navenec, 2018; Ospina, Esteve, & Lee, 2018; Smith, 2018; Teagarden, Von Glinow, & Mellahi, 2018).

Researchers using case study designs facilitate multiperspective inquiries that lead to a holistic understanding of cultural structures. Researchers use case studies to ensure that the exploratory questions are answered (Basias & Pollalis, 2018; Smith, 2018; Yin, 2018). I had the ability to reach data saturation using a case study design as opposed to a narrative or ethnographic design. Researchers managing case studies use observations and interviews to explore a phenomenon, collect data, and repeat the process with multiple participants until data saturation is achieved (Aldiabat & Le Navenec, 2018; Mandal, 2018b; Saunders et al., 2018). For the reasons stated, a case study was the appropriate design choice for my study.

Researchers must decide whether they will use a quantitative, mixed, or qualitative method. Although quantitative and mixed methods are associated with numeric data, qualitative methods involve textual data (Basias & Pollalis, 2018; Kilicoglu, 2018; Mandal, 2018a; Molina-Azorin & Lopez-Gamero, 2016; Park & Park,

2016; Yin, 2018). Researchers use qualitative methods to analyze data conveyed through behavior, language, and gestures in a natural setting, which allows a researcher to capture the expressive data that quantitative or mixed methods cannot provide (Basias & Pollalis, 2018; Roger et al., 2018; Smith, 2018). I used textual data obtained through semistructured interviews and open-ended questions and recorded my observations of participants in their natural environment; therefore, a qualitative approach was appropriate for my study.

### **Research Design**

Choosing a design is a challenging event for a researcher, and the importance of selecting a design that fits the purpose and research focus cannot be overemphasized. In the process of deciding what design to use, I considered the following three qualitative research designs: narrative, ethnographic, and case study. Given the three design options available, I chose the design most likely to allow me to reach data saturation.

The narrative research design relies on spoken or written words of individuals or groups, generally focusing on participants lives as described through those participants' stories. Some researchers use narrative designs, autobiographies, art, or storytelling to make sense of the world (Ozdil & Hoque, 2017; Padiglia & Arcidiacono, 2015; Schmitt, 2017). Narrative research involves the investigation of real-life problems that are termed serious storytelling narratives (Lugmayr et al., 2017; Ozdil & Hoque, 2017). For example, George and Selimos (2018) used a narrative research design to collect stories from new immigrants in Ontario Canada, which helped the authors explore community problems through storytelling.

A significant weakness of narrative research is that storytelling is inherently subjective. Narrative researchers might use autobiographies, school documents, newsletters, and pictures as evidence (Lugmayr et al., 2017; Schmitt, 2017). My study centers on sustainable methods of reducing water consumption to improve the operational efficiency of firms, which is a business problem. I did not investigate stories, autobiographical information, community issues, or people's problems, so a narrative design was not appropriate for this study. Additionally, I would not be able to achieve data saturation in my study using a narrative research design.

Ethnography is a qualitative research design distinguished by in-depth assessments of social events as they take place in a particular context so researchers can explain the participants' lived experiences. As a research design, ethnography is a subject of seasoned debates among researchers (Bass & Milosevic, 2018; Giazitzoglu & Payne, 2018; Randall & Rouncefield, 2018). Ethnographic research often requires long periods in the field with an emphasis on detailed interview and observational evidence (Parker-Jenkins, 2018; Wells, 2018; Yin, 2018); therefore, researchers argue over the best methods of achieving extensive, direct contact and encounters with participants, as the subjects play out their various roles related to the phenomenon under investigation (Bass & Milosevic, 2018; Giazitzoglu & Payne, 2018).

Researchers who conduct ethnographic studies interact and observe the participants in a true to life environment. Ethnographic researchers describe and interpret practices, beliefs, shared values, and languages over time, within a specific framework (Bass & Milosevic, 2018; Newth, 2018). An ethnographic design allows researchers the



ability to immerse themselves in situations where people, things, actions, and options have significance inside social groups and cultures (Giazitzoglu & Payne, 2018; Hammersley, 2018). I did not explore or interpret social groups or different cultures, so an ethnographic design was not appropriate for this study. Additionally, I would not be able to achieve data saturation in my study using an ethnographic design.

### **Population and Sampling**

I used a purposeful sampling technique to locate suitable participants of any gender having the technology to interview via Skype. My sampling method was justified because the power and logic of purposeful sampling are rooted in the selection of data-rich cases for in-depth study (Price, Grimmer, & Foot, 2018; Sarkar, Sarkar, Sreejesh, & Anusree, 2018; Wa-Mbaleka, 2017). The use of four participants is consistent with purposeful sampling where the researcher makes use of limited resources (Moser & Korstjens, 2018; Nartey, 2018; Wa-Mbaleka, 2017). Using four participants was justified because fewer participants intensify and strengthen the data collected through individual inquiries, which is consistent with an in-depth qualitative approach for multiple case study designs (Moser & Korstjens, 2018; Wa-Mbaleka, 2017; Yin, 2018).

Case studies are popular research designs that sometimes involve purposeful sampling with a small number of participants. A case study design is a way for researchers to understand real-life phenomenon with respect to the relevant conditions (Harrison et al., 2017; Smith, 2018; Yin, 2018). Researchers can ensure data saturation through the thick and varied sources of information collected from the participants and interviews (Aldiabat & Le Navenec, 2018; Ospina et al., 2018; Teagarden et al., 2018).

Thick descriptions of data with a small number of participants allow the researcher to achieve data saturation faster than less robust methods (Collins & Stockton, 2018; Teagarden et al., 2018). Researchers managing case studies use observations and interviews to explore an event, collect information, and repeat the process with multiple participants until achieving data saturation (Aldiabat & Le Navenec, 2018; Smith, 2018; Yin, 2018).

Data saturation is important to achieve qualitative excellence in a case study. Predetermining a participant sample size that guarantees data saturation in advance of data collection is a subject of debate among researchers (Blaikie, 2018; Sim, Saunders, Waterfield, & Kingstone, 2018; Weller et al., 2018). According to insight from Hagaman and Wutich (2017), researchers can achieve theoretical saturation with a sample size of 2-16 participants. Based on planning a robust and rigorous data collection strategy, I expected my sample of four participants to produce sufficient data replication through the quality of dialogue. Failure to achieve data saturation has a severe impact on the quality of research (Fusch & Ness, 2015; Saunders et al., 2018); however, the four participant interviews proved sufficient to achieve data saturation.

The criteria I chose for participant selection and the interview setting were appropriate for this study. Participant general eligibility criteria was that each interviewee work for a large food and beverage industry corporation operating within the state of Wisconsin. Additionally, the participants must be executives and managers who possess the expertise and relevant skills in water management and methods to achieve operational efficiency. The United Nations Global Compact (2018) is an organization with a publicly

available website with detailed information on members dedicated to sustainability issues such as water stewardship. To meet the general criteria, I searched the United Nations Global Compact website for members within the U.S., which is a practice supported by Mialon, Swinburn and Sacks (2015).

I narrowed the search to members of the United Nations Global Compact that operate within Wisconsin and firms that adopted the United Nations Global Compact principles. Next, I reduced the candidates to large corporations that provided corporate sustainability reports with a section devoted to water stewardship or water management on a corporate website. Publicly available corporate information is usually associated with documents such as financial or sustainability reports from corporate websites. Mialon et al. (2015) indicated that publicly available documents are a rich source of corporate activity and insight on various firms and organizations. The reason for selecting firms with publicly available reports on sustainable water practices is that these firms are the most qualified and likely to meet all the general eligibility requirements for my study. With the pool of firms narrowed down, I made purposeful choices based on corporations that are likely to have teams of executives and managers with experts in water consumption and operational efficiency.

### **Ethical Research**

Conducting ethical research is important so that the participants' integrity remains intact before, during, and after the completion of a project. Part of the ethical research process was ensuring that researchers obtain the consent of participants in a study, which involves the use of a required informed consent document (Mallia, 2018b; Manti &

Licari, 2018; Mumford, 2018; Othman & Hamid, 2018). Informed consent is the process of notifying participants about the potential for risk, due to participation in the study (Mallia, 2018b; Perrault & Keating, 2018; Ross, Iguchi, & Panicker, 2018). The central concern for a researcher is ensuring that the participants understand the risks, goals, and benefits of being involved in a study, before conducting any research (Biros, 2018; Mallia, 2018b; Manti & Licari, 2018; Othman & Hamid, 2018; Ross et al., 2018). In circumstances where a subject chooses not to participate in a study, the researcher must follow certain steps.

When a subject wants to withdraw from a study, a researcher must take measures to protect the former participants' rights. The United States Code of Federal Regulations (2017) 45 CFR 46.116 generally requires a researcher to discontinue all activities if a participant withdraws from all components of a study. No participants withdrew from my study; however, if any participant had expressed a discernable gesture, written, or verbal communication of withdrawal, I planned to immediately destroy any evidence of the former participant, and thank the person for the opportunity. Examples of evidence (destroyed or returned) could be a person's business card, contact information, the informed consent form, or similar information.

I provided a \$20 Starbucks gift certificate to the interview subjects who participated. The intention of the incentive for completed interviews is offering participants a token of appreciation for their contribution to my study. According to Resnik (2015), researchers who offer a small incentive may have few participants, and researchers who offer a large incentive might be perceived as providing inducement.

Additionally, Resnik postulated that expressing appreciation for an interviewee's contribution to research helps reinforce trust between the participant and the researcher, which contributes to building a rapport.

I took several measures and steps to ensure the ethical protection of participants was adequate. The most important step was obtaining voluntary consent from a competent person after explaining the details of my research project (Manti & Licari, 2018; Mallia, 2018a; Ripley, Hance, Kerr, Brewer, & Conlon, 2018). To protect the names of the participants and keep the interviews confidential, the participants reviewed the informed consent document electronically and emailed a response indicating they consent or do not consent, which is a required procedure (Manti & Licari, 2018; Mumford, 2018; Othman & Hamid, 2018).

For my study, all four participants chose to respond by consenting to participate on a voluntary basis. The informed consent files were saved in a portable document format commonly known as a PDF file (Naidu, 2018; Sloan & Hernandez-Castro, 2018). Additionally, Walden University requires I physically protect the data that contains confidential information; therefore, I stored the informed consent PDF files in a locked container with a copy of the associated emailed consent and these documents will remain in that state for five years from the date that Walden University conveys my doctorate (Walden University Doctoral Capstone Resources, 2016).

Other strategies to protect the participants' confidentiality were referring to the participants as P1, P2, P3, and P4 for each participant, and Org 1 and Org 2 for each organization. According to Abdalla, Oliveira, Azevedo, and Gonzalez (2018), and

Korstjens and Moser (2018), establishing credibility is an important factor in gaining a subject's trust. To encourage the participants to be confident in my abilities, I described my status as a doctorate student, and that my chairperson and committee, including Walden University, had approved my application to conduct the study with Walden University's Institutional Review Board approval (Number 11-13-18-0736879).

Additional support for my technical competence to carry out this study was the certificate of completion (Number 2878721) from the National Institutes of Health in protecting human research participants; Walden University required the completion of this training before I began this research project (Walden University Doctoral Capstone Resources, 2016). Additionally, to further protect the confidentiality of the participants, I followed protocols and recommendations from Hawkins (2018), Mamonov and Benbunan-Fich (2018), and Pescheny, Pappas, and Randhawa (2018), by storing the password enabled PDF data interview files in a locked container. Using this method, the confidential files remain secure for five years from the date that Walden University conveys my doctorate. When five years have passed, I will electronically destroy the data stored on the computer chip, along with any related hard copies to protect the confidentiality of the participants as suggested by Hawkins (2018), Mamonov and Benbunan-Fich (2018), Pescheny et al. (2018), and Ross et al. (2018).

### **Data Collection Instruments**

I was the primary data collection instrument conducting the semistructured recorded interviews via Skype as the primary source of data. I completed four interviews with two executives and two managers from two different food and beverage industry

firms. Using insight from Fusch et al. (2018), Gaikwad (2017), Smith (2018), and Yin (2018), I compared the secondary data (e.g., multiple sources of evidence) such as corporate reports with the resulting patterns and themes from the primary data such as the Skype transcriptions and coding for multiple data source triangulation. According to Castillo-Montoya (2016) and Hoover, Strapp, Ito, Foster, and Roth (2018), developing and refining an interview protocol strengthens the reliability and validity of the data collected during interviews.

I adopted an interview protocol (see Appendix) based on insight from Castillo-Montoya (2016) and recommendations from Yin (2018) that began by introducing the interview session and myself to each participant and presenting the informed consent document and obtaining consent. Skype is a research tool and interview medium in professional qualitative case studies often used to capture and confirm the reliability and validity of interview data collected (Basias & Pollalis, 2018). When a researcher enables the Skype program and connects with a participant the interview begins. I used the Evaer call recorder for Skype as the primary program to transcribe the participant interviews. Using insight from Reynolds and Lee (2018), I employed a backup recording device built into my laptop computer to mitigate potential technological program failures.

The use of Skype as an interview tool and medium is widely accepted. Skype is a tool researchers can use to develop opportunities for qualitative interviews that were not otherwise possible (Lo Iacono, Symonds, & Brown, 2016; Jenner & Myers, 2018). With the recording devices employed, I introduced the participants with the coded identification of P1-P4, note the date and time, and started the process. I presented the

interview questions and followed up with additional questions. Respondent validation allowed me to review and confirm the participants' responses (see Birt, Scott, Cavers, Campbell, & Walter, 2016). I ended each interview sequence by discussing and arranging the member checking appointment, and thanking the participants.

Researchers can enhance the reliability and validity of the data collection instrument process in a variety of ways. Qualitative researchers help ensure the validity and reliability of the interview data collected by performing member checking (Chase, 2017; Hawkins, 2018). Based on insight from Aldiabat and Le Navenec (2018), Morris, Onwuegbuzie, and Gerber (2018), and Roger et al. (2018), researchers can increase the reliability and validity of the data collection instrument by employing member checking. I conducted the member checking (see Appendix) by synthesizing each question/response and asking each participant probing follow-up questions as suggested by Fusch et al. (2018). After completing the member checking, I thanked the participants and provided my contact information.

I downloaded secondary data from the participants' corporate websites. Mialon et al. (2015) indicated that publicly available documents are a rich source of corporate activity and insight on various firms and organizations. I navigated to the websites for each firm, searched the sites for sustainability reports, and downloaded the data to a PDF document format. The reason for using publicly available reports on sustainability is that the information can be obtained by anyone (e.g., researchers, scholars, or businesspersons) wishing to verify the data or repeat the research process. Based on insight from Fusch et al. (2018), Korstjens and Moser (2018) and Mandal (2018b),



studies that are repeatable have transferability to similar or different situations adding value to the original research.

### **Data Collection Technique**

I collected the primary data from four recorded interviews via Skype using the abridged interview protocol in the Appendix. Using insight from Fusch et al. (2018), Gaikwad (2017), Smith (2018), and Yin (2018), I gathered and compared the secondary data to the primary data using ATLAS.ti to discover themes and patterns in the material, and record the results on an Excel spreadsheet. The types of secondary data were corporate sustainability reports or data within a firm's website that describes the firms' method of water stewardship. I assembled the secondary data by downloading information or documents from the participant corporate websites, using my laptop computer, keyboard, mouse, and the Internet.

Qualitative data analysis software such as ATLAS.ti, is a valuable tool that researchers can use to organize and synthesize data while developing a robust analysis (Bauer & Ahooei, 2018; Friese, Soratto, & Pires, 2018; Jackson, Paulus, & Woolf, 2018; Paulus, Woods, Atkins, & Macklin, 2017). Researchers encounter some advantages and disadvantages when collecting data and information. The advantages of the collection technique I chose is that ATLAS.ti allowed me to make data and text more manageable while permitting the use of other programs such as Excel and Word (Friese et al., 2018; Given & Willson; Veloso, Orellana, & Reeves, 2018). The disadvantages of this collection technique were that if I sought to collaborate with another researcher that uses

a different software package such as NVivo, ATLAS.ti is not compatible with other qualitative data analysis software (Paulus, Evers, & de Jong, 2018).

The secondary data was collected by downloading information or documents from the participant corporate websites, using my laptop computer, keyboard, mouse, and Internet. Mialon et al. (2015) indicated that publicly available documents are a rich source of corporate activity and insight on various firms and organizations. The United Nations Global Compact (2018) is an organization with a publicly available website with detailed information on members dedicated to sustainability issues such as water stewardship. I searched the United Nations Global Compact website for members within the U.S., which is a data collection technique supported by Mialon et al. (2015).

I narrowed the search to members of (and firms that endorse) the United Nations Global Compact that operate within Wisconsin. Next, I reduced the candidates to large corporations that provided corporate sustainability reports with a section devoted to water stewardship or water management. I navigated to the websites for each firm, searched the sites for sustainability reports, and downloaded the data to a PDF document format. I placed the documents in a folder on my laptop computer desktop for use in data triangulation, which is a process supported by Gaikwad (2017), Mandal (2018a), Smith (2018), Symon et al. (2018), and Yin (2018).

Pilot studies help researchers highlight ambiguous information, gain better insight on the time interviews take, and establish a pace for the entire process. According to Dikko (2016), a pilot study allows the researcher to ascertain how things will work in the actual study by identifying problem areas. Pilot studies might add credibility and value to

the research process; however, having received IRB approval of my dissertation proposal, I did not conduct a pilot study. I completed the recorded Skype interviews with each participant, which is a procedure I used based on insight from Aldiabat and Le Navenece (2018), Chase (2017), Hawkins (2018), Roger et al. (2018), and Morris et al. (2018), to ensure that the data and themes collected and analyzed were accurate, reliable, and valid. Additionally, I communicated with each participant to review the material and gain his or her (member checking) feedback. Jenner and Myers (2018), Lo Iacono et al. (2016), and Yin (2018) support using Skype for qualitative research.

### **Data Organization Technique**

The process starts by checking the data, entering raw data into ATLAS.ti and an Excel spreadsheet. With insight from Fusch et al. (2018), Gaikwad (2017), Jackson et al. (2018), Smith (2018), and Yin (2018), I stored, tracked, and translated the data collected into themes. Additionally, Microsoft Excel and Word programs are useful tools that researchers can use to identify topics, themes, trends, and patterns (Jan, 2018).

I took codes that emerged from the data and used the analysis software and developed themes. I employed selective color-coding for data so I can associate relevant material with the emerging themes, as practiced or recommended by Daniel (2018), Saunders et al. (2018), and Yang et al. (2018). Following insight from Hawkins (2018), Pescheny et al. (2018), and Ross et al. (2018), I scanned relevant paper or hard copies into PDF format and saved the recorded interviews, documents, and related data on a chip with a password in a locked container to protect the confidentiality of the participants.

I am the only person with access to the computer chip containing the electronic files. To protect the confidentiality of the participants, I followed protocols and recommendations from Hawkins (2018), Mamonov and Benbunan-Fich (2018), and Pescheny et al. (2018), by storing the password enabled PDF files in a locked container for five years from the date that Walden University conveys my doctorate. To further protect the participants and respective firms, data presented in this dissertation might be altered in situations where revealing certain information would or could identify the participant (s). When five years have passed, I will electronically destroy the data stored on the computer chip, along with any related hard copies to protect the confidentiality of the participants as suggested by Hawkins (2018), Mamonov and Benbunan-Fich (2018), Pescheny et al. (2018), and Ross et al. (2018).

### **Data Analysis**

I conducted an analysis of the primary and secondary data. Using triangulation supports the believability of research data collected (Fusch & Fusch, 2015; Fusch et al., 2018; Fusch & Ness, 2015; Mandal, 2018a; Symon et al., 2018). Methodological triangulation involves the use of multiple methods of obtaining detailed information about a phenomenon (Abdalla et al., 2018; Fusch et al., 2018). Gaikwad (2017), Mandal (2018a), Smith (2018), Symon et al. (2018), and Yin (2018) support using triangulation and multiple sources of evidence. Through methodological triangulation, I converged the primary and secondary data to increase the validity through verification, which provides the audience with a comprehensive view of the phenomenon.

Following the completed interviews using the protocol (see Appendix), I transcribed and imported the data into the ATLAS.ti software program. According to Bauer and Ahooei, 2018, Friese et al., 2018, Jackson et al., 2018, and Paulus et al., 2017, qualitative data analysis software such as ATLAS.ti is a valuable tool. I used ATLAS.ti to identify themes and develop a robust analysis. I correlated and focused on the key themes using the analysis (e.g., Analyze tab) feature from the ATLAS.ti program, which involves enabling co-occurrence table and coding features (e.g., in vivo coding, open coding, quick coding). Friese et al. (2018), Given and Willson (2018), and Veloso et al. (2018) support the use of coding and themes in qualitative research. The ATLAS.ti program made it easy for me to associate the codes and key themes derived from the interview participants' data to the material in the literature review and conceptual framework.

I used output of the ATLAS.ti program to focus on the key themes, literature, and conceptual framework in my analysis of collected data. Friese et al. (2018), Given and Willson (2018), and Veloso et al. (2018) support using themes and codes in qualitative research. Once the codes and key themes were identified, I uploaded the literature review and conceptual framework to the ATLAS.ti program. I focused on the key themes using the triangulated data by enabling the analyze tab and co-occurrence table. Using ATLAS.ti is an acceptable method of developing themes and conducting a rigorous qualitative data analysis (Bauer & Ahooei, 2018; Friese et al., 2018; Jackson et al., 2018; Paulus et al., 2017).

To review the overall process, I converged the primary and secondary data to increase the validity through verification, which provides the audience with a comprehensive view of the phenomenon via methodological triangulation. Methodological triangulation involves the use of multiple methods of obtaining detailed information about a phenomenon (Abdalla et al., 2018; Fusch et al., 2018). Using guidance from Assarroudi, Heshmati Nabavi, Armat, Ebadi, and Vaismoradi (2018) and Yin (2018), I conducted the data analysis using ATLAS.ti software. I reviewed and transcribed the interview data and conducted member-checking interviews to validate or correct data. I extracted the key codes and themes from the interview data and corporate sustainability reports and presented the findings with themes one through four.

### **Reliability and Validity**

The decision to trust the data within a case study is based on whether or not the information collected is reliable and valid. Therefore, researchers base how trustworthy data is by the reliability and validity of the information (Korstjens & Moser, 2018; Mandal, 2018b; Rogers, 2018). Reliability is associated with dependability where researchers conduct interviews, interpret data, transcripts, and perform member checking (Levitt et al., 2018; Mandal, 2018b; Rogers, 2018). Validity refers to credibility, transferability, confirmability, and how the researcher ensures data saturation (Korstjens & Moser, 2018; Mandal, 2018b; Rogers, 2018).

#### **Reliability**

Researchers evaluate the meaning and adequacy of data collected for reliability and validity. Qualitative researchers ensure the dependability of their work by making

proper decisions, methods, and documenting the material available (Daniel, 2018; Korstjens & Moser, 2018; Mandal, 2018a). Dependability is a measure of quality and the stability of the data collection and analysis performed over time (Gill, Gill, & Roulet, 2018; Korstjens & Moser, 2018). To promote the dependability of my research, I interviewed several experts from the food and beverage industry who provided the deep, thick, rich descriptions of subject matter that are preferred for a rigorous case study (Aldiabat & Le Navenec, 2018; Castleberry & Nolen, 2018; Ospina et al., 2018; Smith, 2018; Teagarden et al., 2018).

I addressed dependability through transcript reviews, data interpretation, and member checking. According to DeVaney, Spangler, Lee, and Delgadillo (2018), transcripts of audio and video recordings are standard types of data collected in a qualitative study. I used Skype to conduct audio recordings of the interviews, which is a tool that qualitative researchers use to capture and confirm the reliability of data collected (Basias & Pollalis, 2018; Jenner & Myers, 2018; Lo Iacono et al., 2016). Additionally, based on insight from Reynolds and Lee (2018), I employed two recording devices (e.g., one primary recorder with a backup secondary recorder) to mitigate potential technological program failures.

I completed the interviews and the interview transcriptions. Member checking is a method of gaining participant feedback to validate the credibility, accuracy, and transferability of a qualitative study (Malave, Diggs, & Sampayo, 2019; (Tingle, Corrales, & Peters, 2019). Based on insight and guidance from Aldiabat and Le Navenec (2018), Chase (2017), Hawkins (2018), Morris et al. (2018), and Roger et al. (2018), I

conducted member checking by presenting the themes, summary of the findings, and providing the participants with the opportunity to confirm or correct findings.

Additionally, by conducting member checking, researchers avoid bias by confirming that the data collected emerged from the participants and not the researcher (Aldiabat & Le Navenec, 2018; Chase, 2017; Davis, Clayton, & Broome, 2018).

### **Validity**

Researchers are required to provide detailed information on how they will provide research data with validity. Concerns regarding the validity and rigor of findings are widespread throughout social sciences (Abdalla et al., 2018). According to Mandal (2018a), researchers can achieve credibility by persistent observation and triangulation of data that helps to promote validity. Using guidance from Levitt et al. (2018), Symon et al. (2018), and Mandal (2018a), I ensured the credibility of my study with transparency while avoiding bias. Following standard practices like triangulation reinforces the validity and reliability of research data collected (Fusch & Fusch, 2015; Fusch et al., 2018; Fusch & Ness, 2015; Mandal, 2018a; Symon et al., 2018).

According to Abdalla et al. (2018), methodological triangulation contributes to validity and credibility by allowing the researcher to provide a more trustworthy picture of the event occurring. I established transferability by providing readers with evidence that the findings from my research study might apply to other situations, times, populations, and contexts. Transferability is a check for the external validity of a research project (Abdalla et al., 2018; Daniel, 2018; Mandal, 2018a). Transferability refers to the



researchers' ability to provide sufficient detail to contextualize the interpretations made (Gill et al., 2018; Levitt et al., 2018).

My study is transferable to settings other than water consumption practices to improve a firm's operational efficiency. For example, researchers could follow my research design and perform a study on water recycling to improve the availability of water for communities or consumers. Additionally, based on insight from Fusch et al. (2018), Korstjens and Moser (2018), and Mandal (2018b), my research is transferable because the procedures I followed are repeatable by other researchers.

Confirmability is a concept related to researchers' concern about the objectivity of a study. With guidance from Abdalla et al. (2018), I took measures to ensure that the findings from my work emerged from the participants' data, and not from my personal biases, traits, or preferences. Using methodological triangulation as a method of promoting confirmability, I reduced the effects of my personal bias's (Fusch et al., 2018; Gill et al., 2018; Korstjens & Moser, 2018). Dependability and confirmability are concepts related to a researchers' audit trail and the value of triangulation is grounded in the researchers' potential to establish contrasting and competing interpretations of data (Abdalla et al., 2018; Gill et al., 2018).

Data saturation involves analyzing the data until no new themes appear in the data collected. Data saturation is a subject of debate among researchers, and most researchers cannot guaranty data saturation in advance of data collection (Saunders et al., 2018; Weller et al., 2018). I created conditions that promoted the possibility of reaching data saturation such as conducting thick, in-depth interviews with the participants, transcribing

an accurate description of the data, and reviewing the primary and secondary data (Aldiabat & Le Navenec, 2018; Ospina et al., 2018; Smith, 2018; Teagarden et al., 2018). Additionally, while I only interviewed a small sample of participants, I used purposeful sampling to select data rich cases for in-depth study while making use of limited resources (Moser & Korstjens, 2018; Wa-Mbaleka, 2017).

### **Transition and Summary**

In Section 2, I examined the project and the purpose of the study focusing on my role as a researcher. I also discussed the participants of the study, research method and design, population, sampling, ethical research, data collection and analysis, and the reliability and validity of the study. In Section 3, I present the research findings of business leaders challenged with reducing water consumption to improve operational efficiency. Additionally, I discuss the applications to professional practice, implications for social change, recommendations for action, and recommendations for further research.

### Section 3: Application to Professional Practice and Implications for Change

#### **Introduction**

The purpose of this qualitative multiple case study design was to explore the strategies some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency. I obtained the primary data using an interview protocol with executives and managers and the secondary data from publicly available corporate sustainability reports. I performed a thematic analysis of the interview data for P1 and P2 from Org 1, and P3 and P4 from Org 2, and corporate sustainability reports of Org 1 and Org 2. I identified three major themes as (a) efficient equipment, (b) stakeholder and sustainability focus, and (c) water recycling. I identified one minor theme as supply chain support. The findings suggest that the leadership from the two organizations promotes sustainable and efficient practices such as water conservation and recycling while maintaining a strong focus on the stakeholders. Additionally, most of the strategies included a focus on reduced water consumption and improved the operational efficiency of the companies.

#### **Presentation of the Findings**

The central research question for this study was the following: What strategies do some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency? I transcribed audio recordings from four participant interviews and coded data from the transcripts and corporate reports using ATLAS.ti. The resulting codes were organized into emergent themes. In Section 3, I present the findings associated with the themes, the literature review, and the conceptual

background. I identified three major themes as (a) efficient equipment, (b) stakeholder and sustainability focus, and (c) water recycling. I identified one minor theme as supply chain support. The pertinent findings were that some business leaders (a) seek out and install efficient equipment and implement methods of creating food and beverage products without the use of water, (b) pursue chemical-free methods of sanitizing food and beverage products to reduce the need to remove the chemicals from water at the end of the production cycle, (c) use centralized computer equipment and software that allows water use to be monitored through the entire process of production, (d) focus on the stakeholders' needs and operate in a more sustainable and efficient manner, (e) employ biodigestion technology filters to make water available for reuse while creating reusable energy in the process, and (f) divert production processes of raw materials to supply chains to reduce the burden of being directly involved with high water consumption practices.

The major themes have a direct impact on water consumption and operational efficiency for Org 1 and Org 2, and the minor theme has an indirect impact on Org 1 and Org 2. These findings are consistent with the literature review, conceptual framework, and recently published research indicating that primary stakeholders have a direct impact and secondary stakeholders have an indirect impact on business operations (see Freeman, 1984; Labanauskis & Ginevicius, 2017; Costa & Goulart da Silva, 2019). Cadez, Czerny, and Letmathe (2019) indicated that some business leaders agree that all stakeholders should be considered in business practice, but not all stakeholders are equally important to business leadership.

## Major Themes

The themes resulted from data collected via four participants and corporate reports. I gathered relevant information from executives and managers in the food and beverage industry with expertise in reducing water consumption to improve operational efficiency. The research question was the following: What strategies do some food and beverage industry leaders use for implementing sustainable water consumption practices to improve operational efficiency? The themes aligned with my research question because I found that food and beverage industry leaders implement strategies using efficient equipment, water recycling, supply chains, and a focus on stakeholders and sustainability to improve operational efficiency.

**Efficient equipment.** All business leaders who participated in this study mentioned the need to obtain equipment that was more efficient. Additionally, all the executives and managers that participated in this study conveyed that they saved or reduced water consumption to improve the overall efficiency of operations. Some equipment (a) reduced water loss, (b) recycled water, and (c) treated water to meet government regulatory requirements. Some business leaders are seeking sustainable chemical-free methods of reducing water consumption with good reason. A reduction in chemicals reduces a firm's need to remove chemicals from water at the end stage of production. Additionally, some executives and managers are using or researching cleaning and sanitation methods that do not use any water or chemicals, to further reduce water consumption and improve operational efficiency.

*Participant interview and corporate report data input from Org 1.* The data I collected from P1 and P2 indicated the need for new equipment. P1 and P2 accomplished this strategy through regular equipment maintenance checks, and using input from engineers, quality specialists, line workers, and technicians. The leaders installed centralized computer equipment and software to monitor the use of water through various processes in production. The barriers to efficiency were incompatible equipment, which resulted in higher costs for equipment replacement and added stress on other production lines because one or more production lines were down awaiting repairs. The potential results were leaks, spills, and water waste because of the higher demands placed on a canning or bottling line.

P1 and P2 installed steam systems to save water and were testing cold ozone as a method of cleaning equipment and disinfecting tanks without the need for water. P1 stated,

We are testing ozone equipment for disinfecting tanks, equipment, and filling machines. Both processes reduce our consumption of water, but the advantage of ozone is that it doesn't require the use of hot water, so there is less wear on our tanks, equipment, and joints; hence the lifecycle of our equipment might be extended using ozone over steam coupled with increased efficiency.

P2 observed,

We are testing cold ozone equipment in several tanks as this is another chemical free option we might be adopting in the future primarily because cold ozone doesn't require heat to treat a surface, bottle, or can, so this process uses less

energy and the water use is reduced because we can avoid the final rinse stage using cold ozone.

***Participant interview and corporate report data input from Org 2.*** The data I collected from P3 and P4 indicated the primary equipment P3 and P4 sought and obtained was a commercial off-the-shelf centralized computer and software system that was capable of monitoring their water consumption and use at various stages of the production process. According to P3, “We needed something that could handle the data from all the processes, a common solution to our production and sustainability issues that didn’t require customization where we would have to wait for two or more years for software.” Implementation of the plan involved a plant operations specialist, Internet technology engineers, and industrial engineers.

Org 2 purchased a main execution system (MES), which worked well; however, the barriers to sustainable water consumption practices to improve operational efficiency turned out to be the employees. P4 stated, “I had to call for several meetings where I reminded everyone that software doesn’t actually fix things on the line.” Managers had to assemble workers and explain that the MES only identifies potential issues, and the workers must interpret what the software identifies and attempt to find a resolution to what the software identified as a problem. P3 and P4 were able to install and use a working MES that tracks water use to a finite level, which allowed their firm to improve operational efficiency.

**Stakeholder and sustainability focus.** The executives and managers interviewed for this study conveyed a strong dedication to stakeholders with a central focus on

sustainability. Water scarcity forced executives and managers to operate with greater efficiency, and the business leaders I interviewed understood that reducing water consumption improved operational efficiency. Three participant business leaders demonstrated knowledge of the association between water, food, and energy, and the fourth participant made some references to a connection between water use and the cost of energy.

*Participant interview and corporate report data input from Org 1.* According to P1, “The main strategy we used was staying focused on the stakeholders. Keeping that focus allowed us to come full circle with sustainable issues such as water use and becoming more efficient.” Org 1 links annual executive compensation to sustainability, water conservation, and good stewardship of water to provide a top-down incentive for business leaders to ensure sustainable, efficient practices are being employed. P1 and P2 focused their attention on sustainable practices for their firm and surrounding communities, consumers, and suppliers. An unsuccessful strategy was focusing on profits instead of stakeholders. P1 and P2 discovered some successful strategies on water conservation by collaborating with a local water council to discuss new technology and interview new talent. By recruiting students from technology backgrounds, P1 and P2 have been able to take the lead in water stewardship, improving biodiversity, soil health, improving water efficiency, reducing water use in the agricultural supply chain, and managing wastewater.

*Participant interview and corporate report data input from Org 2.* According to P1, “We have a longstanding commitment to good water stewardship and sustainability



for all stakeholders.” P1 and P2 overcame barriers to implementing sustainable water consumption practices to improve operational efficiency by proving to the executives it was in the best interest of the firm. P1 and P2 carried out a series of strategies over time, which demonstrated that transforming into a sustainable firm, conserving water, and caring for all stakeholders was a winning strategy. P1 and P2 stressed the idea that saving water is only one part of their strategy, and that reducing their carbon footprint, saving energy, and creating renewable energy was also part of their plans.

**Water recycling.** The participants interviewed for this study detailed a variety of methods, plans, and strategies used to recycle water to reduce water consumption practices and improve operational efficiency. The most significant discovery was the use of biodigestion technology that allows water waste to be filtered and recycled while creating reusable energy that the firms can use for production. This process reduces the amount of water a firm consumes, improves the operational efficiency of a firm, and increases available water supplies. Additionally, biodigester technology allows firms to return or restore water to sewage systems, watersheds, lakes, or other bodies of water while meeting regulatory requirements at no additional cost, making the entire recycling process operationally efficient.

*Participant interview and corporate report data input from Org 1.* According to P1, “Our top to bottom commitment to sustainability drives down water use, one of our strategies was reducing our water to beverage ratio. To do this, we implemented bio digester technology.” P1 and P2 indicated that biodigester technology creates energy from waste, and one of the greatest benefits was the cost-free recycling of water through

biodigestion that allows them to return water to city sewers, lakes, or other bodies of water while meeting government regulations. P2 stated, “anaerobic digesting processes generate a stable energy source that we divert back into other processes. This process allows us to consume less water, produce less waste, and reduces our energy use and this in turn reduces water use.”

*Participant interview and corporate report data input from Org 2.* According to P3, “A successful strategy was our commitment to ensuring water is available, accessible, safe, and affordable. We know that if water supplies become scarce that our behavior had an impact that drives the price of water up.” P3 and P4 created a water waste to energy program, which takes unusable water and turns it into energy. The two-tier process removes nitrogen from water using innovative biological processes and an autotrophic process that is carbon free. Both methods convert the nitrogen into a gas without the need for chemicals; hence, it is a sustainable method of recycling water and reducing waste. Leadership from Org 2 discovered ways to reduce water consumption by benchmarking other successful food and beverage industry firms. P3’s and P4’s motivation was that in certain geographical locations, the cost of electricity was a barrier to operational efficiency, and by using biotechnology they converted water waste into energy (e.g., methane gas and electricity) that powers 25% of their plants electricity needs. Biotechnology allowed P3 and P4 to obtain a 20-year flat rate power agreement that reduced their cost of operating, allowing them to consume water at a sustainable level while maintaining operational efficiency.

**Minor Theme: Supply Chain Support**

All business leaders I interviewed demonstrated their strong support for the organizations within their supply chains, which for this study was related to agriculture and farm products used to produce food and beverage products. Executives and managers from Org 1 and Org 2 indicated that most of the water consumption involved in producing their food and beverage products was within their supply chains and not directly associated with production. The indirect relationships allowed business leaders and firms to assist suppliers in reducing water consumption and improving efficiency without the burden of being directly involved in high water consumption.

**Participant interview and corporate report data input from Org 1.** According to P1 and P2, a large portion of their firm's water footprint comes from their supply chain. P2 stated, "What we didn't cover before was our grower portal. That is a digital platform that helps decrease water use with our agricultural supply chain." Org 1 used to be involved in agriculture but turned to sustainable farmers in their supply chain to provide the raw materials required for production of food and beverages. Having the supply chain provide agricultural products allows Org 1 to support farmers through grants, water stewardship programs, and innovative supplies that reduce water consumption and improve efficiency. According to P2, "We help suppliers grow their crops in a more sustainable manner using precision irrigation technology coupled with companion cropping. The result is greater efficiency, less water use, and higher crop yields."

**Participant interview and corporate report data input from Org 2.** According to P3 and P4, their firm used to grow their own agricultural products, but P3 and P4 delegated those duties to members of their supply chain that operated in a more sustainable manner while providing the meat and produce supplies Org 2 required. Through managing their supply chain, P3 and P4 work with small businesses and farmers on groundwater projects to capture water for reuse and on drip irrigation systems to stop water from being lost to evaporation. P4 supports indoor and outdoor farming. P4 stated, “Indoor farming supplies year round produce, and uses 70% less water than an outdoor farm does to supply comparable produce, but we support all farmers in our supply chain.”

### **Relationship Between Themes and Literature Review**

The participant and corporate data I analyzed helped me confirm and extend prior findings on water consumption practices and improving operational efficiency. Under most circumstances, the production of food and beverage products involves the use of energy, food, and water. Because of the association between energy, food, and water, when a firm saves, recycles, or reuses water, a given organization or entity will experience some degree of improved operational efficiency (Dargin, Daher, & Mohtar, 2019; Liu et al., 2019; Zhou et al., 2019).

**Efficient equipment.** Water consumption management involves implementing and developing strategies targeting a reduction in the demand for water by conducting an analysis to improve the efficiency of operations and internal equipment. The participant and corporate report findings extended previous findings by Meneses and Flores (2016) and Baleta, Mikulcic, Klemes, Urbaniec, and Duic (2019) confirming that one successful

strategy is converting inefficient equipment and production processes into efficient equipment and processes. In the literature review, I noted that to reduce water consumption and improve operational efficiency, business leaders must have the ability to track their water use. The participant and corporate report findings extended previous findings by Cairns and Macpherson (2017), Valta et al. (2015), and more recently published work by Helmstedt et al. (2018), confirming that some business leaders implemented strategies to install equipment that identifies and measures water consumption throughout production lines to improve operational efficiency.

**Stakeholder and sustainability focus.** In the literature review, I described how sustainability emerged from a scholarly consensus that the Earth and people must be cared for and nurtured and that by doing so, benefits should materialize. Stakeholder theory, established by Freeman (1984), was the conceptual framework for this study, and the fundamental principles of stakeholder theory were developed through a sustainability lens. According to Dubey et al. (2017), government policies, peer pressure, values, market demands, attitude, resources, behavior, and promotions are the drivers that shape sustainability. However, the participant and corporate data I analyzed confirmed that the business leaders in this study focused on the stakeholders and sustainability in actual everyday practice. Many executives and managers realized that caring for the stakeholders and operating in a sustainable manner has numerous benefits for their firms such as an increase in water supplies, greater operational efficiency, and the ability to continue business operations.

**Water recycling.** I referred to wastewater in the literature review and the need for firms to recycle and reuse water for various purposes. Prior to conducting the participant interviews and reviewing corporate reports, I was unaware that many firms operate their own wastewater treatment facilities and recycle the wastewater. The participant and corporate report findings extended previous findings within my literature review, to include recently published studies and literature by Briao, Salla, Miorando, Hemkemeier, and Favaretto (2019), Cruz-Salomon et al. (2019), and Liu et al. (2019), confirming that processing water waste and recycling water is a more recent strategy; but now a routine procedure in the course of producing food and beverages. As a practical application, filtering, recycling, and reusing wastewater allows firms to use less water within overall operations. Using less water increases available water supplies, consumes less energy, and improves operational efficiency as described and supported from recent studies and literature by Dargin et al. (2019) and Li, Huang, and Sun (2019).

**Supply chain support.** In the literature review, I identified an external strategy that allowed business leaders and their respective firms to consume less water and improve operational efficiency using sustainable supply chain firms. Marston et al. (2018) suggested procuring raw materials and products from sustainable suppliers that are already practicing good water stewardship. Contestabile (2018) estimated that over 90% of organizations could reduce industrial water footprints by switching to water efficient suppliers. The participant and corporate report data I reviewed confirmed that the business leaders from Org 1 and Org 2 have subcontracted, delegated, or created

partnerships with water efficient suppliers, and that Org 1 and Org 2 assist their suppliers in efforts to reduce water consumption and improve operational efficiency.

Leaders from Org 1 and Org 2 support farmers within their supply chains through grants, corporate and community programs providing equipment that helps reduce water consumption and improve operational efficiency. Other support involves assistance in recovering ground water, waterways, and watersheds. Executives and managers from Org 2 support indoor farming, which Al-Kodmany (2018) identified as a process that uses 2% of the water that a traditional outdoor farm would consume to produce equivalent crops. Traditional outdoor production of food like lettuce or tomatoes is a water intensive process where most of the water consumption occurs through evaporation into the atmosphere (United States Department of the Interior, 2018).

### **Relationship Between Themes and Conceptual Framework**

Stakeholder theory, established by Freeman (1984), was the conceptual framework for this study. Authors I cited in my literature review, such as Labelle et al. (2018) and Payne and Raiborn (2018), expressed the idea that executives and managers should be mindful of all stakeholders and not just the stockholders. I confirmed that all participant managers and executives in this study consistently conveyed their dedication to the stakeholders from within and without their respective firms, a position that is supported by recent work by LeCrom, Martin, Dwyer, and Greenhalgh (2019).

**Efficient equipment.** By replacing inefficient equipment with efficient equipment, business leaders are being mindful of all stakeholders. Reducing water consumption improves operational efficiency. Participant business leaders confirmed the

use of strategies aimed at reducing water consumption through direct methods such as converting high water using equipment in a bottling line to waterless equipment, or indirect methods like buying drip irrigation piping for an organization within a supply chain. Some of these strategies were cited in the literature review by Al-Kodmany (2018), Barbera and Gurnari (2018), and Cairns and Macpherson (2017). By operating with efficient equipment in a more sustainable manner, executives and managers increase the value of their products and their firms, while being mindful of the stakeholders, which is consistent with Labelle et al. (2018), Payne and Raiborn (2018), and recent literature by LeCrom et al. (2019).

**Stakeholder and sustainability focus.** The need for firms to care for the stakeholders and operate in a sustainable manner is mentioned repeatedly in the conceptual framework and literature review, usually as separate concepts; however, the data provided by the executives and managers in this study extended knowledge in the discipline by confirming their belief that a strong focus on stakeholders and sustainability is important. Some business leaders including those in this study believe that the two concepts of stakeholders and sustainability are inseparable to be an effective business practice, which is supported by recent literature from Bastas and Liyanage (2019), and Nikolaou, Tsalis, and Evangelinos (2019).

**Water recycling.** In my literature review and conceptual framework writing about stakeholder theory, I characterized stakeholders as human beings or business entities with an interest in a firm's activity; however, the business leaders in this study disconfirmed my notion of stakeholders. All business leaders in my study referred to the



environment being a stakeholder. Literature in the conceptual framework by Benlemlih and Bitar (2018) supports the notion that the natural environment is a stakeholder. Additionally, recently published literature by Freudenreich, Ludeke-Freund, and Schaltegger (2019) and Gambeta, Koka, and Hoskisson, (2019), also refer to the environment as a stakeholder.

**Supply chain support.** The participant executives and managers in this study conveyed their ongoing support for the members within their supply chains. In the conceptual framework, Freeman (1984) identifies secondary stakeholders, which are people and firms within an organizations supply chain. Therefore, based on the literature review, conceptual framework, and themes, when interview participants from Org 1 and Org 2 confirm their support for their supply chain, they are referring to indirect support for secondary stakeholders, which do not have a direct impact on their individual firms.

### **Applications to Professional Practice**

Leaders, executives, and managers from the food and beverage industry may benefit from the study findings by learning of strategies they can use to improve operational efficiency by decreasing their water footprint and creating more sustainable water supplies. Effective stewardship of water is of benefit to all organizational stakeholders and to the professional practice of business (Barbosa et al., 2017; Schaefer, Udenio, Quinn, & Fransoo, 2019). Efficient water management is essential for the food and beverage industry so that sustainable sources of water are readily available so firms can grow and compete in the marketplace (Guarino, 2017; Zhang et al., 2017). By conducting this study, I discovered methods of contributing to improvements in

professional business practice such as new strategies to reduce the threat of water scarcity. Executive and managers in the food and beverage industry may use findings from this study to identify weaknesses in sustainable water consumption practices and improve their efforts to enhance operational efficiency.

### **Efficient Equipment**

The applicability of the findings to the themes and efficient equipment was surprising to me. Prior to conducting this study, I was unaware of how computerized systems and digital programs have evolved and how business leaders approach water consumption and operational efficiency. The reason why some business leaders in this study chose computerized equipment was to improve business practices by automating controls that monitor and record water use in various systems, which reduces water consumption and improves operational efficiency. This finding is supported by a recent study on computerization, sustainability, and production efficiency by Santos, Munoz-Villamizar, Ormazabal, and Viles (2019) where the authors discovered business leaders can improve operational efficiency and eliminate water waste through the use of integrated computerized equipment and software.

### **Stakeholder and Sustainability focus**

Prior to conducting this study, how some business leaders appear to have changed their focus from the shareholders and profits to the stakeholders and sustainability issues was unknown to me. The reason why some executives and managers changed to a stakeholder and sustainability focus was the discovery that the changes were critical to the firm's long-term survival. This finding related to improvement in business practices is

supported by a recent study by Mena, Hult, Ferrell, and Zhang (2019) citing that a stakeholder focus results in better performance and a sustainability strategy promotes greater operational efficiency. Most large food and beverage firms require large volumes of water to process their products, and over consumption of the water resources is one cause of water scarcity, which endangers the future of food and beverage firms while causing a negative impact to operational efficiency.

### **Water Recycling**

Business leaders that implement water-recycling strategies reduce water consumption and improve operational efficiency. Prior to conducting this study, I did not know how business leaders reduced water consumption. Executives and managers support treating and recycling wastewater because the process produces reusable energy and improves operational efficiency while reducing water consumption. Using wastewater to produce energy is a strategy supported by recent literature and studies conducted by Briao et al. (2019), Cruz-Salomon et al. (2019), and Liu et al. (2019). Converting waste into energy is a significant improvement in business practice because energy produced from wastewater treatment can be diverted to production and operations processes that promote sustainable water consumption, which improves operational efficiency.

### **Supply Chain Support**

Business leaders in this study demonstrated how they supported their suppliers through partnerships, committees, grants, providing sustainable equipment, and consulting services. The reason why some firms divert the burden of large water

consumption to the supply chain is that many suppliers are experts in sustainable practices and better equipped to produce more products while consuming less water. The importance to professional business practice in the food and beverage industry is that agricultural firms within supply chains deplete a large percentage of water consumed in producing products; therefore, supply chain management is critical to ensure a firm's long-term survival (Bumblauskas, 2017). Additionally, business leaders should monitor water-intensive firms within their supply chains and enable targeted supplier management from the perspective of water stewardship (Schaefer et al., 2019).

### **Implications for Social Change**

Scholars who promote sustainability have outlined a variety of benefits for all stakeholders, including executives and managers from most industries. Managers and executives in the food and beverage industry involved with water consumption and improving operational efficiency are creating tangible improvements to business practice, which decreases the threat of water scarcity by ensuring that future water sources are available. Executives and managers from the food and beverage industry may use study findings to prevent waste, reduce revenue losses, and increase organizational commitment to effective stewardship of water resources, which might increase the operational efficiency of a firm while contributing to positive social change. The tangible social changes could be in the form of plentiful water supplies for communities, a reduction in the cost of water, and greater stewardship of the environment. Additionally, the implications for positive social change include the potential for food and beverage industry leadership to gain an understanding of strategies they can use to implement

innovative sustainable practices that can help businesses mitigate water security risks threatening economic growth.

### **Recommendations for Action**

Business leaders in the food and beverage industry can improve operational efficiency and eliminate water waste through the following three steps: (a) converting or replacing inefficient (e.g., high water and energy consuming) equipment with digital computerized efficient equipment and software, (b) integrating the new efficient equipment with other systems (e.g., automated) that use less water, or no water, in the production process, and (c) paying attention to and monitoring the resulting data from these systems, which should be disseminated via peer-reviewed studies, conferences, and food and beverage industry related training and seminars, as appropriate.

Business leaders in the food and beverage industry should maintain a strong focus on stakeholders and sustainability in everyday practice while developing the following five supply chain management strategy steps: (a) focusing on geographical water risk assessments, (b) providing assistance where or when suppliers are experiencing water scarcity, (c) identifying alternate suppliers with reduced susceptibility to water scarcity, (d) developing and maintaining partnerships with suppliers that practice good water stewardship, and (e) paying attention to and monitoring the resulting data from the analysis, which should be disseminated via peer-reviewed studies, conferences, and food and beverage industry related training and seminars, as appropriate.

Business leaders in the food and beverage industry who produce wastewater should consider the following four steps: (a) conducting a cost-benefit analysis to

determine if constructing a bio-digestion wastewater treatment facility is justified, (b) if justified, construct and operate bio-digestion wastewater treatment and water recycling facilities, (c) pay attention to and monitor the resulting impact of the bio-digester technology with respect to sustainable water consumption that improves operational efficiency, and (d) disseminate the data and results via peer-reviewed studies, conferences, and food and beverage industry related training and seminars, as appropriate. I intend to disseminate the findings from my study to the interview participants via email. Additionally, the findings will be published and available worldwide to researchers from websites such as ProQuest and Google Scholar.

### **Recommendations for Further Research**

In Section 1, I identified two specific limitations for my research. First, I limited my study to water consumption practices in the food and beverage industry and did not explore other factors that may contribute to water scarcity in the industry. Second, I limited my study to water consumption practices in the food and beverage industry and did not examine other factors such as corporate earnings strategy that might impact water consumption practices. To further study improved practice in business as it relates to sustainable water consumption to improve operational efficiency, researchers should consider investigating the nexus between food, water, and energy from a domestic or global perspective. Some scholars might consider researching the potential association between water consumption and corporate earnings strategy on a domestic or global platform. Additionally, managing supply chains water consumption with respect to water scarce geographical locations could be a worthwhile study for domestic and global

researchers focused on the food and beverage industry. The recommendations for further research I presented are because I limited my study to the food and beverage industry using firms that were based in the state of Wisconsin. Hence, the limitations I presented in Section 1 can be expanded to improve business practice by escalating the depth and geographical locations of the study to explore sustainable water consumption practices to improve operational efficiency.

### **Reflections**

My preconceived ideas and values favored strategic methods of achieving sustainability in all processes. To mitigate my personal bias, I used a professionally developed technique called bracketing, which qualitative researchers incorporate to reduce a researcher's preconceived bias from having an adverse impact on the research process (Fischer, 2009; Vereen et al., 2018; Ward et al., 2018). The potential effects of my personal bias was for me to recognize some data related to sustainable practices as significant while ignoring some data that appears insignificant but is in fact important.

Having conducted the study, I was able to recognize some bias during data analysis and reviews, which allowed me to correct some undue influence of that bias within my research findings. My viewpoint and thinking changed after completing this study, primarily because the research I conducted revealed new information, data, ideas, and questions. For example, the notion that the natural environment could be a stakeholder, and what the impact on water scarcity to executive compensation that is linked to sustainable water consumption practices of a firm might be. Additionally, the interview participants and corporate reports helped me uncover some data that answered

my research questions for this study, but no answers to the new questions that developed after the analysis and study completion.

### **Summary and Study Conclusions**

The pertinent findings relevant to current organizations are the need to research and install water saving equipment to include methods of creating food and beverage products without the use of water. Firms should pursue chemical free methods of sanitizing food and beverage products because chemical free methods reduce the need to remove the chemicals from water at the end of the production cycle. The use of centralized computer equipment and software allows leaders to monitor water use throughout the entire production process. Leaders who measure water use through production phases have the ability to reduce water consumption and improve operational efficiency over time. Food and beverage industry leaders should focus on the stakeholders needs and operate with a strategy of becoming more sustainable and efficient. Employing biodigestion technology is an efficient method of filtering and reusing water while creating reusable energy in the process. Many firms divert production processes of raw materials to their supply chains to reduce the burden of being directly involved with high water consumption practices, which allows firms the freedom to assist supply chain members in efforts to reduce water consumption and improve operational efficiency.

The pertinent findings and applicability to current organizations is that water scarcity is a threat to the operational efficiency of some companies in the food and beverage industry. Some business leaders struggle with reducing their corporate water



footprint because they fail to understand that effective management of water resources is critical to the long-term success of a firm. When current food and beverage industry leaders implement sustainable water consumption practices to improve operational efficiency, barriers and challenges are abundant. The key to resolving many issues is having or installing efficient equipment, recycling water, supporting and managing supply chains, and maintaining a combined focus on the stakeholders' needs and sustainable business practices that develop and promote operational efficiency.

## References

- Abdalla, M. M., Oliveira, L. G., Azevedo, C. E., & Gonzalez, R. K. (2018). Quality in qualitative organizational research: Types of triangulation as a methodological alternative. *Administration: Teaching and Research, 19*(1), 66-98.  
doi:10.13058/raep.2018.v19n1.578
- Ainscough, T. J., Alagappan, P., Oatley-Radcliffe, D. L., & Barron, A. R. (2017). A hybrid super hydrophilic ceramic membrane and carbon nanotube adsorption process for clean water production and heavy metal removal and recovery in remote locations. *Journal of Water Process Engineering, 19*, 220-230.  
doi:10.1016/j.jwpe.2017.08.006
- Aivazidou, E., Tsolakis, N., Vlachos, D., & Iakovou, E. (2018). A water footprint management framework for supply chains under green market behavior. *Journal of Cleaner Production 197*, 592-606. doi:10.1016/j.jclepro.2018.06.171
- Aldiabat, K. M., & Le Navenec, C. (2018). Data saturation: The mysterious step in grounded theory method. *Qualitative Report, 23*(1), 45-61. Retrieved from <https://nsuworks.nova.edu>
- Aliu, D., Akatay, A., & Aliu, A. (2018). The influence of inter-stakeholders' communication on university–industry collaboration. *Scholedge International Journal of Business Policy & Governance, 4*(8), 78-86.  
doi:10.19085/journal.sijbpg040801
- Al-Kodmany, K. (2018). The vertical farm: A review of developments and implications for the vertical city. *Buildings, 8*(2), 1-36. doi:10.3390/buildings8020024

- Amui, L. B., Jabbourac, C. J., Jabbour, A. B., & Devika, K. (2017). Sustainability as a dynamic organizational capability: A systematic review and a future agenda toward a sustainable transition. *Journal of Cleaner Production*, *142*, 308-322. doi:10.1016/j.jclepro.2016.07.103
- Archer-Kuhn, B. (2018). Discovering meaning-making in a child custody context: The combined benefits of using Van Manen's phenomenology and a critical lens. *Qualitative Report*, *23*(8), 18-35. Retrieved from <https://nsuworks.nova.edu>
- Askham, T. M., & Van der Poll, H. M. (2017). Water sustainability of selected mining companies in South Africa, *Sustainability*, *9*(6), 1-16. doi:10.3390/su9060957
- Assarroudi, A., Heshmati Nabavi, F., Armat, M. R., Ebadi, A., & Vaismoradi, M. (2018). Directed qualitative content analysis: The description and elaboration of its underpinning methods and data analysis process. *Journal of Research in Nursing*, *23*(1), 42-55. doi:10.1177/1744987117741667
- Baleta, J., Mikulcic, H., Klemes, J. J., Urbaniec, K., & Duic, N. (2019). Integration of energy, water and environmental systems for a sustainable development. *Journal of Cleaner Production*, *215*, 1424-1436. doi:10.1016/j.jclepro.2019.01.035
- Ballesteros, B., & Mata-Benito, P. (2018). The inner process of collective interpretation in qualitative research. *Qualitative Report*, *23*(1), 16-18. Retrieved from <https://nsuworks.nova.edu>

- Barbera, M., & Gurnari, G. (2018). Food industry and generated industrial effluents: An overview. In Barbera, M. & Gurnari, G. (Eds.), *Water reuse in the food industry: Quality of original wastewater before treatments* (pp. 1-16).  
doi:10.1007/978-3-319-68442-0\_1
- Barbosa, E. L., dos Santos Delfino, A. C., & Brandao, L. C. (2017). The use of alternative coolant techniques to reduce the environmental impact in the use of water in through-feed centreless grinding. *International Journal of Advanced Manufacturing Technology*, 91, 3417-3425. doi:10.1007/s00170-017-0030-x
- Basias, N., & Pollalis, Y. (2018). Quantitative and qualitative research in business & technology: Justifying a suitable research methodology. *Review of Integrative Business and Economics Research*, 7(1), 91-105. Retrieved from  
www.buscompress.com
- Baskarada, S., & Koronios, A. (2018). A philosophical discussion of qualitative, quantitative, and mixed methods research in social science. *Qualitative Research Journal*, 18(1), 2-21. doi:10.1108/QRJ-D-17-00042
- Bass, A. E., & Milosevic, I. (2018). The ethnographic method in CSR research: The role and importance of methodological fit. *Business & Society*, 57, 174-215.  
doi:10.1177/0007650316648666
- Bastas, A., & Liyanage, K. (2019). Integrated quality and supply chain management business diagnostics for organizational sustainability improvement. *Sustainable Production and Consumption*, 17, 11-30. doi:10.1016/j.spc.2018.09.001

- Bauer, A. T., & Ahoeei, E. M. (2018). Rearticulating Internet literacy. *Journal of Cyberspace Studies, 2*(1), 29-53. doi:10.22059/jcss.2018.245833.1012
- Beaulieu, R. (2018). Phenomenography: Implications for expanding the educational action research lens. *Canadian Journal of Action Research, 18*(2), 62-81.  
Retrieved from <http://journals.nipissingu.ca>
- Benlemlih, M., & Bitar, M. (2018). Corporate social responsibility and investment efficiency. *Journal of Business Ethics, 148*, 647-671.  
doi:10.1007/s10551-016-3020-2
- Bieber, N., Ker, J. H., Wang, X., Triantafyllidis, C., van Dam, K. H., Koppelaar, R. H., & Shah, N. (2018). Sustainable planning of the energy-water-food nexus using decision making tools. *Energy Policy, 113*, 584-607.  
doi:10.1016/j.enpol.2017.11 .037
- Bijl, D. L., Bogaart, P. W., Dekker, S. C., & van Vuuren, D. P. (2018). Unpacking the nexus: Different spatial scales for water, food and energy. *Global Environmental Change, 48*, 22-31. doi:10.1016/j.gloenvcha.2017.11.005
- Biros, M. (2018). Capacity, vulnerability, and informed consent for research. *Journal of Law, Medicine & Ethics, 46*(1), 72-78. doi:10.1177/1073110518766021
- Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: A tool to enhance trustworthiness or merely a nod to validation? *Qualitative Health Research, 26*, 1802-1811. doi:10.1177/1049732316654870

- Blackburn, N., Hooper, V., Abratt, R., & Brown, J. (2018). Stakeholder engagement in corporate reporting: Towards building a strong reputation. *Marketing Intelligence & Planning*, *36*, 484-497. doi:10.1108/MIP-10-2017-0236
- Blaikie, N. (2018). Confounding issues related to determining sample size in qualitative research. *International Journal of Social Research Methodology*, *21*(5), 1-7. doi:10.1080/13645579.2018.1454644
- Boesso, G., Favotto, F., & Michelon, G. (2015). Stakeholder prioritization, strategic corporate social responsibility and company performance: Further evidence. *Corporate Social Responsibility & Environmental Management*, *22*, 424-440. doi:10.1002/csr.1356
- Bortolini, M., Gamberi, M., Mora, C., Pilati, F., & Regattieri, A. (2017). Design, prototyping, and assessment of a wastewater closed-loop recovery and purification system. *Sustainability*, *9*, 1938-1940. doi:10.3390/su9111938
- Boulay, A. M., Bare, J., Benini, L., Berger, M., Lathuillière, M. J., Manzardo, A., ... Ridoutt, B. (2018). The WULCA consensus characterization model for water scarcity footprints: Assessing impacts of water consumption based on available water remaining. *The International Journal of Life Cycle Assessment*, *23*, 368-378. doi:10.1007/s11367-017-1333-8
- Braam, G., & Peeters, R. (2018). Corporate sustainability performance and assurance on sustainability reports: Diffusion of accounting practices in the realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, *25*, 164-181. doi:10.1002/csr.1447

Briao, V. B., Salla, A. C. V., Miorando, T., Hemkemeier, M., & Favaretto, D. P. C.

(2019). Water recovery from dairy rinse water by reverse osmosis: Giving value to water and milk solids. *Resources, Conservation and Recycling*, *140*, 313-323. doi:10.1016/j.resconrec.2018.10.007

Bumblauskas, D. P. (2017). Sustainable operations management and benchmarking in

brewing: A factor weighting approach. *Journal of Operations and Supply Chain Management*, *10*(1), 55-67. doi:10.12660/joscmv10n1p55-67

Bundy, J., Vogel, R. M., & Zachary, M. A. (2018). Organization–stakeholder fit: A

dynamic theory of cooperation, compromise, and conflict between an organization and its stakeholders. *Strategic Management Journal*, *39*, 476-501. doi:10.1002/smj.2736

Cadez, S., Czerny, A., & Letmathe, P. (2019). Stakeholder pressures and corporate

climate change mitigation strategies. *Business Strategy and the Environment*, *28*(1), 1-14. doi:10.1002/bse.2070

Cairns, R., & Macpherson, M. (2017). A six sigma approach to water savings.

*Environmental Management and Sustainable Development*, *6*(2), 98-111. doi:10.5296/emsd.v6i2.10953

Cao, X., Ren, J., Wu, M., Guo, X., Wang, Z., & Wang, W. (2018). Effective use rate of

generalized water resources assessment and to improve agricultural water use efficiency evaluation index system. *Ecological Indicators*, *86*(1), 58-66. doi:10.1016/j.ecolind.2017.12.016

- Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol refinement framework. *Qualitative Report, 21*(5), 811-831. Retrieved from <https://nsuworks.nova.edu>
- Castleberry, A., & Nolen, A. (2018). Thematic analysis of qualitative research data: Is it as easy as it sounds? *Currents in Pharmacy Teaching and Learning, 10*, 807-815. doi:10.1016/j.cptl.2018.03.019
- Chase, E. (2017). Enhanced member checks: Reflections and insights from a participant-researcher collaboration. *Qualitative Report, 22*(10), 2689-2703. Retrieved from <https://nsuworks.nova.edu>
- Ching, H. Y., & Gerab, F. (2017). Sustainability reports in Brazil through the lens of signaling, legitimacy and stakeholder theories. *Social Responsibility Journal, 13*(1), 95-110. doi:10.1108/SRJ-10-2015-0147
- Chiu, S. C., & Sharfman, M. (2018). Corporate social irresponsibility and executive succession: An empirical examination. *Journal of Business Ethics, 149*, 707-723. doi:10.1007/s10551-016-3089-7
- Collins, C. S., & Stockton, C. M. (2018). The central role of theory in qualitative research. *International Journal of Qualitative Methods, 17*(1), 1-10. doi:10.1177/1609406918797475
- Compton, M., Willis, S., Rezaie, B., & Humes, K. (2018). Food processing industry energy and water consumption in the Pacific Northwest. *Innovative Food Science & Emerging Technologies, 47*, 371-383. doi:10.1016/j.ifset.2018.04.001



- Contestabile, M. (2018). Fresh water input. *Nature Sustainability*, 1, 119-121.  
doi:10.1038/s41893-018-0042-z
- Costa, E., & Goulart da Silva, G. (2019). Nonprofit accountability: The viewpoint of the primary stakeholders. *Financial Accountability & Management*, 35(1), 37-54.  
doi:10.1111/faam.12181
- Cruz-Salomon, A., Ríos-Valdovinos, E., Pola-Albores, F., Lagunas-Rivera, S., Meza-Gordillo, R., Ruiz-Valdiviezo, V. M., & Cruz-Salomon, K. C. (2019). Expanded granular sludge bed bioreactor in wastewater treatment. *Global Journal of Environmental Science and Management*, 5(1), 119-138.  
doi:10.22034/GJESM.2019.01.10
- Cui, J., Jo, H., & Na, H. (2018). Does corporate social responsibility affect information asymmetry? *Journal of Business Ethics*, 148, 549-572.  
doi:10.1007/s10551-015-3003-8
- Cunningham, C., & Gharipour, M. (2018). Pipe dreams: Urban wastewater treatment for biodiversity protection. *Urban Science*, 2(1), 1-18. doi:10.3390/urbansci2010010
- Daku, M. (2018). Ethics beyond ethics: The need for virtuous researchers. *BMC Medical Ethics*, 19(1), 42-44. doi:10.1186/s12910-018-0281-6
- Dang, Q., & Konar, M. (2018). Trade openness and domestic water use. *Water Resources Research*, 54(1), 4-18. doi:10.1002/2017WR021102
- Daniel, B. K. (2018) Empirical verification of the TACT framework for teaching rigor in qualitative research methodology. *Qualitative Research Journal*, 18, 262-275,  
doi:10.1108/QRJ-D-17-00012

- Dargin, J., Daher, B., & Mohtar, R. H. (2019). Complexity versus simplicity in water energy food nexus (WEF) assessment tools. *Science of the Total Environment*, 650, 1566-1575. doi:10.1016/j.scitotenv.2018.09.080
- Davis, J., Clayton, C., & Broome, J. (2018). Thinking like researchers: Action research and its impact on novice teachers' thinking. *Educational Action Research*, 26(1), 59-74. doi:10.1080/09650792.2017.1284012
- De Gooyert, V., Rouwette, E., van Kranenburg, H., & Freeman, E. (2017). Reviewing the role of stakeholders in operational research: A stakeholder theory perspective. *European Journal of Operational Research*, 262, 402-410. doi:10.1016/j.ejor.2017.03.079
- De Jong, M. D., Harkink, K. M., & Barth, S. (2018). Making green stuff? Effects of corporate greenwashing on consumers. *Journal of Business and Technical Communication*, 32(1), 77-112. doi:10.1177/1050651917729863
- DeVaney, S. A., Spangler, A., Lee, Y. A., & Delgadillo, L. (2018). Tips from the experts on conducting and reviewing qualitative research. *Family and Consumer Sciences Research Journal*, 46, 396-405. doi:10.1111/fcsr.12264
- Dikko, M. (2016). Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in Takaful. *Qualitative Report*, 21(3), 521-528. Retrieved from <http://tqr.nova.edu>
- Dubey, R., Gunasekaran, A., & Deshpande, A. (2017). Building a comprehensive framework for sustainable education using case studies. *Industrial and Commercial Training*, 49(1), 33-39. doi:10.1108/ICT-08-2016-0051

- Ellis, T. J., & Levy, Y. (2009). Towards a guide for novice researchers on research methodology: Review and proposed methods. *Issues in Informing Science & Information Technology*, 6, 331-333. doi:10.28945/3325
- Environmental Protection Agency. (2018). *Laws and regulations*. Retrieved from <https://www.epa.gov/>
- Eshel, G., Shepon, A., Shaket, T., Cotler, B. D., Gilutz, S., Giddings, D., ... & Milo, R. (2018). A model for sustainable US beef production. *Nature Ecology & Evolution*, 2(1), 81-85. doi:10.1038/s41559-017-0390-5
- Eskerod, P., Huemann, M., & Ringhofer, C. (2015). Stakeholder inclusiveness: Enriching project management with general stakeholder theory. *Project Management Journal*, 46(6), 42-55. doi:10.1002/pmj.21546.
- Esposito, M., & Tse, T. (2018). Drive: The five megatrends that underpin the future business, social, and economic landscapes. *Thunderbird International Business Review*, 60, 121-129. doi:10.1002/tie.21889
- Fan, M., Phinney, D. M., & Heldman, D. R. (2018). The impact of clean-in-place parameters on rinse water effectiveness and efficiency. *Journal of Food Engineering*, 222, 276-283. doi:10.1016/j.jfoodeng.2017.11.029
- Fassin, Y., De Colle, S., & Freeman, R. E. (2017). Intra-stakeholder alliances in plant-closing decisions: A stakeholder theory approach. *Business Ethics: A European Review*, 26(2), 97-111. doi:10.1111/beer.12136

- Faulds, D. J. (2015). Overcoming geographical obstacles: The use of Skype in a graduate-level social media and marketing course. *American Journal of Business Education, 8*(2), 79-94. doi:10.19030/ajbe.v8i2.9137
- Fayezi, S., Zomorodi, M., & Bals, L. (2018). Procurement sustainability tensions: An integrative perspective. *International Journal of Physical Distribution & Logistics Management, 48*, 586-609. doi:10.1108/IJPDLM-01-2017-0013
- Feingold, D., Koop, S., & van Leeuwen, K. (2018). The city blueprint approach: Urban water management and governance in cities in the US. *Environmental Management, 61*(1), 9-23. doi:10.1007/s00267-017-0952-y
- Fischer, C. T. (2009). Bracketing in qualitative research: Conceptual and practical matters. *Psychotherapy Research, 19*, 583-590. doi:10.1080/10503300902798375
- Freeman, R. E. (1984). *Strategic management: A stakeholder approach*. Retrieved from <http://www.cambridge.org/>
- Freeman, R. E., & Dmytriiev, S. (2017). Corporate social responsibility and stakeholder theory: Learning from each other. *Symphonya, 1*(1), 7-15. doi:10.4468/2017.1.02freeman.dmytriiev
- Freeman, R. E., & Evan, W. M. (1990). Corporate governance: A stakeholder interpretation. *Journal of Behavioral Economics, 19*, 337-359. doi:10.1016/0090-5720(90)90022-Y
- Freeman, R. E., Kujala, J., Sachs, S., & Stutz, C. (2017). *Stakeholder engagement: Practicing the ideas of stakeholder theory*. doi:10.1007/978-3-319-62785-4\_1

- Freudenreich, B., Ludeke-Freund, F., & Schaltegger, S. (2019). A stakeholder theory perspective on business models: Value creation for sustainability. *Journal of Business Ethics, 1*, 1-16. doi:10.1007/s10551-019-04112-z
- Friese, S., Soratto, J., & Pires, D. (2018). *Carrying out a computer-aided thematic content analysis with ATLAS.ti*. (Working Paper, 18-02). Retrieved from <http://hdl.handle.net/21.11116/0000-0001-364E-C>
- Friesen, P., Kearns, L., Redman, B., & Caplan, A. L. (2017). Rethinking the Belmont report? *American Journal of Bioethics, 17*(7), 15-21.  
doi:10.1080/15265161.2017.1329482
- Fusch, P. I., & Fusch, G. E. (2015). Leadership and conflict resolution on the production line. *International Journal of Applied Management and Technology, 14*(1), 21–39. doi:10.5590/IJAMT.2015.14.1.0x
- Fusch, P. I., Fusch, G. E., & Ness, L. R. (2018). Denzin's paradigm shift: Revisiting triangulation in qualitative research. *Journal of Social Change, 10*(1), 19-28.  
Retrieved from <https://scholarworks.waldenu.edu>
- Fusch, P. I., & Ness, L. (2015). Are we there yet? Data saturation in qualitative research. *Qualitative Report, 20*(9), 1408-1416. Retrieved from <https://nsuworks.nova.edu>
- Gaikwad, P. (2017). Including rigor and artistry in case study as a strategic qualitative methodology. *Qualitative Report, 22*(13), 3431-3446. Retrieved from <https://nsuworks.nova.edu>

- Gambeta, E., Koka, B. R., & Hoskisson, R. E. (2019). Being too good for your own good: A stakeholder perspective on the differential effect of firm-employee relationships on innovation search. *Strategic Management Journal*, *40*(1), 108-126. doi:10.1002/smj.2967
- George, G. R., & Selimos, E. (2018). Using narrative research to explore the welcoming of newcomer immigrants: A methodological reflection on a community-based research project. *Forum: Qualitative Social Research*, *19*(2), 1-20, doi:10.17169/fqs-19.2.2907
- Giazitzoglu, A., & Payne, G. (2018). A 3-level model of insider ethnography. *Qualitative Report*, *23*(5), 1149-1159. Retrieved from <https://nsuworks.nova.edu>
- Gill, M. J., Gill, D. J., & Roulet, T. J. (2018). Constructing trustworthy historical narratives: Criteria, principles and techniques. *British Journal of Management*, *29*, 191-205. doi:10.1111/1467-8551.12262
- Given, L. M., & Willson, R. (2018). Information technology and the humanities scholar: Documenting digital research practices. *Journal of the Association for Information Science and Technology*, *69*, 807-819. doi:10.1002/asi.24008
- Govindan, K. (2018). Sustainable consumption and production in the food supply chain: A conceptual framework. *International Journal of Production Economics*, *195*, 419-431. doi:10.1016/j.ijpe.2017.03.003
- Graamans, L., Baeza, E., Van Den Dobbelsteen, A., Tsafaras, I., & Stanghellini, C. (2018). Plant factories versus greenhouses: Comparison of resource use efficiency. *Agricultural Systems*, *160*(1), 31-43. doi:10.1016/j.agsy.2017.11.003

- Gregorini, P., Provenza, F. D., Villalba, J. J., Beukes, P. C., & Forbes, M. J. (2018). Diurnal patterns of urination and drinking by grazing ruminants: A development in a mechanistic model of a grazing ruminant. *Journal of Agricultural Science*, *156*(1), 71-81. doi:10.1017/S0021859617000806
- Grootel, L., Wesel, F., O'Mara-Eves, A., Thomas, J., Hox, J., & Boeijs, H. (2017). Using the realist perspective to link theory from qualitative evidence synthesis to quantitative studies: Broadening the matrix approach. *Research Synthesis Methods*, *8*, 303-311. doi:10.1002/jrsm.1241
- Grundy-Warr, C., & Schofield, C. (2012). Reflections on the relevance of classic approaches and contemporary priorities in boundary studies. *Geopolitics*, *10*, 650-662. doi:10.1080/14650040500318548
- Guarino, A. S. (2017). The economic implications of global water scarcity. *Research in Economics and Management*, *2*(1), 51-63. doi:10.22158/rem.v2n1p51
- Haddaway, N. R., Collins, A. M., Coughlin, D., & Kirk, S. (2015). The role of Google Scholar in evidence reviews and its applicability to grey literature searching. *PLoS One*, *10*, 138-237. doi:10.1371/journal.pone.0138237
- Hagaman, A. K., & Wutich, A. (2017). How many interviews are enough to identify metathemes in multisited and cross-cultural research? Another perspective on Guest, Bunce, and Johnson's (2006) landmark study. *Field Methods*, *29*(1), 23-41. doi:10.1177/1525822X16640447

- Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2018). A paradox perspective on corporate sustainability: Descriptive, instrumental, and normative aspects. *Journal of Business Ethics, 148*, 235-248. doi:10.1007/s10551-017-3587-2
- Hammersley, M. (2018). What is ethnography? Can it survive? Should it? *Ethnography and Education, 13*(1), 1-17. doi:10.1080/17457823.2017.1298458
- Hardcopf, R., Gonçalves, P., Linderman, K., & Bendoly, E. (2017). Short-term bias and strategic misalignment in operational solutions: Perceptions, tendencies, and traps. *European Journal of Operational Research, 258*, 1004-1021. doi:10.1016/j.ejor.2016.09.036
- Harrison, H., Birks, M., Franklin, R., & Mills, J. (2017). Case study research: Foundations and methodological orientations. *Qualitative Social Research, 18*(1), 1-17. doi:10.17169/fqs-18.1.2655
- Harrison, J. S., Freeman, R. E., & Abreu, M. C. (2015). Stakeholder theory as an ethical approach to effective management: Applying the theory to multiple contexts. *Brazilian Business Magazine Management, 17*, 858-869. doi:10.7819/rbgn.v17i55.2647
- Hasegawa, T., Fujimori, S., Havlík, P., Valin, H., Bodirsky, B. L., Doelman, J. C., ... & Mason-D'Croz, D. (2018). Risk of increased food insecurity under stringent global climate change mitigation policy. *Nature Climate Change, 8*, 699-700. doi:10.1038/s41558-018-0230-x



- Hawkins, J. E. (2018). The practical utility suitability of email interviews in qualitative research. *Qualitative Report*, 23(2), 493-501. Retrieved from <https://nsuworks.nova.edu>
- Heikkurinen, P., & Makinen, J. (2018). Synthesizing corporate responsibility on organizational and societal levels of analysis: An integrative perspective. *Journal of Business Ethics*, 149, 589-607. doi:10.1007/s10551-016-3094-x
- Helmstedt, K. J., Stokes-Draut, J. R., Larsen, A. E., & Potts, M. D. (2018). Innovating at the food, water, and energy interface. *Journal of Environmental Management*, 209(1), 17-22. doi:10.1016/j.jenvman.2017.12.026
- Hickman, L., & Akdere, M. (2017). *Stakeholder theory: Implications for total quality management in higher education*. Proceedings of the 4<sup>th</sup> International Conference on Lean Six Sigma for Higher Education, Lafayette, Indiana. doi:10.5703/1288284316381
- Hocquette, J. F. 2016. Is in vitro meat the solution for the future? *Meat Science*, 120, 167-176. doi:10.1016/j.meatsci.2016.04.036
- Hoekstra, A. Y. (2017). *Water footprint assessment in supply chains*. doi:10.1007/978-3-319-29791-0\_4
- Hoover, S. M., Strapp, C. M., Ito, A., Foster, K., & Roth, K. (2018). Teaching qualitative research interviewer skills: A developmental framework for social justice psychological research teams. *Qualitative Psychology*, 5, 300-318. doi:10.1037/qup0000101

- Jackson, K., Paulus, T., & Woolf, N. H. (2018). The walking dead genealogy: Unsubstantiated criticisms of qualitative data analysis software (QDAS) and the failure to put them to rest. *Qualitative Report*, 23(13), 74-91. Retrieved from <https://nsuworks.nova.edu>
- Jaffee, D., & Case, R. A. (2018). Draining us dry: Scarcity discourses in contention over bottled water extraction. *Local Environment*, 23, 485-501.  
doi:10.1080/13549839.2018.1431616
- Jan, S. U. (2018). *An introduction to computing: For all BS degree program students and beginners in all fields*. Retrieved from <https://dl.acm.org>
- Janak, E. (2018). Bracketing and bridling: Using narrative reflexivity to confront researcher bias and the impact of social identity in a historical study. *Philanthropy & Education*, 1(2), 82-93. doi:10.2979/phileduc.1.2.04
- Jenner, B. M., & Myers, K. C. (2018). Intimacy, rapport, and exceptional disclosure: A comparison of in-person and mediated interview contexts. *International Journal of Social Research Methodology*, 21(1), 1-13.  
doi:10.1080/13645579.2018.1512694
- Jones, P., Comfort, D., & Hillier, D. (2016). Water stewardship and North America's food and beverage companies: A case study in corporate sustainability. *International Journal of Corporate Strategy and Social Responsibility*, 1(1), 26-43. doi:10.1504/IJCSSR.2016.077546

- Johnson, J. (2012). Assumption junction, what's your function? Making sense of assumptions, limitations, and delimitations. Retrieved from <http://waldenwritingcenter>
- Kilicoglu, A. (2018). Qualitative research for educational science researchers: A review of an introduction to qualitative research. *Qualitative Report*, 23(4), 949-951. Retrieved from <https://nsuworks.nova.edu>
- Klemas, V., & Pieterse, A. (2015). Using remote sensing to map and monitor water resources in Arid and Semiarid Regions. *Advances in Watershed Science and Assessment*, 33(1), 33-60. doi:10.1007/978-3-319-14212-8\_2
- Knuth, M., Behe, B. K., Hall, C. R., Huddleston, P. T., & Fernandez, R. T. (2018). Consumer perceptions, attitudes, and purchase behavior with landscape plants during real and perceived drought periods. *HortScience*, 53(1), 49-54. doi:10.21273/hortsci12482-17
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 24, 120-124. doi:10.1080/13814788.2017.1375092
- Kummu, M., Guillaume, J. H. A., De Moel, H., Eisner, S., Flörke, M., Porkka, M., ... Ward, P. J. (2016). The world's road to water scarcity: Shortage and stress in the 20th century and pathways towards sustainability. *Scientific Reports*, 6, 38495-38511. doi:10.1038/srep38495

- Kurucz, E. C., Colbert, B. A., Ludeke-Freund, F., Upward, A., & Willard, B. (2017). Relational leadership for strategic sustainability: Practices and capabilities to advance the design and assessment of sustainable business models. *Journal of Cleaner Production*, *140*, 189-204. doi:10.1016/j.jclepro.2016.03.087
- Kury, K. W. (2017). Needs and challenges of pursuing a stakeholder consequence research stream. *Journal of Leadership, Accountability and Ethics*, *14*(2), 10-23. Retrieved from <http://www.na-businesspress.com>
- Labanauskis, R., & Ginevicius, R. (2017). Role of stakeholders leading to development of higher education services. *Engineering Management in Production and Services*, *9*(3), 63-75. doi:10.1515/emj-2017-0026
- Labelle, R., Hafsi, T., Francoeur, C., & Amar, W. B. (2018). Family firms' corporate social performance: A calculated quest for socioemotional wealth. *Journal of Business Ethics*, *148*, 511-525. doi:10.1007/s10551-015-2982-9
- Landrum, N. E., & Ohsowski, B. (2018). Identifying worldviews on corporate sustainability: A content analysis of corporate sustainability reports. *Business Strategy and the Environment*, *27*, 128-151. doi:10.1002/bse.1989
- LeCrom, C. W., Martin, T., Dwyer, B., & Greenhalgh, G. (2019). The role of management in achieving health outcomes in SFD programmes: A stakeholder perspective. *Sport Management Review*, *22*(1), 53-67. doi:10.1016/j.smr.2018.09.005

- Legesse, G., Ominski, K. H., Beauchemin, K. A., Pfister, S., Martel, M., McGeough, E. J., ... McAllister, T. A. (2017). Board-invited review: Quantifying water use in ruminant production. *Journal of Animal Science*, *95*, 2001-2018.  
doi:10.2527/jas.2017.1439
- Lemon, L. (2017). Applying a mindfulness practice to qualitative data collection. *Qualitative Report*, *22*(12), 3305-3313. Retrieved from <https://nsuworks.nova.edu>
- Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications board task force report. *American Psychologist*, *73*(1), 26-46. doi:10.1037/amp0000151
- Li, G., Huang, D., & Sun, C. (2019). Developing interpretive structural modeling based on factor analysis for the water-energy-food nexus conundrum. *Science of the Total Environment*, *651*, 309-322. doi:10.1016/j.scitotenv.2018.09.188
- Liu, J., Cao, X., Li, B., & Yu, Z. (2018). Analysis of blue and green water consumption at the irrigation district scale. *Sustainability*, *10*, 305-320.  
doi:10.3390/su10020305
- Liu, D., Guo, S., Liu, P., Xiong, L., Zou, H., Tian, J., ... & Zhang, J. (2019). Optimization of water-energy nexus based on its diagram in cascade reservoir system. *Journal of Hydrology*, *569*, 347-358. doi:10.1016/j.jhydrol.2018.12.010

- Liu, W., Yang, H., Liu, Y., Kummu, M., Hoekstra, A. Y., Liu, J., & Schulin, R. (2018). Water resources conservation and nitrogen pollution reduction under global food trade and agricultural intensification. *Science of the Total Environment*, *633*, 1591-1601. doi:10.1016/j.scitotenv.2018.03.306
- Lo Iacono, V., Symonds, P., & Brown, D. H. (2016). Skype as a tool for qualitative research interviews. *Sociological Research Online*, *21*(2), 1-15. doi:10.5153/sro.3952
- Lugmayr, A., Sutinen, E., Suhonen, J., Sedano, C. I., Hlavacs, H., & Montero, C. S. (2017). Serious storytelling—a first definition and review. *Multimedia tools and applications*, *76*, 15707-15733. doi:10.1007/s11042-016-3865-5
- Ma, X., Vikram, A., Casson, L., & Bibby, K. (2017). Centralized drinking water treatment operations shape bacterial and fungal community structure. *Environmental Science & Technology*, *51*, 7648-7657. doi:10.1021/acs.est.7b00768
- Malave, C. S., Diggs, D., & Sampayo, E. M. (2019). Spanish-speaking caregivers' experience with an emergency department pediatric asthma-care bundle quality initiative. *Journal of Racial and Ethnic Health Disparities*, *2*(1), 1-8. doi:10.1007/s40615-019-00564-1
- Mallia, P. (2018a). WASP (write a scientific paper): Ethics approval for a research study. *Early human development*, *124*(1), 46-48. doi:10.1016/j.earlhumdev.2018.04.022
- Mallia, P. (2018b). WASP (write a scientific paper): Informed consent in research. *Early human development*, *124*(1), 54-57. doi:10.1016/j.earlhumdev.2018.04.025

- Mamonov, S., & Benbunan-Fich, R. (2018). The impact of information security threat awareness on privacy-protective behaviors. *Computers in Human Behavior*, 83(1), 32-44. doi:10.1016/j.chb.2018.01.028
- Mancosu, N., Snyder, R. L., Kyriakakis, G., & Spano, D. (2015). Water scarcity and future challenges for food production. *Water*, 7, 975-992. doi:10.3390/w7030975
- Mandal, P. C. (2018a). Qualitative research: Criteria of evaluation. *Qualitative research*, 3(2), 1-6. Retrieved from [www.academicjournal.com](http://www.academicjournal.com)
- Mandal, P. C. (2018b). Trustworthiness in qualitative content analysis. *International Journal of Advanced Research and Development*, 3(2), 79-85. Retrieved from [www.advancedjournal.com](http://www.advancedjournal.com)
- Manocha, N., & Chuah, J. C. (2017). Water leaders' summit 2016: Future of world's water beyond 2030 – A retrospective analysis. *International Journal of Water Resources Development*, 33, 170-178. doi:10.1080/07900627.2016.1244643
- Manti, S., & Licari, A. (2018). How to obtain informed consent for research. *Breathe*, 14, 145-152. doi:10.1183/20734735.001918
- Marks, T., & Le, A. (2017). Increasing article findability online: The four Cs of search engine optimization. *Law Library Journal*, 109(1), 83-97. Retrieved from <https://works.bepress.com>
- Marrin, D. L. (2016). Using water footprints to identify alternatives for conserving local water resources in California. *Water*, 8, 497-508. doi:10.3390/w8110497

- Marston, L., Ao, Y., Konar, M., Mekonnen, M. M., & Hoekstra, A. Y. (2018). High-resolution water footprints of production of the United States. *Water Resources Research*, *54*, 2288-2316.
- Martin-Martin, A., Orduna-Malea, E., Harzing, A. W., & López-Cózar, E. D. (2017). Can we use Google Scholar to identify highly cited documents? *Journal of Informetrics*, *11*, 152-163. doi:10.1016/j.joi.2016.11.008
- Mattick, C. S., Landis, A. E., Allenby, B. R., & Genovese, N. J. (2015). Anticipatory life cycle analysis of in vitro biomass cultivation for cultured meat production in the United States. *Environmental Science Technology*, *49*, 11941–11949. doi:10.1021/acs.est.5b01614
- Mbaka, D., & Hood, A. (2017). Effects of strategic quality management on organizations performance. *Imperial Journal of Interdisciplinary Research*, *3*(4), 1-27. Retrieved from <https://www.onlinejournal.in/>
- McGrath, S. K., & Whitty, S. J. (2017). Stakeholder defined. *International Journal of Managing Projects in Business*, *10*, 721-748. doi:10.1108/IJMPB-12-2016-0097
- Mekonnen, M. M., & Hoekstra, A. Y. (2016). Four billion people facing severe water scarcity. *Science Advances*, *2*(2), 1-6. doi:10.1126/sciadv.1500323
- Mena, J. A., Hult, G. T. M., Ferrell, O. C., & Zhang, Y. (2019). Competing assessments of market-driven, sustainability-centered, and stakeholder-focused approaches to the customer-brand relationships and performance. *Journal of Business Research*, *95*, 531-543. doi:10.1016/j.jbusres.2018.07.038



- Meneses, Y. E., & Flores, R. A. (2016). Feasibility, safety, and economic implications of whey-recovered water in cleaning-in-place systems: A case study on water conservation for the dairy industry. *Journal of Dairy Science*, *99*(5), 3396-3407. doi:10.3168/jds.2015-10306
- Mialon, M., Swinburn, B., & Sacks, G. (2015). A proposed approach to systematically identify and monitor the corporate political activity of the food industry with respect to public health using publicly available information. *Obesity reviews*, *16*, 519-530. doi:10.1111/obr.12289
- Miglietta, P. P., & Morrone, D. (2018). Managing water sustainability: Virtual water flows and economic water productivity assessment of the wine trade between Italy and the Balkans. *Sustainability*, *10*(2), 1-19. doi:10.3390/su10020543
- Miles, S. (2017). Stakeholder theory classification: A theoretical and empirical evaluation of definitions. *Journal of Business Ethics*, *142*, 437-459. doi:10.1007/s10551-015-2741-y
- Min, Z., Zhenggang, C., & Jing, L. (2018). Stakeholder theory based on information field model. *Advances in Management and Applied Economics*, *8*(3), 11-26. Retrieved from <https://www.scienpress.com>
- Mingers, J., & Meyer, M. (2017). Erratum to: Normalizing Google Scholar data for use in research evaluation. *Scientometrics*, *112*, 1123-1124. doi:10.1007/s11192-017-2424-9

- Miska, C., & Mendenhall, M. E. (2018). Responsible leadership: A mapping of extant research and future directions. *Journal of Business Ethics, 148*, 117-134. doi:10.1007/s10551-015-2999-0
- Moldavanova, A., & Goerdel, H. T. (2018). Understanding the puzzle of organizational sustainability: Toward a conceptual framework of organizational social connectedness and sustainability. *Public Management Review, 20*(1), 55-81. doi:10.1080/14719037.2017.1293141
- Molina-Azorin, J. F., & Lopez-Gamero, M. D. (2016). Mixed methods studies in environmental management research: Prevalence, purposes and designs. *Business Strategy and the Environment, 25*, 134-148. doi:10.1002/bse.1862
- Morgan, D. L. (2018). Living within blurry boundaries: The value of distinguishing between qualitative and quantitative research. *Journal of Mixed Methods Research, 12*, 268-279. doi:10.1177/1558689816686433
- Morris, A., Onwuegbuzie, A. J., & Gerber, H. R. (2018). Using expert interviews within modes in online and offline spaces to extend comprehensive literature review processes. *Qualitative Report, 23*(8), 1777-1798. Retrieved from <https://nsuworks.nova.edu>
- Moser, A., & Korstjens, I. (2018). Series: Practical guidance to qualitative research. Part 3: Sampling, data collection and analysis. *European Journal of General Practice, 24*(1), 9-18. doi:10.1080/13814788.2017.1375091

- Mumford, M. D. (2018). Psychology of the informed consent process: A commentary on three recent articles. *Ethics & Behavior, 28*(7), 1-4.  
doi:10.1080/10508422.2018.1493383
- Mumme, S. P., & Ingram, H. M. (1985). Community values in southwest water management. *Review of Policy Research, 5*, 365-382.  
doi:10.1111/j.1541-1338.1985.tb00363.x
- Naidu, P. G. (2018). Library automation in order to design libraries for the needs of future users. *Indian Journal of Applied Research, 8*(1). Retrieved from <https://wwjournals.com>
- Narbel, F., & Muff, K. (2017). Should the evolution of stakeholder theory be discontinued given its limitations? *Theoretical Economics Letters, 7*, 1357-1381.  
doi:10.4236/tel.2017.75092
- Nartey, L. T. (2018). Organizational support, teachers' job satisfaction and commitment in colleges of education in Ghana: A qualitative study. *International Journal of Innovative Research and Development, 7*(8), 15-21.  
doi:10.24940/ijird/2018/v7/i8/AUG18020
- Nason, R. S., Bacq, S., & Gras, D. (2018). A behavioral theory of social performance: Social identity and stakeholder expectations. *Academy of Management Review, 43*, 259-283. doi:10.5465/amr.2015.0081
- Newbert, S. L. (2018). Achieving social and economic equality by unifying business and ethics: Adam Smith as the cause of and cure for the separation thesis. *Journal of Management Studies, 55*, 517-544. doi:10.1111/joms.12322

- Newth, J. (2018). Hands-on vs arm's length entrepreneurship research: Using ethnography to contextualize social innovation. *International Journal of Entrepreneurial Behavior & Research*, 24, 683-696.  
doi:10.1108/IJEER-09-2016-0315
- Nikolaou, I. E., Tsalis, T. A., & Evangelinos, K. I. (2019). A framework to measure corporate sustainability performance: A strong sustainability-based view of firm. *Sustainable Production and Consumption*, 18(1), 1-18.  
doi:10.1016/j.spc.2018.10.004
- Ospina, S. M., Esteve, M., & Lee, S. (2018). Assessing qualitative studies in public administration research. *Public Administration Review*, 78, 593-605.  
doi:10.1111/puar.12837
- Othman, Z., & Hamid, F. Z. (2018). Dealing with unexpected ethical dilemma: Experience from the field. *Qualitative Report*, 23(4), 733-741. Retrieved from <https://nsuworks.nova.edu>
- Ozdil, E., & Hoque, Z. (2017). Budgetary change at a university: A narrative inquiry. *British Accounting Review*, 49(3), 316-328. doi:10.1016/j.bar.2016.09.004
- Padiglia, S., & Arcidiacono, F. (2015). A narrative format design to improve language acquisition through social interaction. *Innovation in Teaching: A Survey for Contemporary Teaching*, 28(3), 83-98. doi:10.5937/inovacije1503083P
- Park, J., & Park, M. (2016). Qualitative versus quantitative research methods: Discovery or justification. *Journal of Marketing Thought*, 3(1), 1-7.  
doi:10.15577/jmt.2016.03.01.1

- Parker-Jenkins, M. (2018). Problematising ethnography and case study: Reflections on using ethnographic techniques and researcher positioning. *Ethnography and Education, 13*(1), 18-33. doi:10.1080/17457823.2016.1253028
- Paulus, T., Evers, J. C., & de Jong, F. (2018). Reflecting on the future of QDA software. *Qualitative Report, 23*(13), 1-5. Retrieved from <https://nsuworks.nova.edu>
- Paulus, T., Woods, M., Atkins, D. P., & Macklin, R. (2017). The discourse of QDAS: Reporting practices of ATLAS.ti and NVivo users with implications for best practices. *International Journal of Social Research Methodology, 20*(1), 35-47. doi:10.1080/13645579.2015.1102454
- Payne, D. M., & Raiborn, C. A. (2018). Aggressive tax avoidance: A conundrum for stakeholders, governments, and morality. *Journal of Business Ethics, 147*, 469-487. doi:10.1007/s10551-015-2978-5
- Pedro-Monzonís, M., Solera, A., Ferrer, J., Estrela, T., & Paredes-Arquiola, J. (2015). A review of water scarcity and drought indexes in water resources planning and management. *Journal of Hydrology, 527*, 482-493. doi:10.1016/j.jhydrol.2015.05.003
- Perrault, E. K., & Keating, D. M. (2018). Seeking ways to inform the uninformed: Improving the informed consent process in online social science research. *Journal of Empirical Research on Human Research Ethics, 13*(1), 50-60. doi:10.1177/1556264617738846

- Pescheny, J. V., Pappas, Y., & Randhawa, G. (2018). Evaluating the implementation and delivery of a social prescribing intervention: A research protocol. *International Journal of Integrated Care, 18*(1), 1-7. doi:10.5334/ijic.3087
- Pige, B. (2017). Stakeholder theory and corporate governance: The nature of the board information. *Management: Journal of Contemporary Management Issues, 7*(1), 1-17. Retrieved from <https://hrcak.srce.hr>
- Price, K., Grimmer, K., & Foot, J. (2018). Is the Australian 75+ health assessment person-centered? A qualitative descriptive study of older people's perceptions. *Australian Health Review, 41*, 606-612. doi:10.1071/AH15243
- Randall, D., & Rouncefield, M. (2018). *The Wiley handbook of human computer interaction*. doi:10.1002/9781118976005.ch7
- Rao, P., McKane, A., & de Fontaine, A. (2015). *Energy savings from industrial water reductions*. Paper presented at the 2015 American Council for an Energy-Efficient Economy Summer Study on Energy Efficiency in Industry, Buffalo, NY. Retrieved from <https://buildings.lbl.gov/sites/default/files/lbnl-190943.pdf>
- Resnik, D. B. (2015). Bioethical issues in providing financial incentives to research participants. *Medicolegal and Bioethics, 5*(6), 35-41. doi:10.2147/MB.S70416
- Reynolds, J. D., & Lee, M. (2018). Ethical and methodological issues resulting from recording lapses in qualitative research. *Qualitative Report, 23*(7), 1509-1514. Retrieved from <https://nsuworks.nova.edu>
- Richter, U. H., & Dow, K. E. (2017). Stakeholder theory: A deliberative perspective. *Business Ethics: A European Review, 26*, 428-442. doi:10.1111/beer.12164

- Ripley, K. R., Hance, M. A., Kerr, S. A., Brewer, L. E., & Conlon, K. E. (2018). Uninformed consent? The effect of participant characteristics and delivery format on informed consent. *Ethics & Behavior, 28*(7), 1-27.  
doi:10.1080/10508422.2018.1456926
- Rivera, J. M., Munoz, M. J., & Moneva, J. M. (2017). Revisiting the relationship between corporate stakeholder commitment and social and financial performance. *Sustainable Development, 25*, 482-494. doi:10.1002/sd.1664
- Roger, K., Bone, T. A., Heinonen, T., Schwartz, K., Slater, J., & Thakrar, S. (2018). Exploring identity: What we do as qualitative researchers. *Qualitative Report, 23*(3), 532-546. Retrieved from <https://nsuworks.nova.edu>
- Rogers, R. (2018). Coding and writing analytic memos on qualitative data: A review of Johnny Saldana's the coding manual for qualitative researchers. *Qualitative Report, 23*(4), 889-892. Retrieved from <https://nsuworks.nova.edu>
- Ross, M. W., Iguchi, M. Y., & Panicker, S. (2018). Ethical aspects of data sharing and research participant protections. *American Psychologist, 73*, 138-140.  
doi:10.1037/amp0000240
- Rutberg, S., & Bouikidis, C. D. (2018). Focusing on the fundamentals: A simplistic differentiation between qualitative and quantitative research. *Nephrology Nursing Journal, 45*(2), 209-213. Retrieved from <https://www.annanurse.org>

- Santos, J., Munoz-Villamizar, A., Ormazabal, M., & Viles, E. (2019). Using problem-oriented monitoring to simultaneously improve productivity and environmental performance in manufacturing companies. *International Journal of Computer Integrated Manufacturing*, *32*, 183-193. doi:10.1080/0951192X.2018.1552796
- Sarkar, A., Sarkar, J. G., Sreejesh, S., & Anusree, M. R. (2018). A qualitative investigation of e-tail brand affect. *Marketing Intelligence & Planning*, *36*, 365-380. doi:10.1108/MIP-09-2017-0198
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2015). *Research methods for business students*. Retrieved from <http://www.pearsoned.co.uk>
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., ...Jinks, C. (2018). Saturation in qualitative research: Exploring its conceptualization and operationalization. *Quality & Quantity*, *52*, 1893-1907. doi:10.1007/s11135-017-0574-8
- Schaefer, T., Udenio, M., Quinn, S., & Fransoo, J. C. (2019). Water risk assessment in supply chains. *Journal of Cleaner Production*, *208*, 636-648. doi:10.1016/j.jclepro.2018.09.262
- Scherer, A. G. (2018). Theory assessment and agenda setting in political CSR: A critical theory perspective. *International Journal of Management Reviews*, *20*, 387-410. doi:10.1111/ijmr.12137
- Schmitt, A. (2017). *The phenomenology of autobiography: Making it real*. Retrieved from <http://taylorandfrancis.com/>



- Seitz, S. (2016). Pixilated partnerships, overcoming obstacles in qualitative interviews via Skype: A research note. *Qualitative Research, 16*, 229-235.  
doi:10.1177/1468794115577011
- Shrivastava, P., & Guimarães-Costa, N. (2017). Achieving environmental sustainability: The case for multi-layered collaboration across disciplines and players. *Technological Forecasting and Social Change, 116*, 340-346.  
doi:10.1016/j.techfore.2016.11.019
- Siegner, M., Pinkse, J., & Panwar, R. (2018). Managing tensions in a social enterprise: The complex balancing act to deliver a multi-faceted but coherent social mission. *Journal of Cleaner Production, 174*, 1314-1324.  
doi:10.1016/j.jclepro.2017.11.076
- Sim, J., Saunders, B., & Waterfield, J., & Kingstone, T. (2018). The sample size debate: Response to Norman Blaikie. *International Journal of Social Research Methodology, 21*, 643-646. doi:10.1080/13645579.2018.1454642
- Slade, P. (2018). If you build it, will they eat it? Consumer preferences for plant-based and cultured meat burgers. *Appetite, 125*, 428-437.  
doi:10.1016/j.appet.2018.02.030
- Sloan, T., & Hernandez-Castro, J. (2018). Dismantling open puff PDF steganography. *Digital Investigation, 25*, 90-96. doi:10.1016/j.diin.2018.03.003
- Smith, P. R. (2018). Collecting sufficient evidence when conducting a case study. *Qualitative Report, 23*(5), 10-28. Retrieved from <https://nsuworks.nova.edu>

- Sousa-Zomer, T. T., & Miguel, P. A. C. (2018). Sustainable business models as an innovation strategy in the water sector: An empirical investigation of a sustainable product-service system. *Journal of Cleaner Production, 171*, S119-S129. doi:10.1016/j.jclepro.2016.07.063
- Symon, G., Cassell, C., & Johnson, P. (2018). Evaluative practices in qualitative management research: A critical review. *International Journal of Management Reviews, 20*, 134-154. doi:10.1111/ijmr.12120
- Teagarden, M. B., Von Glinow, M. A., & Mellahi, K. (2018). Contextualizing international business research: Enhancing rigor and relevance. *Journal of World Business, 53*, 303-306. doi:10.1016/j.jwb.2017.09.001
- Thompson, R. (2018). A qualitative phenomenological study of emotional and cultural intelligence of international students in the United States of America. *Journal of International Students, 8*, 1220-1255. doi:10.5281/zenodo.1250423
- Tingle, E., Corrales, A., & Peters, M. L. (2019). Leadership development programs: Investing in school principals. *Educational Studies, 45*(1), 1-16. doi:10.1080/03055698.2017.1382332
- United Nations Global Compact. (2018). Explore our participants. Retrieved from [www.unglobalcompact.org](http://www.unglobalcompact.org)
- United States Code of Federal Regulations. (2017). *General Requirements for informed consent*. Retrieved from [www.govinfo.gov](http://www.govinfo.gov)
- United States Department of Commerce. (2018). *Food and beverage*. Retrieved from [www.export.gov](http://www.export.gov)

United States Department of the Interior. (2018). *Where is Earth's water located?*

Retrieved from [www.usgs.gov](http://www.usgs.gov)

Valta, K., Kosanovic, T., Malamis, D., Moustakas, K., & Loizidou, M. (2015). Overview of water usage and wastewater management in the food and beverage industry. *Desalination and Water Treatment*, 53, 3335-3347.

doi:10.1080/19443994.2014.934100

Vanham, D., Hoekstra, A. Y., Wada, Y., Bouraoui, F., de Roo, A., Mekonnen, M. M., ...

Kummu, M. (2018). Physical water scarcity metrics for monitoring progress towards SDG target 6.4: An evaluation of indicator 6.4.2 level of water stress. *Science of the Total Environment*, 613, 218-232.

doi:10.1016/j.scitotenv.2017.09.056

Veloso, E., Orellana, A., & Reeves, J. L. (2018). Teaching qualitative research online: Using technology to leverage student engagement. *FDLA Journal*, 3(6), 1-10.

Retrieved from <https://nsuworks.nova.edu>

Vereen, L. G., Yates, C., Hudock, D., Hill, N. R., Jemmett, M., O'Donnell, J., &

Knudson, S. (2018). The phenomena of collaborative practice: The impact of interprofessional education. *International Journal for the Advancement of Counselling*, 1(1), 1-16. doi:10.1007/s10447-018-9335-1

Walden University Doctoral Capstone Resources. (2016). DBA doctoral study rubric and research handbook. Retrieved from <http://academicguides.waldenu.edu>

- Walsh, H., & Dowding, T. J. (2012). Sustainability and the Coca-Cola Company: The global water crisis and Coca Cola's business case for water stewardship. *International Journal of Business Insights & Transformation*, 4(3), 6-18.  
Retrieved from <http://www.ijbit.org>
- Walker, C., Beretta, C., Sanjuan, N., & Hellweg, S. (2018). Calculating the energy and water use in food processing and assessing the resulting impacts. *International Journal of Life Cycle Assessment*, 23, 824-839. doi:10.1007/s11367-017-1327-6
- Wa-Mbaleka, S. (2017). Fostering quality in qualitative research: A list of practical strategies. *International Forum*, 20(1), 58-80. Retrieved from <http://journals.aiias.edu>
- Wang, M. C. (2017). The relationship between firm characteristics and the disclosure of sustainability reporting. *Sustainability*, 9, 624-638. doi:10.3390/su9040624
- Wang, Q., Dou, J., & Jia, S. (2015). A meta-analytic review of corporate social responsibility and corporate financial performance: The moderating effect of contextual factors. *Business & Society*, 55, 1083-1121.  
doi:10.1177/0007650315584317
- Wang, Z., Hsieh, T. S., & Sarkis, J. (2018). CSR performance and the readability of CSR reports: Too good to be true? *Corporate Social Responsibility and Environmental Management*, 25(1), 66-79. doi:10.1002/csr.1440
- Ward, J. K., Comer, U., & Stone, S. (2018). On qualifying qualitative research: Emerging perspectives and the DEER paradigm. *Interchange*, 49(1), 133-146.  
doi:10.1007/s10780-018-9313-x

- Weber, O., & Hogberg-Saunders, G. (2018). Water management and corporate social performance in the food and beverage industry. *Journal of Cleaner Production*, *195*, 963-977. doi:10.1016/j.jclepro.2018.05.269
- Wells, N. (2018). Ethnography and Modern Languages: Critical Reflections. *Journal of Romance Studies*, *18*(1), 135-137. doi:10.3828/jrs.2018.9
- Weinmeyer, R., Norling, A., Kawarski, M., & Higgins, E. (2017). The Safe Drinking Water Act of 1974 and its role in providing access to safe drinking water in the United States. *AMA Journal of Ethics*, *19*, 1018-1026. doi:10.1001/journalofethics
- Weller, S. C., Vickers, B., Bernard, H. R., Blackburn, A. M., Borgatti, S., Gravlee, C. C., & Johnson, C. J. (2018). Open-ended interview questions and saturation. *PLoS One* *13*(6), 1-18. doi:10.1371/journal.pone.0198606
- Westermann-Behaylo, M. K., Van Buren, H. I., & Berman, S. L. (2016). Stakeholder capability enhancement as a path to promote human dignity and cooperative advantage. *Business Ethics Quarterly*, *26*, 529-532. doi:10.1017/beq.2016.46
- Wisconsin Department of Natural Resources. (2018). *Environmental protection*. Retrieved from [dnr.wi.gov](http://dnr.wi.gov)
- Wu, J., & Wokutch, R. E. (2015). Confucian stakeholder theory: An exploration. *Business & Society Review*, *120*(1), 1-21. doi:10.1111/basr.12046
- Yang, Y., Pankow, J., Swan, H., Willett, J., Mitchell, S. G., Rudes, D. S., & Knight, K. (2018). Preparing for analysis: A practical guide for a critical step for procedural rigor in large-scale multisite qualitative research studies. *Quality & Quantity*, *52*, 815-828. doi:10.1007/s11135-017-0490-y

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6<sup>th</sup> ed.).

Retrieved from <https://us.sagepub.com>

Young, J. C., Rose, D. C., Mumby, H. S., Benitez-Capistros, F., Derrick, C. J., Finch,

T.,...Parkinson, S. (2018). A methodological guide to using and reporting on

interviews in conservation science research. *Methods in Ecology and Evolution*,

9(1), 10-19. doi:10.1111/2041-210X.12828

Zhang, Y., Huang, K., Yu, Y., & Yang, B. (2017). Mapping of water footprint research:

A bibliometric analysis during 2006-2015. *Journal of Cleaner Production*,

149(1), 70-79. doi:10.1016/j.jclepro.2017.02.067

Zhou, Y., Chang, L. C., Uen, T. S., Guo, S., Xu, C. Y., & Chang, F. J. (2019). Prospect

for small-hydropower installation settled upon optimal water allocation: An action

to stimulate synergies of water-food-energy nexus. *Applied Energy*, 238, 668-682.

doi:10.1016/j.apenergy.2019.01.069

## Appendix: Abridged Interview Protocol

Interview Date: 00/00/2019

Interview Time: am/pm

Interview Scheduled Time Limit: 30 minutes

Participant Pseudonym: \_\_\_\_\_ Participant

Code \_\_\_\_\_ (P1-P4)

Firm \_\_\_\_\_ (Org 1-Org2)

Research Question: What strategies do some food and beverage industry leaders use for

implementing sustainable water consumption practices to improve operational efficiency?

What actions I will take:	What I will say – the script:
<ol style="list-style-type: none"> <li>1. Introduce the interview session and myself to the research participant.</li> <li>2. Present the informed consent document via email if using Skype or present the informed consent document hard copy if interviewing in person.</li> <li>3. Provide the participant with the copy signed or agreed to by the participant.</li> </ol>	<ol style="list-style-type: none"> <li>a. Good afternoon/morning ____ my name is Christopher Weber, I am a doctoral student at Walden University conducting a study on sustainable water consumption practices to improve operational efficiency in Wisconsin.</li> <li>b. Thank you for taking the time to respond to the invitation for participation in this research study, here is your copy of your signed consent form for your records.</li> <li>c. I believe you read, understood, and agree with the contents of the informed consent document, but if you have any questions or concerns, I would like to address them before this interview begins.</li> </ol>

<p>What actions I will take:</p> <ol style="list-style-type: none"><li>4. Turn on the recording and backup recording devices.</li><li>5. Follow the procedure to introduce the participant (s) with coded identification (P1-P4), note the date and time.</li><li>6. Begin the interview with question one and follow through to the final question.</li><li>7. Conclude with any additional questions, if applicable.</li></ol>	<p>What I will say – the script:</p> <p style="text-align: center;"><u>Interview Questions</u></p> <ol style="list-style-type: none"><li>1. What strategies does your company use to implement sustainable water consumption practices to improve operational efficiency?</li><li>2. How did you identify successful strategies for implementing sustainable water consumption practices to improve operational efficiency?</li><li>3. What strategies were unsuccessful for implementing sustainable water consumption practices to improve operational efficiency?</li><li>4. What barriers did you encounter while implementing sustainable water consumption practices to improve operational efficiency?</li><li>5. How did you overcome the barriers encountered while implementing sustainable water consumption practices to improve operational efficiency?</li></ol>
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<p>10. Wrap up the interview; thank each participant.</p> <p>11. Scheduling the follow-up member-checking interview.</p>	<p>6. What additional information regarding strategies for implementing sustainable water consumption practices to improve operational efficiency would you like to share that we have not discussed?</p> <p>7. Thank you for taking time out to share your experiences with me on this important subject. I will transcribe the interview data and contact you again in two days so that you can check the data to ensure the information is reported correctly.</p> <p>8. From our previous conversation, it appears you are able to meet or communicate with me on 00/00/2018 at am/pm to discuss the findings.</p>
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## Follow-up Member Checking Protocol

What actions I will take:	What I will communicate – the script:
<p data-bbox="302 394 880 466">Introduce the follow-up interview and set the stage.</p> <p data-bbox="302 762 862 940">Provide a copy of the succinct synthesis for each individual question. Present probing questions related to other information I discovered. Read each question and interpretation and ask:</p> <p data-bbox="302 982 602 1014">a. Did I miss anything?</p> <p data-bbox="302 1056 704 1087">b. What would you like to add?</p>	<p data-bbox="919 321 1406 352">What I will communicate – the script:</p> <p data-bbox="919 394 1390 684">Good afternoon/morning Participant (1-4). Thank you for participating in this study. This is a follow-up to our previous interview on the strategies used by food and beverage industry leaders to sustainable water consumption practices to improve operational efficiency.</p> <p data-bbox="919 762 1333 940">1. What strategies does your company use to implement sustainable water consumption practices to improve operational efficiency?</p> <p data-bbox="919 982 1308 1054">*Succinct synthesis of the one paragraph interpretation.</p> <p data-bbox="919 1129 1365 1308">2. How did you identify successful strategies for implementing sustainable water consumption practices to improve operational efficiency?</p> <p data-bbox="919 1350 1308 1421">*Succinct synthesis of the one paragraph interpretation.</p> <p data-bbox="919 1497 1390 1633">3. What strategies were unsuccessful for implementing sustainable water consumption practices to improve operational efficiency?</p> <p data-bbox="919 1675 1308 1747">*Succinct synthesis of the one paragraph interpretation.</p>

