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Early Adoption Dynamics Of Private Sustainability Governance Initiatives: A Case Study Of The Marine Cultured-Pearl Industry

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EARLY ADOPTION DYNAMICS OF
PRIVATE SUSTAINABILITY GOVERNANCE INITIATIVES:
A CASE STUDY OF THE MARINE CULTURED-PEARL INDUSTRY

A Dissertation Presented

by

Julie Nash

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The Faculty of the Graduate College

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The University of Vermont

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ABSTRACT

We are witnessing a time of unprecedented human impact on the natural environment. Coral reefs, one of the most biologically diverse and productive ecosystems, are at the forefront of enduring these human impacts. Despite widespread recognition of coral reef degradation, counter measures have not reached a scale to offset the threat. The magnitude of this and other environmental issues call for a deeper understanding of the role the private sector can play in sustainable development.

In response to environmental pressures and the shortcomings of global-scale governance, private sustainability governance initiatives have developed. In the last decade, these initiatives have flourished, resulting in a diversity of formats including third-party certification, consumer product transparency systems, and industry roundtables. In many industries, these programs compete to define the transformation and evolution of sustainability governance in an industry.

This dissertation draws on a case study of the marine cultured-pearl industry to highlight the early adoption dynamics of private sustainability governance initiatives. The marine cultured-pearl industry provides an illuminating case study for the adoption of private governance, based on the potential strength of the positive environmental impact and farm presence in ecologically vulnerable coral reef areas. Yet despite these strengths, no formal sustainability initiatives have developed.

This research project explores the early adoption of private governance initiatives through a mixed-methodological, case-study approach. The first study, a quantitative survey of US jewelry consumers, examines the impacts of environmental messages on perceptions of luxury value. The second study assesses the effect of networked legitimacy on producer perceptions in private governance initiatives. The final study investigates the impact of value chain structure on competing private governance initiatives.

The research results provide evidence of a strong business case for the development of industry-wide sustainability initiatives and highlights distinctions between the rival private governance initiatives. The US jewelry consumer research shows that consumer messages featuring sustainability standards to protect coral reefs outperform third-party certification on luxury attributes. The marine cultured-pearl producer research highlights the legitimacy advantages of consumer product transparency when compared to third-party certifications. The value chain research indicates that, when compared to third-party certifications, consumer product transparency systems have characteristics that provide an advantage in addressing producer upgrading opportunities. Results from each of the three studies highlight the potential advantages of consumer product transparency systems over third-party certification initiatives in this and other settings. These results helped inform participatory action research to assess alternative pathways for private sustainability governance.

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CHAPTER 1: INTRODUCTION

Traditional national governance systems have generally lacked the capability to deal with the scale of global environmental issues (Bernstein & Cashore, 2000; Christmann & Taylor, 2002) so new schemes such as private governance initiatives are emerging to fill this gap (Fischlein & Smith, 2010). These initiatives attempt to address market failures and promote positive social and environmental outcomes (Cashore, Auld, & Newsom, 2004). In the last decade, a diversity of these governance formats have been transforming industries toward sustainability (Fischlein & Smith, 2010). The early stages of this transformation exhibit interesting dynamics between consumers, who demand socially-responsible products, producers, who transform their production practices, and rival private governance initiatives, which strive to establish sustainable performance norms.

To explore these early adoption dynamics, this dissertation draws on a case study of the marine cultured-pearl industry. This industry provides an illuminating case study for adoption of private governance initiatives based on the potential strength of the positive environmental impact and farm presence in ecologically vulnerable coral reef areas (Cartier & Ali, 2012). Within this context, powerful jewelry industry actors have recognized the sustainable development potential of responsible pearl farming, however no formal initiatives have been developed. This provides a unique opportunity to study the unfolding adoption dynamics within an industry primed for these initiatives.

This introductory chapter sets the stage for the dissertation. It provides an overview of private sustainability governance initiatives, a summary of early adoption dynamics literature, and an overview of the marine cultured-pearl industry. The introduction ends by outlining the central questions addressed by the three papers in this dissertation.

1.1 Private Sustainability Governance Initiatives in the Consumer Product Industry

Market-based instruments (MBIs) present a broad set of tools to address environmental impacts of economic development. MBIs include environmental taxes or credits, payments for ecosystem services, tradable permit systems, species banking, and certification initiatives (Boisvert, Méral, & Froger, 2013; Edwards-Jones, Davies, & Hussain, 2009; Pirard, 2012). MBIs have been shaped by a desire to maintain a degree of individual choice while collectively addressing environmental sustainability and social equity concerns (Gupta, 2010; Guthman, 2008). MBIs have appeal due to their flexibility, efficiency, and potential for innovation, when contrasted with command-and-control regulations (Press & Mazmanian, 2010; Rivera, 2010). If MBIs are carefully designed and implemented, they can complement regulations by changing both economic incentives and the behaviors of private actors (Pirard, 2012; Press & Mazmanian, 2010; Rivera, 2010).

Private sustainability governance initiatives are one type of MBI that promote responsibly sourced and produced consumer goods (Bernstein & Cashore, 2007). These initiatives are mechanisms that attempt to re-embed social and environmental attributes

into consumer products using standards to govern production and commercialization. These standards are voluntary and private with no state entity requiring adherence to rules or controlling the process of setting standards (Cashore et al., 2004). The mechanisms are coined “market-driven” because value chain actors determine inclusion in an initiative (Auld et al., 2007; Cashore, 2002; Cashore et al., 2004; VanDeveer, 2007). The goals are to entice consumer-product value chain actors to provide information to enable consumer understanding of the social and environmental conditions of production (Bernstein, 2004; Bernstein & Cashore, 2007; Cashore et al., 2004; Raynolds, 2002). Incentives for value chain actors to participate include the potential for consumer price premiums and desire to avoid consumer boycott campaigns (Auld et al., 2010; Cashore et al., 2004; Renard, 2003). In most instances, these initiatives focus standard setting on first-stage value chain companies (those who harvest the product’s natural resources) but gain support by pressuring the entire value chain, including consumer product manufacturers or retailers (Cashore et al., 2004). Authority is grounded in market transactions utilizing a product’s value chain to recognize, track, and differentiate goods from environmentally and socially responsible businesses (Bernstein & Cashore, 2007).

Private sustainability initiatives, by their definition, aim to move an industry’s production chains towards sustainability. These initiatives can be viewed as policy innovation that can be characterized by their stage of innovation diffusion (Mintrom, 1997). The diffusion of innovation theory can be used to explain the rate that the policy innovation can spread throughout an industry (Hockerts & Wüstenhagen, 2010; Mintrom,

1997; Rogers, 2003). At early adoption stages, small firms and new entrants stimulate disruptive sustainability innovations (Hockerts & Wüstenhagen, 2010). This early stage of sustainability transformation exhibits dynamics between consumers who demand socially-responsible products, producers, who transform their production practices, and rival private governance initiatives, which strive to outline sustainable performance norms. These interesting dynamics have not been the focus of previous research.

Much of the private sustainability governance literature focuses on “standards in isolation or as static mechanisms, disregarding their potential interaction and evolution” (Fischlein & Smith, 2010, p. 512). Wahl and Bull (2014) reinforce the lack of research in early adoption of private governance initiatives. Their research assessed 188 articles about private sustainability governance initiatives published between 1999 and 2011. Within the arena of certification and industry roundtables, Wahl and Bull (2014) found that most research focused on: (1) effective management of an existing certification’s environmental and social standards; (2) the effectiveness of different certifications in achieving sustainability objectives; and (3) the macro rationale for the general emergence of these governance institutions. Within these articles focusing on development, their work demonstrated that less than ten percent focused on the development of these governance initiatives. This literature review highlights the research opportunity to address the dynamics involved with the early adoption of private sustainability governance initiatives.

1.2 Case Study: Responsible Marine Cultured-Pearl Farming

Marine ecosystems face threats due to overfishing, watershed-based pollution, marine pollution and unregulated coastal development (Halpern et al., 2007). Coral reefs are at the greatest risk with more than 60 percent under immediate and direct threat from local (man-made) sources (Burke et al., 2012). In many small island developing states (SIDS), corals and fisheries are the basis for functioning marine ecosystems that provide food and well-being to local communities. Cartier and Ali (2012) argue that ecosystems should be protected in a manner that engages local stakeholders and provides tangible economic benefits for local communities.

If managed responsibly, marine cultured-pearl farming can have a positive environmental footprint in many SIDS communities. A thriving marine ecosystem offers pearl oysters the nutrients and water quality needed for healthy growth (Lucas, 2008). The sensitivity of oysters to pollution creates an inherent incentive for pearl farmers to maintain water quality (Southgate & Lucas, 2008). In addition, research on coral reefs and pearl farms in Ahe, French Polynesia, demonstrate that fish are more abundant in areas with pearl farms (Cartier & Carpenter, 2014), positively linking responsible farming to healthy coral reef environments (Cartier & Ali, 2012).

Cultured-pearl cultivation is a vital source of livelihoods in remote Pacific islands. The industry is a major employer in the islands, second only to tourism. In 2000, it was estimated that in French Polynesia seven thousand people depended on the cultured-pearl industry (Cartier et al., 2012). The remote island livelihoods help stem outer island emigration and provide economic alternatives to tourism (Cartier & Ali, 2012).

Additionally, pearl farming is compatible with island cultures. In Polynesia, the oyster has held a significant place in history, and provided a plentiful food source that has proven resilient in the face of storms and droughts (Macpherson, 2000). An additional attraction of the industry is its use of existing island skill sets, such as diving, fishing, and boating. These activities offer a working environment compatible with traditional occupations for the local population (Haws, 2000; Tisdell & Poirine, 1998). Finally, pearling and ancillary services can significantly contribute to economic development in remote coastal communities. Because pearls are lightweight and non-perishable, they are preferable to fish export, which requires refrigeration and extensive shipping facilities (Haws, 2000). Additional background information on the marine cultured-pearls is included in the Appendix (A1- Marine Cultured-Pearl Industry Development and General Economics, A2- Marine Cultured-Pearl Jewelry Production, A3- Marine Cultured-Pearl Varieties).

Although marine cultured-pearl farming is acknowledged as an environmentally friendly activity (Southgate & Lucas, 2008), some practices can result in negative marine impacts. Environmentally questionable practices include high density pearl culture, species translocations and artificial propagation, and poor waste disposal (O'Connor & Gifford, 2008). High density culture leads to benthic accumulation of wastes from the bivalves themselves. These accumulations can result in eutrophication of marine sediments and a concurrent change in benthic fauna (Jelbart et al., 2011). Another potential negative impact of pearl aquaculture is alteration of the gene pool of the indigenous oyster population, which can arise from the translocation of oysters or the

artificial propagation of species. Physical waste disposal can be another issue especially in large mechanized pearl farms. Plastics used for cages, floats, and ropes, are common disposable items on marine cultured-pearl farms. If disposed of directly into the marine environment, chemicals can leach into the environment and adversely impact aquatic life (Andréfouët et al., 2014; O'Connor & Gifford, 2008).

Within this context, powerful jewelry industry actors have recognized the sustainable development potential of responsible pearl farming. In a recent research jewelry forum, Gaetano Cavalieri, the president of the World Jewellery Confederation, stated, “When a consumer buys an item of pearl jewelry, they should feel that they have invested in our planet’s long-term survival, rather than having taken advantage of it” (Cavalieri, 2014). Cavalieri’s thoughts are echoed in the marine cultured-pearl community, with key stakeholders recognizing that the positive environmental benefits represent an industry-wide competitive advantage. In response, the Sustainable Pearls research project was formed to enhance understanding of the industry’s positive environmental impacts and to explore alternative private governance initiatives.

1.3 Alternative Private Sustainability Governance Initiatives in the Marine Cultured-Pearl Industry

At the early adoption stage within an industry, key stakeholders choose between competing private sustainability governance initiatives. In consultation with marine cultured-pearl stakeholders, our research team identified three initiatives as potential industry-wide alternatives: third-party certification, consumer product transparency systems, and industry roundtables.

1.3.1 Third-Party Certification

Third-party certification confirms that products and processes meet specific sustainability standards. Global certification in forestry, fisheries, and apparel emerged in the 1990s, but trace their roots back thirty years earlier to the fair trade and organic agriculture movements (Wahl & Bull, 2014). Their emergence coincided with the move from command-and-control regulations imposed by governments towards market-based self-regulation and new environmental policy instruments in the 1980s (Press & Mazmanian, 2010).

Third-party certification is distinguished from other private governance initiatives by three main components: the consumer-oriented label, wide stakeholder representation in governance, and third-party auditing systems. Third-party certification features labels that signal compliance with a set of standards, allowing consumers to differentiate items that achieve the standards from those items that do not (Sammer & Wüstenhagen, 2006). According to the Ecolabel Index (2014), an internet based global directory of socio-environmental labels, there are 458 ecolabels in 197 countries, and 25 industry sectors as of October 2014. Third-party certifications demonstrate wide stakeholder representation in governance and auditing systems (Pérez-Ramírez et al., 2012; Peters et al., 2011; Schouten et al., 2012). Often, third-party certification initiatives have governance structures with representation from corporations, nongovernmental agencies, and nation-states (Bernstein & Cashore, 2007; Cashore et al., 2004). For instance, in the marine arena, the Marine Stewardship Council's (MSC, 2014) board of trustees has representatives from producing fisheries, seafood distributors, seafood retailers, and

various nongovernmental agencies. Another differentiating feature is third-party auditing systems (Cashore et al., 2004). Given the presence of questionable corporate claims of environmental responsibility, Raynolds (2012) describes an increasing demand for independent auditing to authenticate business adherence to specific performance criteria and ongoing compliance monitoring.

In discussions with industry key stakeholders, the Sustainable Pearls group discussed different third-party certifications that used a label mechanism, featured wide stakeholder representation, and a comprehensive auditing system. Examples of third-party certifications relevant to the pearl industry included the Responsible Jewellery Council, the Aquaculture Stewardship Council, and Fair Trade.

1.3.2 Consumer Product Transparency Systems

Consumer product transparency systems are initiatives that have grown out of a trend in product information disclosure. Producers are increasingly confronted with voluntary demands of transparency for their inputs and production processes (Gupta, 2008, 2010; Mol, 2006). In response to this demand, actors are putting together systems to facilitate, translate, and articulate product information to make it available and useful to consumers. This form of transparency, sometimes called governance by disclosure, holds value chain actors responsible by requiring communication of raw material and production practices to the end consumer (Gupta, 2008; Mol, in press). These transparency systems contextualize sustainability attributes and serve as verification of adherence to environmental standards (Moser et al., 2012).

In industry discussions, the Sustainable Pearls group spoke about transparency systems as a mechanism to expedite consumer transparency about the underlying social and environmental conditions of the product and production. An example, discussed with pearl industry stakeholders, is the consumer transparency initiative called ThisFish (“ThisFish | Seafood Traceability,” 2014). Their website allows consumers to input a fish specific traceability code and view sustainability information including a fisherman’s personal stories, fishing practices including methods and materials, catch date, and the approximate location of the seafood catch.

1.3.3 Industry Roundtables

Industry roundtables are private multi-stakeholder platforms comprised of business and non-governmental organizations. They are organized to improve the social and environmental responsibility of a global commodity chain. Some recent examples include the Roundtable on Sustainable Palm Oil, Roundtable on Responsible Soy, Better Cotton Initiative, Better Sugarcane Initiative, and Roundtable on Sustainable Biofuels. Industry roundtables are a form of industry self-regulation. Only private parties participate in decision-making, while individuals from government agencies and scientists serve as observers or advisors (Schouten & Glasbergen, 2011). In many instances, members of industry roundtables are motivated to preempt governance regulation and address stakeholder pressures (Fischlein & Smith, 2010). Unlike other private governance initiatives such as third-party certification, industry roundtables do not emphasize participation in direct-to-consumer communication. Instead, they focus on communication among value chain suppliers and buyers (Schouten & Glasbergen, 2011).

These forms of self-regulation are not without controversy, with researchers highlighting potential free-rider effects and difficulties with compliance assurance (Fischlein & Smith, 2010; King & Lenox, 2000). In the initial discussions with key stakeholders, the Sustainable Pearls group did not use the term “industry roundtable”, but instead, discussed potential producer gatherings to aid in the development of industry sustainability principles.

1.4 Dissertation Research Questions

The purpose of this research is to enhance the understanding of rival sustainability governance initiatives and study the factors that influence early adoption of private governance initiatives. As outlined above, the research concentrates on marine cultured-pearls. This case study represents a unique opportunity to examine the unfolding adoption dynamics within an industry primed for these initiatives. The dissertation results are reported in the format of three research papers, each of which addresses a facet of the overarching research purpose.

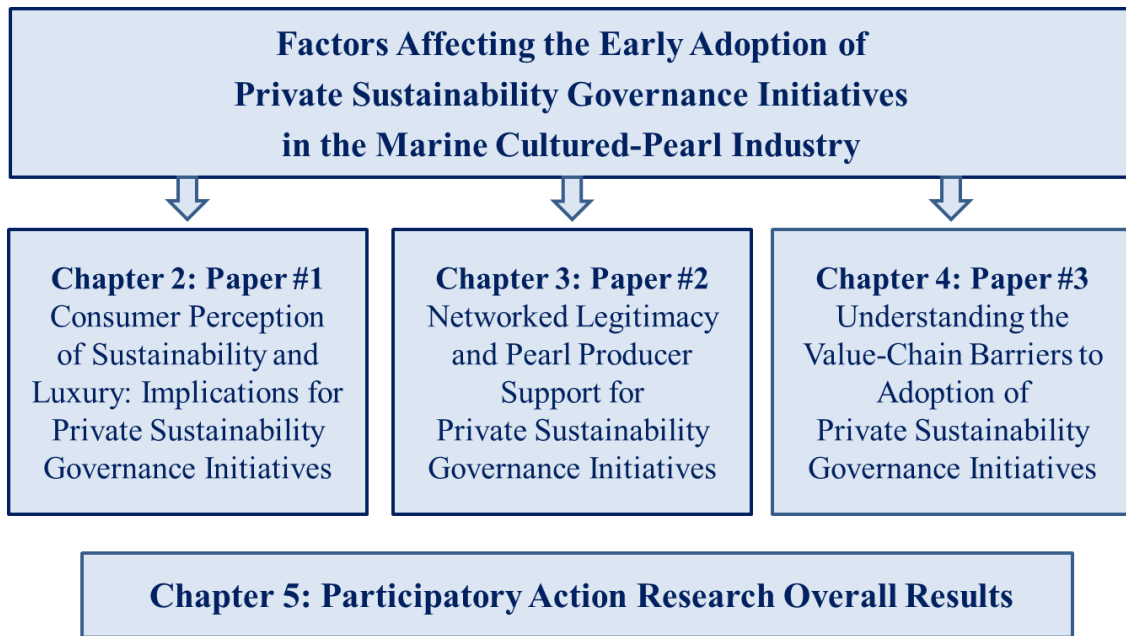


Figure 1. Overview of the Dissertation Structure

A general overview of the dissertation is shown in Figure 1. The summary provided in the following section spotlights some of the current scholarly debates regarding private sustainability governance initiatives. This summary identifies gaps in the literature central to my research questions.

The majority of research on private sustainability governance initiatives focuses on large and established certification initiatives in the consumer product sector such as Fair Trade, Marine Stewardship Council, and Forest Stewardship Council (Wahl & Bull, 2014). In addition to the lack of diversity of product profiles in private sustainability governance initiatives, the majority of consumer research on sustainability has not focused on luxury products (Hennigs et al., 2013; Janssen et al., 2014; Kapferer & Michaut-Denizeau, 2014). This relative lack of research mirrors the realities of the

marketplace. Large non-governmental organizations and policy makers have not partnered with the luxury product producers to develop internationally recognized sustainability standards (Bendell & Kleanthous, 2007). This leads to the questions addressed in chapter 2:

How do different sustainability messages impact consumers' perceptions of luxury values of marine cultured-pearls? What are the implications for early adoption of private sustainability governance initiatives?

Organizational legitimacy is central to the early stage development of these private sustainability governance initiatives. Mele and Scheper (2013) first outlined the term networked legitimacy to describe institutional and strategic legitimacy in the context of codes of conduct. They argue that business members are motivated by strategic legitimacy to join the code of conduct. As business membership grows, the business members assist in maintaining and building the institutional legitimacy of the codes of conduct, resulting in networked legitimacy. As participation in the code of conduct grows, business members are rewarded with increased strategic legitimacy.

This networked legitimacy concept focuses on the interdependence of the participant organization's strategic legitimacy and the institutional legitimacy of the sustainability initiative itself. However, Mele and Scheper's (2013) description of networked legitimacy fails to delve into the nuances of organization relationships, such as pooled interdependence (Thompson, 1967). This highlights an opportunity to investigate networked legitimacy during its initial construction phase, to better understand the

dynamics of organizational interdependence. The central questions addressed in chapter 3 of the dissertation are

How do the inter-organizational dynamics of legitimacy affect producer interest in different forms of private sustainability governance initiatives? What are the implications for early adoption of private sustainability governance initiatives?

The final question centers on the broad emergence of private sustainability governance witnessed in the last decade. This burst of innovation resulted in a diversity of formats for private sustainable governance initiatives including third-party certification, consumer product transparency systems, and industry roundtables to promote sustainability standards. Proponents of such initiatives compete to define the transformation and evolution of sustainability governance in an industry (Fischlein & Smith, 2010). Yet each of these initiatives can have different impacts on the production network. They may disrupt or reinforce existing value chain relationships. The initiatives may change the resources exchanged by different actors and affect the power distribution in the value chain (Tran et al., 2013). By investigating the changes to value chain connections and resources, links can be made between private governance initiative types and potential outcomes for industry actors. This type of forward-looking analysis can be helpful in anticipating stakeholder critiques of different governance forms. This leads to the questions addressed in chapter 4:

How might the private sustainability governance initiatives disrupt or reinforce existing value chain relationships and change resource exchange? How do these

issues impact key industry actors and create barriers to adoption of private sustainability governance initiatives?

These three sets of questions were an integral part of the Sustainable Pearls action research project. The researchers actively engaged with key industry stakeholders and pearls farmers between 2012 and 2014. These groups partnered with researchers not only to debate the choice of alternative private sustainability governance initiatives, but also to craft analytical frameworks and questions. The overall results of the Sustainable Pearls participatory action research are included in the dissertation conclusion.

CHAPTER 2: SUSTAINABILITY AND CONSUMERS' PERCEPTION OF LUXURY VALUES

Paper Working Title: The Sustainable-Luxury Contradiction: Evidence from a Consumer Study of Marine Cultured-Pearl Jewelry

Target Journal: Journal of Corporate Citizenship

2.1 Introduction

Some consumer product companies have responded to growing consumers' concern with environmental degradation by increasing the use of environmental appeals in their product messaging (Golding & Peattie, 2005). These firms differentiate their products from those of their competitors by highlighting their environmentally responsible values (Rex & Baumann, 2007). Research supports the fact that consumers prefer environmentally responsible products and, in many cases, are willing to pay more for these products (Auger, Burke, Devinney, & Louviere, 2003). However, despite mounting quantitative research in the convenience-goods sector, luxury goods remain relatively understudied. Janssen, Vanhamme, Lindgreen and Lefebvre (2014) and Kapferer & Michaut-denizeau (2014) have emphasized that more quantitative research is needed to paint a clearer portrait of sustainability in luxury goods.

Some of the limited empirical research about luxury goods has highlighted potential contradictions between luxury and environmental sustainability. These contradictions stem from a perceived conceptual misfit between environmental sustainability, with its respect for the environment and society, and luxury, with its reputation for extravagance, wastefulness, and indulgence (Marie-Cécile Cervellon &

Shammas, 2013; Hennigs et al., 2013; Janssen et al., 2014). Although acknowledging these contradictions, Hennings et al. (2013) contend that luxury goods that are based on high quality and craftsmanship can provide a solid basis for environmentally responsible messaging.

Our research addresses the potential contradiction between luxury values and environmentally responsible products. Research studies have highlighted the difference between convenience goods' and luxury goods' purchase criteria (Davies, Lee, & Ahonkhai, 2012). Our work expands this research area by focusing on purchase criteria and environmental values in the jewelry industry, investigating the potential sustainable luxury contradiction.

In a recent article, Hennigs et al. (2013) outlines a sustainable luxury framework, comprised of four key dimensions to achieve value-based social and environmental excellence: financial value, functional value, individual value, and social value. Our research tests aspects of this framework in one part of the luxury jewelry market, the marine cultured-pearl industry. This industry serves as an exemplar, based on the potentially positive environmental impacts of marine cultured-pearl farming (Cartier & Carpenter, 2014) and the interest of industry stakeholders in forming responsible pearl farming standards and eco-labels (See Chapter 3). This research featured a stated preference experiment that examines consumer perceptions of non-environmental versus environmental messages. Experiment participants were randomly assigned to a single message and asked to provide perception feedback on the products' financial, functional, and social values.

This paper begins with background literature, introducing environmental messaging and product values in luxury consumer products. Next, the paper provides information about the marine cultured-pearl industry and its associated message frames. Then, it describes research methods, including consumer sampling and data analyses techniques. The results and findings section details the jewelry consumer's general attitudes toward sustainability and their perception of luxury product values based on different environmental messages. Next, implications for the marine cultured-pearl industry are outlined. Finally, the paper concludes with industry and policy implications, study limitations, and potential areas of future study.

2.2 Background Literature Review

To understand sustainability in the luxury goods sector, it is essential to understand consumer motivations behind environmental responsibility and luxury product purchases. A growing number of consumers' attitudes and behaviors are being shaped by environmental consciousness. These socially responsible consumers have many names such as "ethical consumers", "green consumers", "cultural creatives", "environmentally responsible consumers" and "socially conscious consumers" (Anderson & Cunningham, 1972; Antil, 1984; Ray & Anderson, 2001; Shaw & Newholm, 2002; Webster, 1975). Webster (1975) described a socially responsible consumer as one "who takes into account the public consequences of his or her private consumption or who attempts to use his or her purchasing power to bring about social change" (p.188). These consumers value authenticity, nature, and community. From a product standpoint, they

are concerned about the environmental and social impacts of the value chain that brought the product to market (Ray & Anderson, 2001).

Similar to beauty, an individual's definition of luxury lies within the eye of the beholder. The definitions of luxury are broad and variable over time (Ward & Chiari, 2008). From a conceptual standpoint, luxury goods are a type of specialty good. Specialty goods are classified as items that require a special purchasing effort while convenience goods are categorized as items which consumers purchase frequently or immediately with minimal effort (Bucklin, 1963). Specialty goods usually have some unique characteristics or brand identifications that act as differentiating features. Beyond this definitional construct, luxury can be difficult to define, stemming from the fact that luxury products embody emotional components in excess of their utility and subjective benefits (de Barnier, Rodina, & Valette-Florence, 2006; Vigneron & Johnson, 1999; Wiedmann, Hennigs, & Siebels, 2007). Although luxury definitions may be dependent on context and individual people, it is possible to identify numerous dimensions to assess differences in luxury products' message frames.

Concerns about environmental and social impacts have served as a source of critiques of luxury goods. For example, environmental advocates tend to criticize hidden parts of the value chain, such as raw material sourcing, animal treatment, worker conditions, and manufacturing's pollution or destruction of the local environment (Kapferer & Michaut-denizeau, 2014). Other critics highlight luxury products' essential inequality, specifically selling extravagant goods in new markets amid significant poverty (Bendell & Kleanthous, 2007). In addition, the fashion dynamics of certain luxury

product goods reflect negative aspects of capitalism such as encouraging purchase of unnecessary items and extravagant consumption (Ward & Chiari, 2008). Despite strong consumer trends for socially conscious buying, luxury brands have been slow to react to environmental advocates and consumer pressures (Bendell & Kleanthous, 2007). Even with these challenges, some luxury brands, such as fashion designer Stella McCartney, have embraced environmental values, using them to differentiate their products (“Luxury’s little green secret,” 2007). These luxury brands indicate that some industry actors care about making the connections between environmentally responsible production and luxury goods (Marie-Cécile Cervellon & Shammas, 2013).

The relationship between luxury goods and environmental responsibility remains relatively understudied, especially in the United States (Davies et al., 2012; Kapferer & Michaut-denizeau, 2014). The few published quantitative studies with luxury consumers have been conducted in Europe, specifically the UK (Davies et al., 2012) and France (Achabou & Dekhili, 2013; Janssen et al., 2014; Kapferer & Michaut-denizeau, 2014). Qualitative research has shown that luxury perceptions and attitudes vary across cultures (Marie-Cécile Cervellon & Shammas, 2013; Wiedmann et al., 2007).

Some research has pointed to a contradiction between luxury products values and environmental responsibilities. A core value of sustainability is respect for the environment and society, while some consider the term luxury to be, by its very nature, wasteful and careless (Marie-Cécile Cervellon & Shammas, 2013). Kapferer & Michaut-denizeau (2014) found that, if consumers perceive luxury as superficial and shallow, they will see a mismatch between the concept of luxury and sustainability. Researchers have

also found that brands promoting “low-fit” or mismatched social responsibility initiatives can negatively impact consumer purchase intention (Becker-Olsen, Cudmore, & Hill, 2006; Janssen et al., 2014; Torelli, Monga, & Kaikati, 2012). The research of Achabou and Dekhili (2013) finds that the incorporation of recycled materials in luxury clothing negatively affects consumer preferences. Based on these results, Achabou and Dekhili (2013) contend that there is a certain incompatibility between recycling and the category of luxury products.

Yet, there are indications that environmental responsibility, correctly framed, could represent an untapped opportunity for luxury brands. Many successful consumers strive to purchase products that reflect their concerns and aspirations for a better world (Bendell & Kleanthous, 2007; Marie-Cecile Cervellon, 2013). If a luxury brand’s uniqueness is based on quality and craftsmanship, their product differentiation can be compatible with environmentally responsible values (Kapferer & Michaut-denizeau, 2014). The research completed by Janssen et al. (2014) showed that the acceptance of responsible luxury appears to be dependent on the specific characteristics of the product. Their work showed that naturally scarce and enduring luxury products, such as jewelry, could enhance their luxury value through promoting environmentally responsible messages.

To address this luxury product and sustainability mismatch question, our research compared a range of environmental and non-environmental messages to gain an understanding of consumer value perceptions within the category of luxury goods. Although luxury definitions are dependent on context and individual people, researchers

have developed frameworks to identify key dimensions of consumer decision-making for luxury products (Vigneron & Johnson, 1999, 2004; Wiedmann et al., 2007). Wiedmann, Hennigs and Siebels (2007) constructed a theoretical framework highlighting four luxury value dimensions: financial, functional, individual and social values. Hennigs et al. (2013) translated this research into a sustainable luxury framework that outlines these values in the context of sustainability. Our research tests the financial, functional and social elements of this framework, as shown in Figure 2.

	Dimensions of Sustainable Luxury Framework (Wiedmann <i>et al.</i> 2007 and Hennig <i>et al.</i> 2013)	Operationalized Questions
Financial Values	The financial dimension of luxury value refers to the price expressed in dollars as well as to what is given up or sacrificed to obtain it.	<ul style="list-style-type: none"> • Price Value- “good value for the price”
Functional Values	The functional dimension of luxury value refers to aspects such as quality and uniqueness	<ul style="list-style-type: none"> • Product Quality- “high quality products” • Uniqueness- “main benefit is different than other jewelry products”
Social Values	The social dimension of luxury value refers to the perceived utility individuals acquire as recognized within their own social networks.	<ul style="list-style-type: none"> • Word of Mouth- “likeliness to tell other people about product”

Figure 2. Dimensions of Sustainable Luxury Framework

Financial Value. The financial dimension of luxury value refers to the price expressed in dollars as well as to what is given up or sacrificed to obtain it (Hennigs et al., 2013; Wiedmann et al., 2007) . Luxury products are viewed as a signal of social status, with perceived value and worth as essential status components. Luxury metals, such as gold and silver, have been sought and displayed for millennia, serving as public

displays of economic power and individual differentiation (Ali, 2010). This historical signal of status holds true today. When consumers buy luxury products, they distance themselves from the general population and from one another. A luxury good's high price enhances the value of the social signal (Vigneron & Johnson, 1999). Purchasing a luxury product represents signal value not only to the individual but also to their reference group (Wiedmann et al., 2007). Given that a growing number of consumers' attitudes and behaviors are being shaped by environmental consciousness, we believe that environmental messages will not devalue luxury jewelry products. These arguments lead to the following hypothesis:

*Hypothesis 1: Environmentally responsible messages will **not result in lower perceived financial value** when compared to non-environmentally responsible control messages.*

Functional Value. The functional dimension of luxury value refers to aspects such as quality and uniqueness, usability, reliability and durability (Hennigs et al., 2013; Wiedmann et al., 2007). Our research focuses on two of these elements, product quality and uniqueness. Luxury products are usually known for their superior quality, design, and performance when compared to other products (Vigneron & Johnson, 2004). Quality dimensions can emerge from raw ingredients, virtues, or specialized production processes. Individual craftsmanship and superior design are at the heart of many luxury goods. Luxury brands emphasize their historical design legacy and quality attributes to imbue luxury legitimacy (Thomas, 2008). Consumer attitudes towards sustainability and quality lead to the following hypothesis:

*Hypothesis 2a: Environmentally responsible messages will **not result in lower perceived quality** when compared to non-environmentally responsible control messages.*

Luxury products value comes from not only the status signaling, but also their uniqueness and scarcity. Ali (2010) argues that scarcity is at the core of the luxury gem and jewelry industry. Natural scarcity stems from the limited nature of raw ingredients and specialized production processes (Catry, 2003). In recent years, the notion of scarcity has been enhanced by luxury goods manufacturers through limited series offers and selective distribution. Thus scarcity arises from artificial as well as natural production constraints. In addition, many high end brands limit their distribution to select retail outlets to enhance the aura of uniqueness (Catry, 2003). For either natural or artificial rarity, the value must be effectively communicated to the end consumer as a differentiating feature. In the case of marine cultured-pearls, the product uniqueness is based on natural rarity, which is compatible with environmentally responsible values (Kapferer & Michaut-denizeau, 2014). This leads to the following hypothesis:

*Hypothesis 2b: Environmentally responsible messages will **not result in lower perceived comparative uniqueness** when compared to non-environmentally focused control messages.*

Social Values. Intertwined with social status is the luxury product's relationship to a person's self-concept. The theory of extended self suggests that people regard their possessions as extensions of their identity (Belk, 1988). Displaying or wearing a luxury product allows a consumer to integrate the

affluent symbolic meaning into their own identity. Individuals concerned with conformity to affluent groups may use luxury products as a symbol and signal of their success (Vigneron & Johnson, 2004). The social dimension of luxury value refers to the perceived utility individuals acquire when recognized within their own social networks (Hennigs et al., 2013; Wiedmann et al., 2007). Given the growth of environmentally conscious consumers, we hypothesize that environmental messages will not diminish luxury social values. Within this research, social values are tested through claimed word-of-mouth communications.

*Hypothesis 3: Environmentally responsible messages will **not result in lower product word-of-mouth communication** when compared to non-environmentally focused control messages.*

This research empirically tests these hypotheses by looking at an exemplar, the marine cultured-pearl industry. The next section outlines the case study and the development of the industry's message frames.

2.3 Case Study. Marine Cultured-Pearls

This section highlights the development of the environmental and non-environmental message frames in the marine cultured-pearl industry. This empirical research uses framing as an analytical structure to study consumer reactions to different environmental messages. As a broad definition, framing involves selecting and highlighting aspects of perceived reality to elevate their salience (Entman, 1993). With

respect to communication, framing refers to the way some message elements are promoted while others are obscured (Entman, 1993; Uggla & Olausson, 2012). Frames serve as amplifying devices, making communication messages more memorable and meaningful (Plec & Pettenger, 2012; Uggla & Olausson, 2012). Framing effects are particularly powerful when consumers are not well informed or actively engaged in an issue (Plec & Pettenger, 2012). Environmental communicators continuously make framing judgments and these frames influence consumer engagement and consumption of environmentally responsible products (Atkinson & Kim, 2014).

The marine cultured-pearl industry provides an illuminating case study to research environmental communication to consumers based on the strength of the environmental responsibility story. If managed responsibly, marine cultured-pearl farming can have a positive environmental footprint. Many marine cultured-pearl farms are located in areas of the Pacific that boast the greatest marine biodiversity on the planet. A thriving marine ecosystem offers pearl oysters the nutrients and water quality needed for healthy growth (Lucas, 2008). The sensitivity of oysters to pollution creates an inherent incentive for pearl farmers to maintain water quality (Southgate & Lucas, 2008). In addition, research on coral reefs and pearl farms in Ahe, French Polynesia, demonstrate that fish are more abundant in areas with pearl farms (Cartier & Carpenter, 2014), positively linking responsible farming to healthy coral reef environments (Cartier & Ali, 2012).

Some within the marine cultured-pearl industry have started to explore environmental messaging but it is at the nascent state. To assess the current industry messages, the researchers performed a content assessment of existing industry

communication and messaging. The assessment included producer specific websites, retail websites, on-farm consumer communication materials, and materials from the Maison de la Perle. This content assessment revealed four frames, two non-environmental and two environmental.

- Pearls- A Timeless Symbol of Glamour and Elegance. (Non-Environmental Control)
- Pearls from the Islands of the South Pacific. (Non-Environmental Control)
- Minimizing Environmental Impact on Oceans. (Environmental)
- Pearls Direct from Sustainable Pearls in the South Pacific. (Environmental)

In addition, the researchers conducted outreach within the industry to investigate what messages key industry actors are considering or might consider in the future (Chapter 3). This resulted in three additional environmental frames.

- Responsible Jewellery Council Certification. (Environmental)
- Aquaculture Stewardship Council Certification. (Environmental)
- Environmental Standards to Protect Coral Reefs. (Environmental)

The seven message frames are summarized in Figure 2.

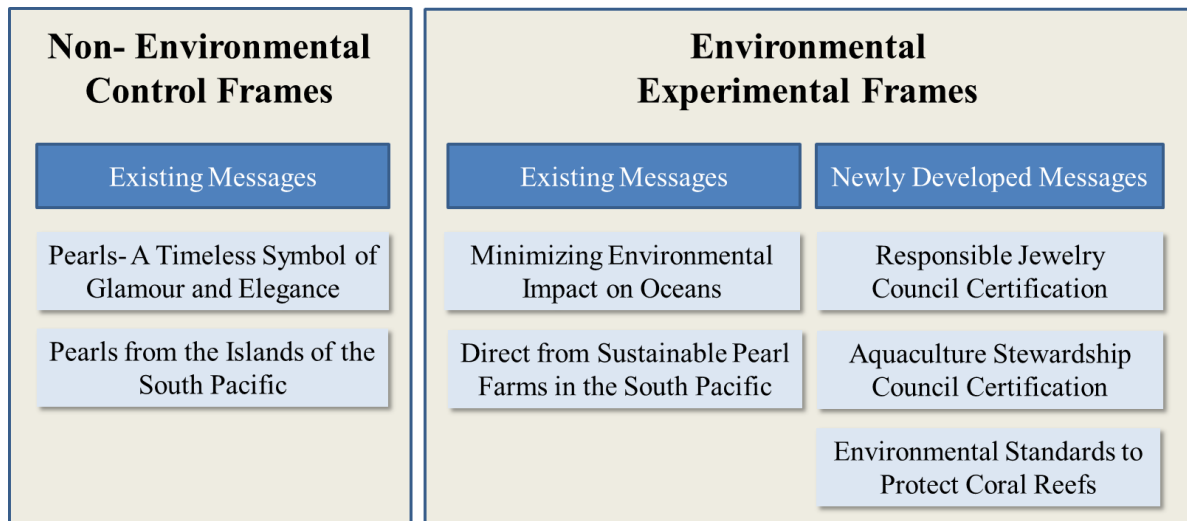


Figure 2. Control versus Environmental Message Frames

2.4 Methods

Our research used a stated preference experiment to examine consumer reaction to the message frames outlined above. The experiment used a between-group design to test control and experimental frames simultaneously. Participants were randomly assigned to one message and asked to evaluate the product on key measures. These key measures were developed to provide insights into the four hypotheses outlined above.

Our choice of the stated preference experiment methodology took into consideration two factors. First, in sustainability research, structured experiments allow researchers to evaluate messages without the standard social biases that exist with traditional comparative survey methods (Auger et al., 2003). Second, since this study focuses on “new” product attributes, preference testing is used rather than standard survey methodology because preference testing more closely mimics a real purchase situation.

Our respondent sampling strategy controlled for category involvement to enhance external validity. Consumer category involvement or interest refers to a person's perceived relevance of the product based on inherent needs, values and interests (Dens & De Pelsmacker, 2010). De Pelsmacker and Janssens (2007) found that category/product interest directly affected consumer perception of product sustainability messages. To control for category involvement, participants for this study were self-identified jewelry consumers from an existing internet consumer panel, the Jewelry Consumer Opinion Council. This panel is coordinated by the market research firm MVI which specializes in consumer research on the global gem, jewelry, and watch industries. MVI helped develop and administer the research questionnaire. All respondents were screened for a willingness to pay over \$200 for a single jewelry piece. For the survey questions focused on environmental frames, the experiment employed stratified sampling to ensure adequate sample size of consumer interested in purchasing pearls. To test our research questions, the researchers developed concept stimuli to represent the message frames. Additional details on the rationale behind concept testing and the development of concept stimulus are included in the 2.7.1, Research Methods Appendix- Message Content and Product Concept Development. A pre-programmed internet questionnaire was developed and pre-tested with participants. Additional details on the questionnaire are covered in the 2.7.2, Research Methods Appendix- Questionnaire Development and Consumer Testing.

After constructing the questionnaire and message summaries, a pilot test was conducted on two concepts with over 100 participants to test the questionnaire design

before the full-scale experiment. As a result of the pilot testing, specific wording on two questions were altered. The results of this pilot study were not included in the final sample. The researchers completed the data analysis of consumer responses in the statistical software JMP (SAS Institute Inc, 2014). To test the hypothesis, an ANOVA planned contrast analysis was conducted. The full details are included in the results and findings section.

2.5 Results and Findings

This section outlines the details about the research sample, highlights general sustainable jewelry purchasing results, and describes the results of the hypothesis testing.

2.5.1 Sample Description

The respondents were all participants of an existing consumer panel, the Jewelry Consumer Opinion Council. Each respondent opted into the jewelry survey and were compensated for their participation. Respondents were used only after they were screened for their willingness to pay over \$200 for a single jewelry piece. Our total respondents included 2,188 female jewelry consumers from 18 to 65 years old and an income ranging from less than \$25,000 to more than \$150,000. Table 1 presents the overall socio-demographic breakdown of the panel sample. Figure 3 presents details on the historical fine jewelry purchases of the respondents. It is important to note that about half the sample claimed to have made a single purchase of fine jewelry over \$250 in the last two years. More than 17 percent have made a fine jewelry purchase of over \$1000 in the last two years.

Table 1. Jewelry Consumer Opinion Council. Sample Demographics

Age			Income		
18 to 30 years old	496	23%	\$150,000 or more	146	7%
31 to 40 years old	574	26%	\$125,000 - \$149,999	124	6%
41 to 50 years old	481	22%	\$100,000 - \$124,999	234	11%
Over 50 years old	<u>637</u>	<u>29%</u>	\$75,000 - \$99,999	541	25%
	2,188		\$60,000 - \$74,999	436	20%
			\$40,000 - \$59,999	675	31%
			\$25,000 - \$39,999	7	0%
			Decline to answer	<u>25</u>	1%
				2,188	
Education Level			Marital Status		
Less than 9th Grade	1	0%	Divorced	144	7%
High School – No Diploma	25	1%	Married	1,429	65%
High School Graduate or equivalent	302	14%	Single	367	17%
Some College (no degree)	534	24%	Single - In a long term		
Associate’s Degree	289	13%	committed relationship	<u>248</u>	11%
Bachelor’s Degree	705	32%			
Graduate or Professional Degree	329	15%			
Other, please specify	<u>3</u>	0%			
	2,188			2,188	

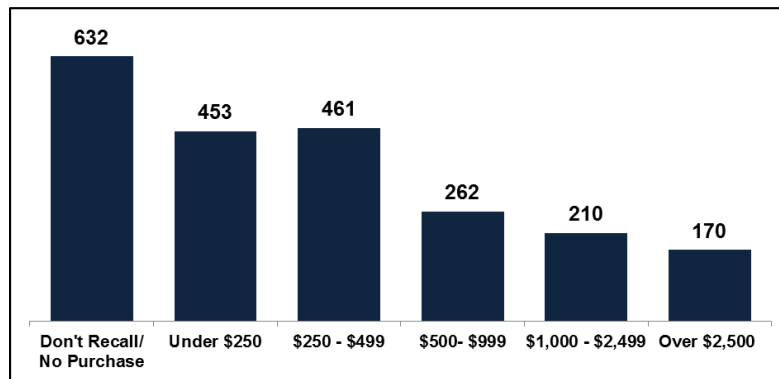


Figure 3. Survey Results. Historical Fine Jewelry Purchases

This figure shows the results of the question “What is the most you have spent on a single fine jewelry purchase in the past 24 months?”

2.5.2 Jewelry Consumers General Attitudes to Sustainability

Consumers were asked questions to assess their general perceptions on jewelry sustainability. The questions specifically used both positive and negative question wording to increase validity. Our results showed that fifty-nine percent of respondents “would not buy fine jewelry if it was mined, manufactured or sold in a socially irresponsible way” and fifty-two percent of respondents claimed that if “the fine jewelry industry was found to be socially irresponsible, I would stop purchasing fine jewelry.” Even more notable were the results showing that sixty-six percent of consumers would be more interested in purchasing fine jewelry if it showed a positive impact on the environment. Results are reported in Table 2. This strongly indicates that luxury jewelry consumers’ attitudes are being shaped by social consciousness.

Table 2. Survey Results. General Attitudes toward Jewelry Sustainability

	Strongly Agree	Agree Somewhat	Neither Agree nor Disagree	Disagree Somewhat	Strongly Disagree
I would not buy fine jewelry if I knew it was mined, manufactured or sold in a socially irresponsible way.	25%	34%	28%	9%	4%
If the fine jewelry industry was found to be socially irresponsible, I would stop purchasing fine jewelry.	19%	33%	30%	12%	6%
If a fine jewelry product demonstrates that it positively impacts the environment, I would be more interested in purchasing the fine jewelry.	27%	39%	27%	4%	2%

As shown in Figure 4A, almost half of respondents, forty eight percent, stated that environmental conditions were extremely or somewhat important. This is in keeping with Davies, Lee, & Ahonkhai’s (2012) study of luxury goods with UK consumers. This

research found a difference in purchase decision-making between luxury and convenience goods. Consumers placed the product attribute ‘ethical conditions of production’ in the middle of convenience goods purchase criteria versus the bottom of the luxury purchase criteria. Figure 4B shows the age breakdown of consumers that agreed that environmental conditions of consumers were extremely or somewhat important in their most recent fine jewelry purchase. Our research showed that environmental conditions of production are more important to younger jewelry consumers.

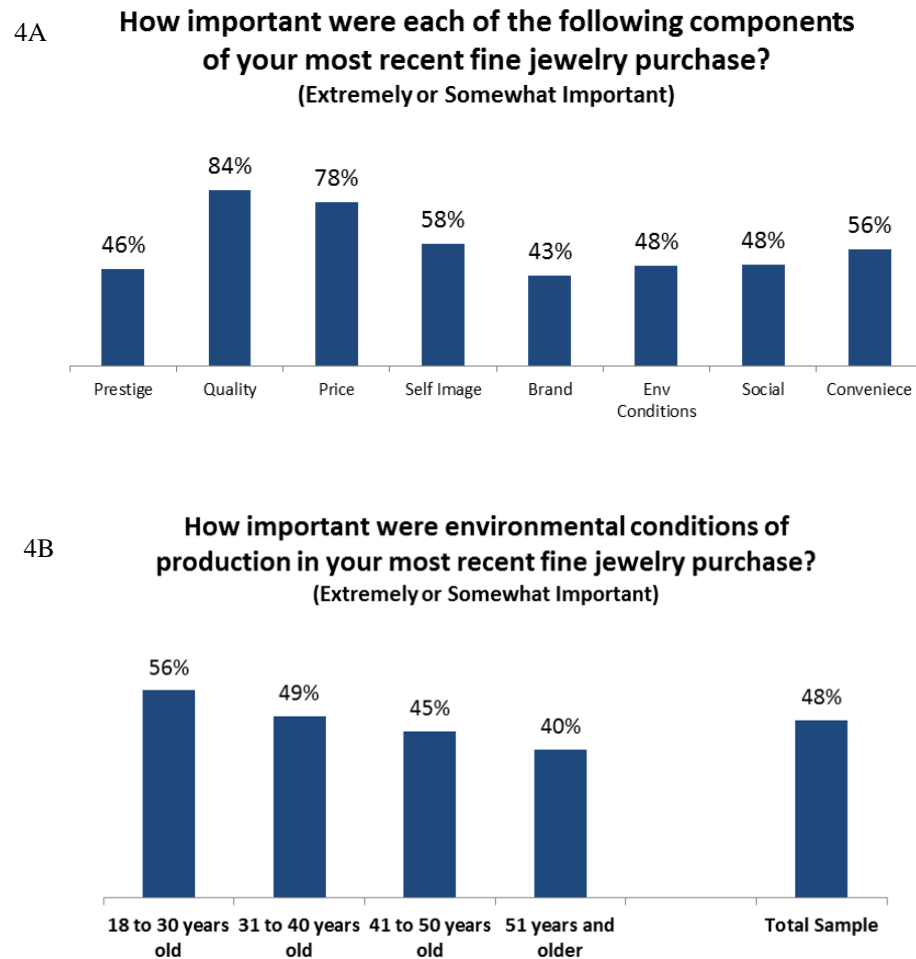


Figure 4A-B. Environmental Importance in Jewelry Purchases

2.5.3 Contradictions between Luxury Products and Environmental Messages

As described in the background literature section, the contradictions between luxury products and environmental messages are analyzed through luxury value elements outlined in the sustainable-luxury framework of Hennigs et al. (2013). To test the four hypothesis, a series of ANOVA planned contrast analyses were conducted and the results are shown in Table 3. Details of the questionnaire, including exact question wording and alternative consumer responses are provided in the section 2.7, the Research Methods Appendix.

Table 3. Summary Statistics. Environmental Messages and Luxury Values

	N	Financial Value		Functional Values				Social Values	
		Price Value (H1)		Quality (H2A)		Comparative Benefits (H2B)		Word of Mouth (H3)	
		Mean	Standard Error	Mean	Standard Error	Mean	Standard Error	Mean	Standard Error
Environmental Message Frames									
Standards to Protect Coral Reefs	157	4.08	0.06	4.35	0.0604	4.03	0.07	4.14	0.07
Committed to Minimizing Impact on Oceans	244	4.03	0.05	4.26	0.0484	4.01	0.07	3.99	0.07
Responsible Jewelry Council Certification	149	3.97	0.07	4.26	0.0620	3.97	0.06	3.94	0.06
Aquaculture Stewardship Council Certification	151	3.94	0.07	4.24	0.0616	3.94	0.07	3.93	0.07
Direct from Sustainable Pearl Farms	163	3.93	0.06	4.22	0.0593	3.92	0.07	3.91	0.07
Control Message Frames									
Pearls from the Islands of the South Pacific	142	3.92	0.07	4.21	0.0635	3.90	0.07	3.89	0.07
Pearls a Timeless Symbol of Elegance	167	3.90	0.06	4.17	0.0586	3.78	0.07	3.83	0.08
Planned Contrast Test #1: Environmental vs Control Frames									
Estimate			0.08		0.76		0.13		0.11
Std Error			0.05		0.05		0.06		0.06
P-value			0.152		0.136		0.023		0.063

Table 4. Summary Hypotheses Results. Environmental Messages and Luxury Values

	Environmental Messages Do Not Diminish Luxury Product Values in Jewelry
Financial Values	Hypothesis 1- Supported. Environmentally responsible messages will not result in lower perceived financial value than non-environmentally focused control messages?
Functional Values	Hypothesis 2A- Supported. Environmentally responsible messages will not result in lower product quality perceptions than non-environmentally focused control messages.
	Hypothesis 2B: Supported. Environmentally responsible messages will not result in lower product comparative uniqueness perception than non-environmentally focused control messages.
Social Values	Hypothesis 3: Supported. Environmentally responsible messages will not result in lower claimed word of mouth communication than non-environmentally focused control messages.

When evaluated across the luxury framework articulated in Hennigs et al. (2013), these results in aggregate do not provide evidence that environmental messages diminish luxury product values. All four hypotheses are supported. Table 4 provides a summary of the hypotheses and results. To assess the financial values of the luxury framework, participants were asked to rate their agreement with the statement that the products depicted are a good value for the price. The results, as shown in the Financial Value column of Table 3, demonstrate no statistically significant difference between means for perceived value of environmental and control messages. The aggregated environmental messages do not demonstrate lower perceived product scores compared to the control, which provides support for Hypothesis 1. To assess quality component of functional value, consumers were asked to rate their agreement with this statement, “These are high-quality jewelry products.” Again, these results showed no statistically significant difference between means for perceived quality of environmental and control messages. The aggregated environmental messages do not demonstrate lower perceived product

scores compared to the control, which provides support for Hypothesis 2a. To assess perceptions of product uniqueness, participants were asked to rate their agreement to a comparative benefits statement, “The main benefits of these products is something in addition to what other types of jewelry currently offer.” For Hypothesis 2b, the ANOVA planned contrast analysis showed a statistically significant difference between means, but the environmental messages were higher at a statistically significant level when compared with the control messages. To assess social values of luxury, Consumers were asked to rate their agreement with the statement, “I would likely tell other people about these products.” The results showed no statistically significant difference between means on claimed word-of-mouth communications. This comparison of environmental and control messages provides support for Hypothesis 3.

2.5.3 Standards to Protect Coral Reefs versus Control Messages

A closer inspection indicated that one specific environmental message may enhance certain luxury product values. Our results indicated that the message focused on Standards to Protect Coral Reefs may enhance consumers’ perception of quality, value, uniqueness, and social values of luxury. The results, confirmed through a series of ANOVA planned contrast analyses, are summarized in Table 5.

Table 5. Comparison of Standards to Protect Coral Reefs versus Control Frames

		Financial Value	Functional Values		Social Values
		Price Value	Product Quality	Comparative Benefits	Word of Mouth
Environmental Frames					
Standards to Protect Coral Reefs	N 157	4.08	4.35	4.03	4.14
Control Frames					
Pearls from the Islands of the South Pacific	142	3.92	4.21	3.90	3.83
Pearls a Timeless Symbol of Elegance	167	3.90	4.17	3.78	3.91
P-Value		0.037	0.032	0.027	0.002

Across all three luxury areas, financial value, functional value and social values, the Standards to Protect Coral Reefs message exceeds non-environmental messages. From a financial value perspective, the Standards to Protect Coral Reefs message demonstrated a higher mean value perception at a statistically significant level when compared to the control non-environmental messages. From a functional value perspective, Standards to Protect Coral Reefs demonstrated statistically significant higher mean quality and uniqueness perceptions when compared with the control non-environmental messages. From a social value perspective, the Standards to Protect Coral Reefs message demonstrated statistically significant higher claimed word-of-mouth communications when compared with the control non-environmental messages. When taken in combination, the consumer responses indicate that the Standards to Protect Coral Reefs message may enhance luxury product values.

2.6 Conclusion

As described in the case study section, this research was an integral part of the Sustainable Pearls action research project. Between 2012 and 2014, the researchers engaged with key industry stakeholders and pearl farmers in the marine cultured-pearl industry. Specific to this consumer perception research, we partnered with key industry stakeholders to ensure that the communication messages reflect the sustainability dynamics and tensions in the marine cultured-pearl industry. These messages helped inform the development and analysis of alternative sustainable governance pathways including industry roundtables and third-party certifications. In June 2014, these research results were presented to industry stakeholders at a Sustainable Pearls forum in Hong Kong.

Our industry presentation concentrated on three main points. First, contrary to industry stakeholders concerns, social responsibility has a role in United States consumers' attitudes of towards jewelry purchases. Over half the respondents stated that environmental conditions were extremely or somewhat important to their jewelry decision. Second, our results show that the message focused on "sustainability standards to protect coral reefs" may enhance the components of luxury such as quality, value, and uniqueness. The message also demonstrated statistically significant higher claimed word-of-mouth communications compared to the non-environmental messages. Finally, the results indicate that additional research is needed on third-party certification before recommending the adoption of these initiatives for the purposes of consumer communication. The Responsible Jewellery Council and Aquaculture Stewardship

Council did not have a statistically significant impact on the financial or functional value elements compared to general environmental responsibility messages. It is important to note that third-party certification is not oppositional to standards protection of coral reefs. But focusing on a consumer communication of the eco-label without industry specific coral reef context is not recommended.

This paper contributes to and expands on the literature at the intersection luxury goods and environmental responsibility. It provides a point of evidence indicating that properly framed environmental messages may not diminish, and in some cases can enhance consumer perceptions of luxury value. The results are particularly interesting with regard to the Standards to Protect Coral Reefs message.

Although the research methodology had many positive elements, it also had several limitations. First, the survey was conducted in only one country, the United States, and in one product category, marine cultured-pearls. It should be noted that the research results reported here focused on a once-only exposure to environmentally responsible messages. In addition, due to survey length, the research did not use composite measures or index measures to measure luxury value dimensions. In most cases, a single Likert-type item was included on the post-exposure questionnaire to assess product perceptions. Asking multiple questions to measure a single attribute can provide a more accurate cumulative measure than a single item measure. Also, although the questionnaire was carefully structured to reduce social desirability issues, this bias remains a problem with any stated preference study. Respondents feel the pressure to

respond according to what they believe to be socially acceptable and this can overinflate social responsibility scores.

This research should be looked at as an exemplar - a critical case that refutes the assertion that luxury is incompatible with sustainability. Further research that considers a wider variety of luxury products and environmentally responsible messages would increase the ability to generalize these findings. The results also indicate that there are opportunities in the study of consumer transparency and environmentally response goods. Specifically, it would be useful to explore the role of argument specificity and evidence in consumer perception of these same luxury attributes.

2.7 Research Methods Appendix - Chapter 2

2.7.1 Message Content and Product Concept Development

The Sustainable Pearl group worked actively with the cultured-pearl industry to develop the environmental messaging used within the experiment. To assess the current industry messages, we conducted a content assessment of existing industry communication and messaging. The assessment included producer specific websites, retail websites, on-farm consumer communication materials, and materials from the Maison de la Perle. This content assessment revealed four frames, two non-environmental and two environmental.

1. Pearls- A Timeless Symbol of Glamour and Elegance. (Non-Environmental Control)
2. Pearls from the Islands of the South Pacific. (Non-Environmental Control)

3. Minimizing Environmental Impact on Oceans. (Environmental)
4. Pearls Direct from Sustainable Pearls in the South Pacific. (Environmental)

In addition, the researchers conducted industry outreach to investigate what messages key industry actors are considering or might consider in the research. In addition to partnering with pearl farms, thirty-two key industry stakeholders participated in the project. Fair Trade, the World Jewellery Confederation, and the Responsible Jewellery Council, the main sustainability organizations operating in the marine cultured-pearl industry, all participated in the research. The perspective of value chain participants were sampled during two main trade show events, Inhorgenta Munich 2014 (February 2014) and Hong Kong Jewelry & Gem Fair (June 2014). The details of this research is included in Chapters 3 and 4 of the dissertation. This collaboration with industry partners resulted in three additional environmental frames.

1. Responsible Jewellery Council Certification. (Environmental)
2. Aquaculture Stewardship Council Certification. (Environmental)
3. Environmental Standards to Protect Coral Reefs. (Environmental)

To test our research questions, the researchers developed concept stimuli to represent the message frames. Consumer concept testing is the mainstay of the product development process. It is used frequently by companies in screening and ranking potential new products (Lees & Wright, 2004). The concept stimuli had two elements, the jewelry brand description and the message frame. The jewelry brand description used the same new hypothetical jewelry brand across all message frames to ensure the respondents had no preconceived notions about the brand. Since aesthetics is an essential element of

luxury purchases (de Barnier et al., 2006), the same product visuals were used across all frames. The representation of products emphasized enduring styles and designs that focused on the beauty of marine cultured-pearls. Classic styles and variety of designs used in the frames demonstrated occasion bridging (every day to special occasions).



Figure 5. Jewelry Brand Descripton for Concept Testing

All concepts were crafted to provoke functional (using arguments about environmental product attributes or production) and emotional (using visual representations of natural scenery) appeal (Hartmann, Ibáñez, & Forcada Sainz, 2005). The concepts used in the consumer research are shown in Figures 6-12 below.

Tres Belle Pearls



A Timeless Symbol of Glamour and Elegance

South Seas saltwater pearls are among the most exotic pearl varieties available. These pearls are renowned the world over for their unique beauty, gorgeous colors, luster, and elegance.


Tres Belle South Sea Pearls are grown in salt water locations in the South Pacific including Australia, Tahiti, Fiji, Indonesia, and the Philippines.

Available in a wide variety of natural hues including white, cream, gold silver, deep blues and magnificent greens, you are sure to find the exact pearl color to match your style.



Figure 6. Non-Environmental Frame. Pearls A Timeless Symbol of Glamour and Elegance.

Tres Belle Pearls



Pearls from the Exotic Islands and Coves of the South Pacific

Mention the South Pacific and what comes to mind: pristine beaches, remote, coconut studded islands and blue-green lagoons. These South Pacific islands are also the birthplace of many varieties of salt water cultured pearls.

Tres Belle South Sea Pearls are grown throughout the South Pacific including Australia, Tahiti, Fiji, Indonesia, and the Philippines.

Available in a wide variety of hues including deep blues, magnificent greens, and golden whites representing the majestic waters and landscapes of the South Pacific.






Figure 7. Non-Environmental Frame. Pearls from the Islands of the South Pacific.



**Committed to Protecting
Coral Reefs that Nurture our
Pearls and Inspire Our Designs**

At Tres Belle Pearls, we are committed to protecting and preserving the coral reef environments which are the source of our amazing pearls. Never before has the need to shift from exploitation to conservation been more important.

Pearl farming- when done responsibly- has been shown to have a positive impact on coral reef communities and biodiversity.

To assure that the utmost care has been taken on all aspects of the pearls farming, our pearl producers agree to environmental standards that ensure the conservation of this precious natural environment.

These beautiful pearls are proof that you can have a positive environmental impact and beautiful jewelry.



Figure 8. Environmental Frame. Environmental Standards to Protect Coral Reefs



**Committed to the Minimizing
Environmental Impact on
Oceans that Nurture Our
Pearls and Inspire Our Designs**

At Tres Belle South Seas Pearls, we are committed to protecting the natural environments which are the source of our amazing pearls.

The utmost care has been taken on all aspects of pearls farming; from the early development and growth in the oyster to the harvest and production of jewelry.

These beautiful cultured pearls are proof that you can minimize your environmental impact and make beautiful jewelry.



Figure 9. Environmental Frame. Minimizing Environmental Impact on Oceans

Tres Belle Pearls



Pearls Certified by the Aquaculture Stewardship Council

At Tres Belle South Seas Pearls, we are committed to protecting and preserving the natural environments which are the source of our amazing pearls.

To assure that the utmost care has been taken on all aspects of the pearls farming, our pearl producers are certified by the Aquaculture Stewardship Council, a standards-setting organization that has been established to promote social and environmental practices in the aquaculture industry.

We are committed to sustaining the natural environments that nurture and inspire our products. These beautiful cultured pearls are proof that you can minimize your environmental impact and make beautiful jewelry.



Figure 10. Environmental Frame. Aquaculture Stewardship Council Certification

Tres Belle Pearls



Pearls Certified by the Responsible Jewelry Council

At Tres Belle South Seas Pearls, we are committed to protecting and preserving the natural environments which are the source of our amazing pearls.

To assure that the utmost care has been taken on all aspects of pearl farming, our pearl producers are certified by the Responsible Jewelry Council, a standards-setting organization that has been established to promote social and environmental practices in the jewelry industry.

We are committed to sustaining the natural environments that nurture and inspire our products. These beautiful cultured pearls are proof that you can minimize your environmental impact and make beautiful jewelry.



Figure 11. Environmental Frame. Responsible Jewellery Council Certification

Tres Belle Pearls



Pearls direct from sustainable pearl farms in the South Pacific.

At Tres Belle South Seas Pearls, we are committed to protecting and preserving the natural environments which are the source of amazing pearls. That is why our pearls come directly from sustainability focused farms like Josh's.

Josh Humbert owns and manages a family pearl farm northeast of Tahiti in the South Pacific. Josh is intensely committed to protecting and conserving the coral reef ecosystems which support their family farm

“Our respect for our craft pushes us to produce pearls of the highest quality. Our respect for the fragile coral reef ecosystem compels us to use only the most environmentally sustainable methods of aquaculture.”
- Josh Humbert

These beautiful pearls are proof that you can have positive environmental impact and beautiful jewelry.



Figure 12. Environmental Frame. Pearls Direct from Sustainable Pearls in the South Pacific.

2.7.2 Questionnaire Development and Consumer Testing

To test the hypothesis outlined in section 2.2, I designed a survey questionnaire that was administered to consumers by the research firm MVI. My role included developing the questionnaire objectives and the question content, wording, and order. In their administration role, MVI programmed the questionnaire and provided access to their panel. I completed all analysis of the survey data.

The questionnaire consisted of twenty two questions split into three overall sections. First, the beginning eight questions focused on participant demographics and jewelry purchasing behaviors. Next, the study participants were guided through a

monadic test of a single message. Finally, the survey explored environmental behaviors and jewelry purchasing behaviors. Figure 13 shows survey questions 10 and 18, which are analyzed in detail in the results and finding section.

10. How important were each of the following components of your most recent fine jewelry purchase?					
	Extremely unimportant	Somewhat unimportant	Neither important nor unimportant	Somewhat important	Extremely important
Quality *					
Prestige *					
Price *					
Product satisfaction *					
Self image *					
Brand preference *					
Environmental conditions of production *					
Social conditions of production *					
Convenience *					

18 Please indicate how much you agree or disagree with each of the following statements.					
	Disagree strongly	Disagree somewhat	Neither agree nor disagree	Agree somewhat	Agree strongly
They are good value products for the price					
These are a high quality jewelry products					
I would likely tell other people about these products					
The main benefit(s) of these products is something in addition to what other types of jewelry currently offer					

Figure 13. Examples of Question format from the Consumer Survey

In monadic testing, consumers evaluate only a single message or concept. Multiple groups of independent respondents are needed in this between-group research design. Although this is more resource intensive, the monadic design provides independent measures on the acceptability of products and more closely mimics real-world purchase conditions, increasing the external validity with industry participants (Stevens, 2006). Consumers, presented with a single message, were asked to respond to questions designed to quantify luxury product dimensions. For individual questions, respondents indicated the category that best expressed their perception. Most questions used a five point category scale with a neutral alternative provided. The rating scale was monadic, with each attribute being rated by itself, independently of any other attributes being rated (S. M. Smith & Albaum, 2005). All questions forced a subjective response, not providing a “no opinion” option.

CHAPTER 3: NETWORKED LEGITIMACY AND IMPLICATIONS FOR PRIVATE GOVERNANCE INITIATIVE ADOPTION

Paper Working Title: Networked Legitimacy and Implications for Private Governance Initiative Adoption

Target Journal: Journal of Business Ethics

3.1 Introduction

The global fragmentation of production networks has caused a disconnect between the place of production and the place of consumption (Gereffi, Humphrey, & Sturgeon, 2005; Kastner, Kastner, & Nonhebel, 2011). This has exacerbated the planet's growing social and environmental problems (Stiglitz, 2006). National governance systems lack the capability to deal effectively with the problems arising from multi-national supply chains. In response to this gap, private actors have stepped in to promote responsibly produced consumer goods through the creation of private sustainability governance initiatives. These governance entities involve multiple stakeholders and feature voluntary measures, rather than state regulation, to distinguish responsibly produced goods from their exploitive counterparts (Bernstein & Cashore, 2007; Biermann & Pattberg, 2008; Gallemore & Munroe, 2013).

In the last decade, private sustainability governance initiatives and their advocates encourage new forms of governance that are designed to address social and environmental issues. Consumer-product focused initiatives span multiple categories of goods and incorporate a host of non-state actors, including product manufacturers and non-governmental organizations (Pérez-Ramírez, Phillips, et al., 2012; Peters et al., 2011;

Schouten et al., 2012). This flourishing of innovation has resulted in a diversity of formats, including third-party certification labels (Pérez-Ramírez et al., 2012; Peters et al., 2011; Schouten et al., 2012), industry roundtables (Schouten & Glasbergen, 2011), and consumer product transparency systems (Moser et al., 2012). These private initiatives have given rise to a diversity of network structures and governance mechanisms.

Organizational legitimacy is essential to these new private sustainability governance initiatives. Organizational legitimacy, as defined by Suchman (1995), is the generalized perception that the actions of an entity are desirable, proper, or appropriate. By conferring legitimacy on organizations, social actors promote structures and practices that they perceive as beneficial to themselves and/or society as a whole (Bitektine, 2011). Private sustainability governance initiatives are voluntary and stakeholder support for them is linked to legitimacy. Legitimacy is also critical for achieving compliance with initiative standards (Bernstein & Cashore, 2007; Cashore et al., 2004). Given the role it plays in these initiatives, research on the legitimacy of private sustainability governance initiatives has surged in the last few years.

Our research focuses on the building of organizational legitimacy that takes place during the early adoption phase of these private sustainability governance initiatives. This early stage exhibits dynamics between producers who transform their production practices (Hockerts & Wüstenhagen, 2010) and the rival private governance initiatives which strive to outline sustainable performance norms (Fischlein & Smith, 2010). Our research delves into the competing priorities and network interdependencies between producers and private sustainability governance initiatives.

Mele and Scheper (2013) introduced the networked legitimacy concept, which describes the inter-organizational dynamics of legitimacy in the context of multi-stakeholder codes of conduct. However, their description of networked legitimacy fails to delve into the pooled interdependence of member organizations. By examining organizational legitimacy during the initial construction of a network, insights can be gathered about the interaction between the legitimacy-building activities of the emerging initiative and the legitimacy-enhancing goals of individual network business participants.

The research reported in this paper extends the networked legitimacy concept, outlined in Mele and Scheper's research, by drawing on fieldwork conducted within the marine cultured-pearl industry. This industry is an interesting arena to research legitimacy based on the pivotal role of organizational legitimacy in jewelry businesses, and the efforts to foster adoption of private sustainability initiatives. This research context provides useful insights into the relationship between a private sustainability governance initiative's institutional legitimacy, the business participant's strategic legitimacy, and the pooled interdependency dynamics of network business participants. Based on these insights, a networked legitimacy framework is presented. This framework is then used to compare alternative private sustainability governance initiatives, specifically third-party certification and product based consumer transparency. This framework and the comparative approach allows for identification of legitimacy concerns that are likely to influence the adoption of private sustainability governance initiatives.

This paper begins with background literature that introduces private sustainability governance initiatives and organizational legitimacy. Next the case study is introduced

and contextualized within the overall jewelry trade. Then the case study results and analysis are reported using the networked legitimacy framework developed in the background section. Finally, the implications section applies the networked legitimacy framework to assess producer-level support for two competing private sustainability governance initiatives, third-party certification labels and product based transparency. In conclusion, this paper outlines the research's contributions to organizational legitimacy and private sustainability governance literature.

3.2 Background

3.2.1 Private Sustainability Governance Initiatives

In the last decade, private sustainability governance initiatives focused on consumer products have flourished (Wahl & Bull, 2014). This trend has been analyzed in academic literature. As the initiatives have grown, the academic terms used to describe them have expanded. In environmental policy literature, they are referred to as non-state market-driven governance (Cashore, 2002; Cashore et al., 2004), private governance arrangements (Schouten & Glasbergen, 2011), and global environmental governance (Biermann & Pattberg, 2008). In business literature, these initiatives have been called NGO-firm environmental collaborations (Wassmer, Paquin, & Sharma, 2012), voluntary environmental agreements (Delmas & Montes-Sancho, 2010), multi-stakeholder

initiatives (Mele & Schepers, 2013; Mena & Palazzo, 2012), and green alliances (Shah, 2011).

The disparate names used to refer to these initiatives can obscure their common governance features. All are market-based instruments promoting industry-wide shifts in environmental and social practices (Bernstein, 2004). They are private standards with no state entity requiring adherence to rules or controlling standard-setting (Cashore et al., 2004). In the consumer products industry, the goal is to entice value chain actors to provide information that enables greater understanding of the social and environmental conditions of production (Bernstein, 2004; Bernstein & Cashore, 2007; Cashore et al., 2004; Raynolds, 2002). The promise of consumer price premiums, concerns over negative boycott campaigns, and potential access to new markets and distribution channels provide incentives to participate (Auld et al., 2010; Cashore et al., 2004; Renard, 2003). These initiatives signal product practices and convey information about sustainability (Gulbrandsen, 2009; Sammer & Wüstenhagen, 2006). Their success is owed to the market origin of rule-making (Cashore et al., 2004). That is, authority is grounded in market transactions using a product's global supply chain to track and signal products from environmentally and socially responsible businesses (Bernstein & Cashore, 2007). In most instances, these private sustainability governance initiatives center their standards on first-stage supply-chain companies, those who harvest the products' natural resources, but gain support by applying pressure to the entire value chain, including consumer product manufacturers and/or retailers (Cashore et al., 2004).

3.2.2 Private Sustainability Governance Initiatives and Organizational Legitimacy

To achieve success, private sustainability governance initiatives require organizational legitimacy. Legitimacy is the generalized perception that the actions of an entity are desirable, proper, or appropriate (Suchman, 1995). By conferring legitimacy on organizations, outside social actors promote structure and practices that they perceive as beneficial to themselves and/or society as a whole (Bitektine, 2011). From an external standpoint, these initiative's collective actions need to be viewed by outside stakeholders as desirable and appropriate. From an internal standpoint, these initiatives need organizational legitimacy to ensure that members comply with standards (Bernstein & Cashore, 2007; Cashore et al., 2004). Research studies have demonstrated a positive relationship between organizational legitimacy and organizational survival (Baum & Oliver, 1991; Dacin, Oliver, & Roy, 2007). In addition, academic work has established the importance of organizational legitimacy for the success of private sustainability governance initiatives (Bernstein, 2004; Bernstein & Cashore, 2007; Cashore, 2002; Cashore et al., 2004; Dacin et al., 2007).

To better understand the dynamics of organizational legitimacy, it is essential to distinguish between strategic and institutional applications. As outlined by Suchman (1995), strategic perspective considers legitimacy as an operational resource that is extracted from an organization's environment and employed in pursuit of their goals. From this viewpoint, institutions can take an active or passive role in cultivating their own legitimacy, as they would develop any other organizational resource or capacity. This agency-oriented view contrasts with the institutional perspective of legitimacy as a

set of constructed beliefs. Institutional legitimacy emphasizes the ways in which industry dynamics generate cultural pressures that transcend any single organization (Suchman, 1995). This view highlights the social construction that promotes practices perceived to be advantageous to institutions or the societal whole (Bitektine, 2011). Both strategic and institutional legitimacy are pertinent to understanding the networked legitimacy of private sustainability governance initiatives.

3.2.3 Networked Legitimacy: The Inter-Organizational Dynamics of Institutional and Strategic Legitimacy

Mele and Scheper (2013) first outlined the term networked legitimacy to describe institutional and strategic legitimacy in the context of multi-stakeholder codes of conduct. They argue that business members are motivated by strategic legitimacy to join the code of conduct. As business membership grows, the business members assist in maintaining and building the institutional legitimacy of the codes of conduct, resulting in networked legitimacy. As participation in the code of conduct grows, business members are rewarded with increased strategic legitimacy. This networked legitimacy concept focuses on the relationship between the participant organization's strategic legitimacy and the institutional legitimacy of the sustainability initiative itself. Figure 14 shows the interplay of these networked legitimacy dynamics.

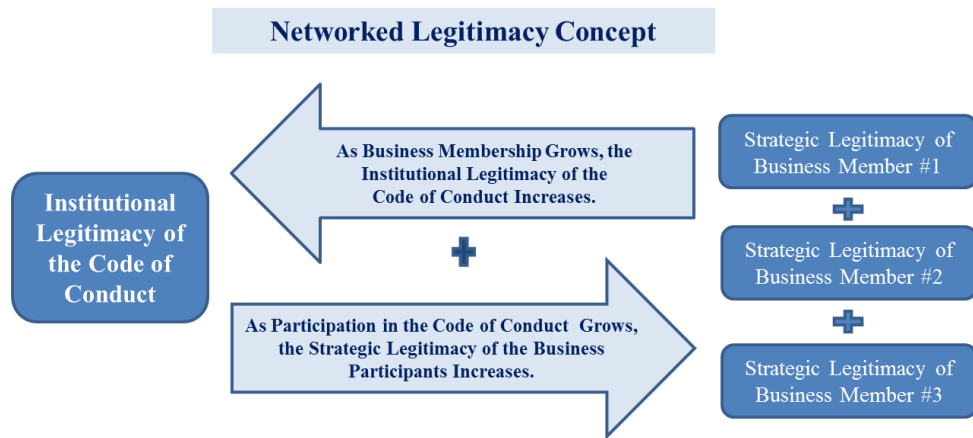


Figure 14. Networked Legitimacy Dynamics of Private Governance Initiative Mele and Scheper (2013).

The private governance initiative and business member dynamics at the core of networked legitimacy is well supported in governance initiative literature. Most business participants join private sustainability governance initiatives to gain positive strategic legitimacy for their organizations (Dacin et al., 2007). Private sustainability governance initiatives with high institutional legitimacy enhance the legitimacy of its member organizations (Dacin et al., 2007). Yet to be successful in attaining strategic legitimacy from the governance initiative, these same participants work to help the governance initiative attain a level of institutional organizational legitimacy (Boström, 2006; Mele & Schepers, 2013). One example is presented by Lozano, Blanco and Rey-Maqueira (2010) in their modeling of eco-label survival. Their analysis shows that the important determinants of eco-label survival “are the degree of adoption of voluntary abatement when the eco-label is launched and the amount and composition of firms that participate in the creation of the ecolabel” (Lozano et al., 2010, p. 2525). From the perspective of

innovation adoption, this modeling matches diffusion dynamics. As the degree of producer eco-label adoption increases, the eco-label's brand presence increases and this positive feedback loop facilitates consumer learning about the eco-label. Each organizational participant derives a strategic legitimacy benefit when other business participants maintain their efforts to support the networked legitimacy (Mele & Schepers, 2013). Mele and Schepers' (2013) model identifies three types of legitimacy (regulatory, pragmatic, and moral) sought by players in a multi-stakeholder code of conduct. Based on reviews of existing legitimacy research, we expand on the networked legitimacy dynamics portrayed by Mele and Schepers (2013) with specific reference to private sustainability governance initiatives.

3.2.4 Expanding the Networked Legitimacy Concept to a Networked Legitimacy

Framework

Our legitimacy framework encompasses the complex relationships among the private governance initiative's institutional legitimacy, the business participant's strategic legitimacy, and the pooled interdependence and dynamics of the network. This enhanced networked legitimacy framework is depicted in the Figure 15 and explained in the following section.

Networked Legitimacy Framework of Private Sustainability Governance Initiatives		
Institutional Legitimacy Building of the Private Sustainability Governance Initiative	Strategic Legitimacy Enhancement of the Business Member Participant	Pooled Interdependence Dynamics of the Network
This element evaluates the Private Sustainability Governance Initiative's soundness and transparency of procedures/processes, structural characteristics, and effectiveness in producing enforcement mechanisms and environmental outcomes.	This element evaluates benefits and costs of a Business Member's participation. This can be framed based on self-interest or benefits to society as a whole.	This element evaluates the level of network interdependence and the existing credibility and competency perceptions of potential business network members.

Figure 15. Networked Legitimacy Framework of Private Sustainability Governance Initiatives

Institutional Legitimacy Building of the Private Sustainability Governance Initiative. Procedural, structural, and consequential legitimacy can be used to evaluate the effectiveness of the design of an emerging private governance initiative. Procedural legitimacy and structural legitimacy are based on judgments about the soundness and transparency of an organization's procedures, policies, and structure. These concepts include access to and influence on decision-making (Bitektine, 2011; Suchman, 1995). Similar to input legitimacy outlined in political science research, procedural and structural legitimacy include procedural fairness, cooperative orientation, and transparency of structure and process (Mena & Palazzo, 2012; von Geibler, 2013). Consequential legitimacy, similar to output legitimacy, is based on judgments of outcomes of an organization's activities (Bitektine, 2011; Suchman, 1995). With respect

to private sustainability governance initiatives, consequential legitimacy can include factors such as enforcement mechanisms and effectiveness in attaining economic and environmental outcomes (Mena & Palazzo, 2012).

Strategic Legitimacy Enhancement of the Business Member Participant.

Moral and pragmatic legitimacy can frame the business member debate about the costs and benefits of adopting sustainability practices. Bitektime (2011) described the difference between moral and pragmatic legitimacy as either a concentration or diffusion of benefits. Moral legitimacy is based on judgments about whether a given activity benefits society as a whole. If so, then the organization's practices are considered right and just. This type of legitimacy reflects a pro-social logic. Pragmatic legitimacy is based on judgment about self-interest. Organizations with pragmatic legitimacy usually exchange goods/services that stakeholders desire and, in return, receive stakeholder support (Suchman, 1995).

Pooled Interdependence Dynamics of the Network. In addition to the legitimacy dynamics summarized above, our research data suggest that more complex network dynamics are underway than Mele and Schapers' (2013) framework accounts for. Private sustainability governance initiatives are inter-organizational networks characterized by the interdependency of member actors, the exchange of resources and knowledge, and the negotiation of joint purposes and agreements. At the network core are the ties that bind the business members within the network. To explore this inter-organizational complexity, our work taps into the concept of pooled interdependence in a network. In networks with pooled interdependence, each independent participant

contributes to the legitimacy of the private sustainability governance initiative. However, in this environment, one participant's reputational issue can negatively impact the legitimacy of the other participants (Thompson, 1967). So in this stage of early adoption, the business member's perceptions of their competitors is essential to the proper functioning of the private governance initiative.

In our next section, we apply this framework to our case study, the marine cultured-pearl industry. This application allows us to illustrate our framework in action, and how it can help identify producer concerns that may underlie the efforts to adopt private sustainability governance initiatives.

3.3 Case Study: The Marine Cultured-Pearl Industry

The marine cultured-pearl industry is a revealing case study, due to the strength of the marine cultured-pearl sustainability story and the role of organizational legitimacy in the jewelry industry.

3.3.1 Marine Cultured-Pearl Sustainability

For thousands of years, individuals have recognized the pearl's natural luminosity and coveted its beauty (Landman, Mikkelsen, Bieler, & Bronson, 2001; Monteforte & Cariño, 1992; Romero, Chilbert, & Eisenhart, 1999). This research focuses on the producers of cultured-pearls from salt-water ecosystems. These producers have an opportunity to make a strong case for the ecological sustainability of their businesses and develop a private sustainability governance initiative to do so.

Marine cultured-pearl farming can be an environmentally sustainable activity (Jernakoff & Wells, 2006). Many marine cultured-pearl farms are located in areas of the Pacific that boast the greatest marine biodiversity on the planet. Similar to land based farmers, pearl producers seek aquaculture locations with rich nutrient levels, sheltered areas, and low exogenous pollution. A thriving marine ecosystem offers pearl oysters the nutrients and water quality needed for healthy growth (Lucas, 2008). In addition, recent research has demonstrated that responsible pearl oyster farms can have a positive effect on coral reef environments. Recent research on coral reefs and pearl farms in Ahe, French Polynesia demonstrates that fish are more abundant in areas with pearl farms (Cartier & Carpenter, 2014). Marine cultured-pearl farming has a strong link between economy and environmental health. Pearl oysters are remarkably sensitive to local environmental factors with top quality pearls being produced only in unpolluted environments (Lucas, 2008). Top quality pearl production is essential to economic viability. Estimates in 2000 suggested that 95 percent of a pearl farm's income came from the top two percent of its pearls (Haws, 2000). If managed responsibly, pearl farming provides financial incentives for maintaining healthy ecosystems and livelihoods in remote island communities (Cartier & Ali, 2012).

Although marine cultured-pearl farming is widely acknowledged as an environmentally friendly activity, some practices can result in negative environmental impacts. Environmentally questionable practices include high density pearl culture, species translocations and artificial propagation, and poor waste disposal (O'Connor & Gifford, 2008). High density culture leads to benthic accumulation of wastes from the

bivalves themselves. These accumulations can potentially lead to eutrophication of marine sediments and a concurrent change in benthic fauna (Jelbart et al., 2011). Another potentially negative impact of pearl aquaculture is alteration of the gene pool of the indigenous oyster population, which can arise from the translocation of oysters or the artificial propagation of species (O'Connor & Gifford, 2008). Physical waste disposal can be another issue especially in large mechanized pearl farms. Plastics, used for cages, floats and ropes, are common disposable items on marine cultured-pearl farms. If disposed of directly into the marine environment, chemicals can leach into the environment and adversely impact aquatic life (Andréfouët et al., 2014; O'Connor & Gifford, 2008).

The potential to produce marine cultured-pearls with environmentally sensitive practices has resulted in discussions among actors in the industry about sustainability systems and environmental collaboration. This case can illustrate the ranges of legitimacy concerns associated with initiating new private sustainability governance initiatives, yet the industry operates within the larger context of the international jewelry arena. To understand the legitimacy dynamics of the marine cultured-pearl industry, it is essential to understand legitimacy dynamics in the jewelry industry more generally.

3.3.2 Organizational Legitimacy and Jewelry Industry

Organizational legitimacy of industry actors plays an essential role in the jewelry industry. Many major gemstones types have can be synthesized in gem laboratories and cost only a fraction of the price of a comparable natural gem (Kane, 2009).

Distinguishing between manufactured gemstones and their natural equivalents can be

difficult for most consumers. To provide buyers with a sense of assurance, product authenticity has become central to the jewelry shopping experience. Sanganpiyapan and Jasper (2010) published research on United States consumers' motivations for shopping at competing jewelry retail outlets. They found that consumers preferred stand-alone outlets compared to online formats due to their selling environment, knowledgeable sales personnel, and well-established position as a community business. Shor (2007) emphasizes the importance of organizational legitimacy for bolstering consumer confidence in the authenticity of the final product.

To address consumer desires for product assurance and traceability, organizations such as the Responsible Jewellery Council and the World Jewellery Confederation have attempted to address social responsibility in the industry. Responsible Jewellery Council, a not-for-profit trade organization, works with the diamond, gold, and platinum group to certify products using social and environmental criteria (Young, Fonseca, & Dias, 2010). World Jewellery Confederation, an organization with a long history of product assurance in jewelry, produces Blue Books, the authority for correct disclosure of natural, treated synthetic gems. World Jewellery Confederation president, Gaetano Cavalieri, stated "Almost every single item of fine jewellery that is produced today involves the combined efforts of hundreds and sometimes hundreds of thousands of people, located all over the world... If only one component in an item of jewellery is ethically challenged – let us say, for example, its gems were polished in a factory where the worker's lungs were damaged as the result of poor ventilation – then the integrity of the entire product is threatened" (Cavalieri, 2012). Business pragmatism drives the need to understand the

supply chains for gemstones and precious metals, to pro-actively limit the risk of damage to a company's reputation (Friedman, 2008).

The combination of the sustainability story and the jewelry industry's need for organizational legitimacy makes the marine cultured-pearl industry a good case study to analyze the dynamics of inter-organizational legitimacy within an emerging private governance network. By examining organizational legitimacy during the initial construction of the network, our research investigates the interaction between building the organizational legitimacy of the sustainability initiative and enhancing the strategic legitimacy of business participants. This legitimacy context and framing provides a basis for understanding barriers to early adoption of private sustainability governance initiatives. The following section describes both the case study methodology and analysis techniques.

3.3.3 Data Collection and Analysis

This empirical research drew on case studies in the marine cultured-pearl industry conducted between 2012 and 2014. The analytical methodology was based in grounded theory. The purpose of grounded theory was to discover concepts and relationships in raw data and organize them into a theoretical explanatory scheme (Strauss & Corbin, 1998). The study moved between data collection and theory generation. The results of key informant interviews and exploratory case studies enabled us to identify emergent themes and drove subsequent data acquisition. The framework presented in the paper was the result of multiple iterations between interviews, observations, and data analysis over the two year study period.

In keeping with grounded theory, theoretical sampling was used to select cases to maximize insight into the organization and strategic legitimacy. Key informant interviews and a web search of direct-to-consumer pearl farms provided a list of potential subjects among pearl-producing firms. Organizations with substantially different branding strategies, geographies, and production volumes were selected to maximize research breadth. Seventeen pearl producing firms agreed to participate in the research. Their key characteristics are summarized in Table 6. The production volume of each case study was estimated based on producer interviews and available market data. A complete list of producer case studies is included in the Research Methods Appendix (3.7.1- Pearl Farm Case Studies- Detail and Sources).

Table 6. Key Characteristics of Our Seventeen Pearl Farm Case Studies

Pearl Type	Geography	Farm Natural Features	Production Volume	Branding Strategy
Black Pearls (14)	Fiji (2)	Enclosed Island Atoll (11)	Micro (5)	Branded (11)
South Seas Pearl (2)	French Polynesia (12)	Open Bay (5)	Small (4)	Unbranded (6)
Rainbow (1)	Philippines (1)	Open Ocean (1)	Medium (5)	
	Mexico (1)		Large (3)	
	Australia (1)			

In each of these cases, multiple methods of data collection were used, including semi-structured interviews, focus groups, audio/visual material review, and observation of pearl farm practices. In the seventeen case studies, twenty-three interviews were conducted, ranging from multiple-day production immersions on location to hour-long interviews. The individuals interviewed included either the firm’s owners or a top management team member. Interviews were conducted in a conversational style to build

interpersonal connections. The interviews were either recorded then transcribed, or notes were taken during the interview then transcribed. Sustainability questions focused on pearl production, environmental factors, social conditions, and resource constraints. Notes and memos captured personal observations. Observation was conducted on marine cultured-pearl farms in Fiji, French Polynesia, Australia, Micronesia, and Mexico between the fall of 2012 and winter of 2014. A producer focus group was conducted in the summer of 2014 in Hong Kong. In addition, researchers reviewed pearl farm websites, collateral material from pearl farm tours, and producer promotional videos. Additional details of the producer interviews are included in the Research Methods Appendix (3.7.1- Pearl Farm Case Studies- Detail and Sources).

In addition to the pearl farms, thirty-two interviews were conducted with key industry stakeholders including non-governmental organizations, French Polynesia government officials, and pearl value chain participants. Fair Trade, the World Jewellery Confederation, and the Responsible Jewellery Council, the main sustainability organizations operating in the marine cultured-pearl industry, all participated in the research. The perspective of value chain participants were sampled during two main trade show events, Inhorgenta Munich 2014 (February 2014) and Hong Kong Jewelry & Gem Fair (June 2014). Further details on the key influencer interviews are included in the Research Methods Appendix (3.7.2- Key Stakeholder Interviews- Detail and Sources).

Two stages of data analysis were completed, in-case and cross-case. For in-case analysis, HyperRESEARCH was used to organize and code the interviews. Researchers reviewed the interviews to identify similar phrases, relationships between variables, and

key themes. Further details on the data analysis are included in the Research Methods Appendix (3.7.3 Interview Questions and Data Analysis). The cross-case analysis started with a literature review to identify analytical dimensions. Summary charts were developed with organizational, strategic, and networked legitimacy dimensions to compare cases and identify between-group similarities and differences. Pearl farm websites, collateral material from pearl farm tours, and producer promotional videos were reviewed for each case, to corroborate patterns seen in interviews and in direct observation. The results of the analysis are described below.

3.4 Results and Analysis: Producer Views on Networked Legitimacy

Legitimacy themes in the data were categorized into three areas: the institutional legitimacy of the emerging sustainability initiative, strategic legitimacy dynamics of the business participants, and pooled interdependency dynamics of the network. The legitimacy theme results are summarized in Figure 16.

**Summary of Networked Legitimacy Dynamics
in the Marine Cultured-Pearl Industry**

Institutional Legitimacy of the Private Governance Initiative
Rule Setting Consensus. Concerns about the ability to come to consensus with competitors and other stakeholders.
Initiative Inclusiveness of Small Producers. Concerns that the process would not be inclusive of small producer interests.
Effectiveness of Enforcement Mechanisms and Environmental Outcome Concerns with the initiative’s ability to sanction members who fall out of rule compliance. Concerns with the effectiveness of environmental outcomes
Strategic Legitimacy of the Business Member Participant
Economic Trade-Offs of Individual Participation. Concerns the cost of initiative participation and compliance will exceed the benefits of participation.
Reputational Impacts of Universal Standards. Concerns that the resulting standards could delegitimize their individual production practices.
Pooled Interdependence Dynamics of the Network
Network Member Credibility. Concerns involving the lack of trust in other business participants.
Network Member Competency. Concerns with the competitors competency to build effective sustainability standards.

Figure 16. Summary of Application of the Networked Legitimacy Dynamics

3.4.1 Institutional Legitimacy of the Emerging Private Governance Initiative

Concerns regarding the organizational effectiveness of the private sustainability governance initiatives are evident in the producer interviews. The producers addressed the emerging organization’s procedural, structural, and consequential legitimacy. The findings reinforce the importance of soundness and transparency in the emerging private governance initiative’s procedures, policies, and structure. Specific topics of concern include rule setting consensus, initiative inclusiveness of small holders, and effectiveness of enforcement mechanisms and environmental outcomes.

Rule Setting Consensus. More than half the marine cultured-pearl producers expressed concern about the ability of private sustainability governance initiatives to achieve procedural legitimacy with regard to universal rule setting. Specifically, they questioned the ability of pearl farmers to achieve consensus on universal rules for responsible pearl cultivation. With marine cultured-pearl farms extending across multiple countries and ecosystems, production practices for cultivation, breeding, and harvesting are not universal. A tangible example of divergent cultivation practices is the removal of oyster biofouling. Biofouling is the settlement, metamorphosis, and growth of plants and animals on the oysters and aquaculture materials. A regular system to clean biofouling is necessary to maintain oyster health. It is both a key operational issue and a major economic cost for the majority of pearl farms (de Nys & Ison, 2008). In our focus groups, producers contended that specific cleaning practices depend on the oyster species, the availability of labor, and the local environmental conditions of the operation. For example, the use of high pressure hoses used to clean biofouling results in minimal environmental harm in open water operations, but can have significant detrimental effects in enclosed island atolls (Pae Tai-Pae Uta, 2003). These focus group concerns converged with information from producer's one-on-one interviews.

Another procedural legitimacy concern centers on standards for product disclosure and representation. Specifically, a producer cited the inability of the industry to agree on a universal pearl grading system. To differentiate marine cultured-pearls for consumers, value chain actors grade the final pearls on a battery of quality attributes, such as surface luster, shape, surface purity, and orient. To differentiate a pearl's quality

at retail, most pearls are given a final grade. But the industry has not been able to reach agreement on a universal gradation, with some using an “A”, “B”, and “C” scale while others use an “AAA”, “AA”, and “A” scale. One producer used the following logic: “If the industry cannot agree on a grading system, how can the industry agree on sustainable production standards?” This producer’s insight was corroborated by our focus group of pearl producers and multiple key stakeholder interviews.

These concerns focus on the difficulty gaining industry-wide consensus on universal standards. Sustainability standards are the backbone of any effective private governance initiative, providing the basis for signaling responsible practices to the consumer.

Initiative Inclusiveness of Small Producers. Paralleling the structural legitimacy themes found in prior private governance initiative research, four producers expressed concerns about inclusiveness of small holders in any multi-stakeholder initiative. Similar to other farming operations, marine cultured-pearl producers vary in size from small-family producers, focused on operations, to large vertically-integrated organizations with retail outlets around the world. Given this organizational diversity, it is not surprising that many of the micro and small-sized pearl producers articulated concerns about inclusiveness of the governance initiative. One small producer gave his opinion on specific collective activities, such as hatchery programs and pearl auctions, where large players demonstrated undue influence on the process and results. Not surprisingly, none of the medium and large size producers mentioned the issue of initiative inclusiveness in their interviews. With regard to any standard setting for sustainability, four micro or

small producers stated that they would only embrace a private governance initiative that demonstrated inclusiveness, or, as one producer said, small producers need “to speak on equal terms with the giants of the pearl industry.” This issue is an important aspect of effective organizational design of private sustainability governance initiatives.

Effectiveness of Enforcement Mechanisms and Environmental Outcomes. For a private governance initiative to be viewed as legitimate, it must be perceived as capable of delivering favorable outcomes. This issue is at the heart of consequential legitimacy. In this legitimacy area, producers expressed concerns over the private sustainability governance initiatives’ ability to create effective enforcement mechanisms and to attain positive environmental outcomes.

More than half of the producers interviewed questioned the ability of any private governance initiative to create effective mechanisms to monitor and enforce standards. To illustrate this point, two farmers specifically discussed the difficulty with enforcing national marine laws. One producer contended that, although pearl farm concessions in French Polynesia are monitored, “nobody is tracking when someone with a small concession is producing ten times as much (pearls).” Some of the most environmentally sensitive aspects of pearl farming, such as high-density pearl culture and poor waste disposal, are very difficult to visually inspect. Additionally, as members of the producer focus group commented, the physical distance between farming locations and the remoteness of some farms make it very difficult for any outside monitoring of production standards.

From the standpoint of environmental outcomes, one small pearl farmer in French Polynesia questioned the environmental impact of any private governance initiative. He reasoned that pearl farms are usually located in remote marine environments and thus are naturally highly sustainable operations, utilizing the sun and wind for power and conserving natural resources such as fresh water carefully. The farmer went on to explain that most pearl farmers understand the linkage between the health of their oysters and the environment, and implement responsible practices because it makes financial sense. Based on this reasoning, he was unsure that any sustainability governance initiative would have an effect on overall industry practices. Although it is noted in this section, this producer's concern with environmental outcomes did not organically arise in other interviews with producers and key stakeholders. In addition, the researchers' direct observations of pearl farms provided insights into some of the negative environmental impacts of current practices, such as poor waste disposal.

3.4.2 Strategic Legitimacy Dynamics of the Business Participants

In order for a private sustainability governance initiative to be successful, it must be perceived as building the strategic legitimacy of member organizations. Within strategic legitimacy, moral and pragmatic dynamics frame the debate about the costs versus benefits of adopting sustainability practices. In our interviews, most producers spoke to the pragmatic elements involved with the costs versus benefits of private governance adoption. The producers did not use the rationale of moral legitimacy, where the benefits apply to society as a whole, to justify potential individual participation in a private governance initiative.

Economic Trade-offs of Individual Participation. From a benefits perspective, all pearl producers interviewed agreed that marine cultured-pearls have an outstanding environmental story when compared to other extractive gems such as diamonds. While acknowledging the environmental advantages of the pearl industry, producers displayed varying beliefs about the value of sustainability marketing in relation to their individual business circumstances. Three branded pearl producers expressed concern that support for an industry-wide initiative could reduce their competitiveness. These producers view their environmental practices, distinctive location, and social entrepreneurship stories as differentiating brand features. For example, when discussing joining and promoting an industry-wide sustainability initiative, one producer expressed the concern that “your unique elements get lost”. Yet this concern was far from universal. Seven producers, who viewed the marine cultured-pearls sustainability story as an industry-wide competitive advantage, had a greater belief in the potential output effectiveness of private sustainability governance initiatives. These producers identified the potential industry-wide advantage within their value chain and with consumers.

With respect to costs, pearl producers in our focus group, and during one-on-one interviews, were concerned that certification and auditing costs would be placed on the farmers but the farmers would not benefit from higher prices at retail. Regarding adding to production costs, one producer commented, “so the producers put in all this extra effort... like not using fertilizers and things like that... but the certifiers are flying around first-class... so the certifier gets the money and the power.” This sentiment was shared by

other micro and small producers who questioned if private governance participation would economically benefit them.

Reputational Impacts of Universal Standards. Another pragmatic legitimacy theme discussed was the potentially negative reputational impacts of not participating in universal standard setting. Within our interviews and focus group, six of the marine cultured-pearl producers expressed concerns that inflexible universal standards could delegitimize their individual production practices. As an example, industry social standards can be viewed through the lens of four specific farms, Kamoka (French Polynesia), Jewelmer (the Philippines), Paspaley (Australia) and Perlas de Cortez (Mexico). All these producers have strong industry reputations for operating in a socially responsible manner with local communities, yet each operates very differently. Farm operations at Kamoka (French Polynesia) and Jewelmer (Philippines) are located in remote island locations. Paspaley's (Australian) farm operations are in open-water remote bays with very little in the way of land-based operations. Perlas de Cortez's (Mexico) pearl operations are located in a highly developed and populated coastal bay. Individual practices such as providing healthcare, collective bargaining philosophies, and overtime wages vary greatly within individual farm operations and local circumstances. If universal, inflexible standards are adopted that differ from their individual social practices, and the farms choose to operate with existing practices, these firms could experience adverse reputational impacts for non-conformance.

Social License-to-Operate. During the interviews, the producers did not use the rationale of moral legitimacy, the social license-to-operate, to justify potential individual

participation in a private governance initiative. Due to the strength of the environmental aspects of marine cultured-pearl production, the producer participants had confidence in the social license-to-operate based on current practices, without a private sustainability governance initiative. Without prompting, many producers described the difference between the renewable nature of pearls versus the destructive environmental practices of diamonds, colored gemstones, and gold mining. In a 2014 presentation, the World Jewellery Confederation President, Gaetano Cavalieri, compared gemstone mining and pearl farming: “Gemstone mining and mineral mining are inherently unsustainable, in that once gems and minerals have been removed from the earth they cannot be returned. Pearls are sustainable, because we possess the means and knowledge to initiate the natural growth of new products within an economically viable period of time” (2014).

3.4.3 Pooled Interdependence Dynamics of the Network

As described earlier, the pooled interdependence dynamics of a network are important in the acceptance of private sustainability governance initiatives. In networks with pooled interdependence, one participant’s reputational issue can negatively impact the legitimacy of other participants (Thompson, 1967). So the potential participants’ perceptions of their competitor’s credibility and competency provide insights into the early adoption dynamics of private sustainability governance initiatives.

Network Member Credibility. The majority of micro, small, and medium-size producers expressed concern about the trustworthiness and credibility of competitive actors in the supply chain. A handful of producers spoke explicitly about their lack of trust, while most interviewed alluded to the issue through stories of claims of pearl origin

and product treatment. Regarding pearl origin, the market currently demonstrates significant price differentials between south-seas pearls from Australia and south-seas pearls from Indonesia. This price differential, coupled with the inability to trace pearls back to a specific farm, has led some producers to be suspicious about pearl provenance claims. Regarding product treatment, a variety of product visual enhancements can be employed by value chain participants to improve the look of pearls (Taylor & Strack, 2008). One producer questioned the consumer transparency of a competitor's pearl polishing and treatment practices.

Network Member Competency. Almost all micro, small, and medium size producers spoke to the varying levels of production competency within the industry. Some subtly distinguish their pearl operations from their competitors by touting their proprietary marine biology research. Jacques Christophe Branellec, the managing director of Jewelmer, stated that “at any one time we are running about thirty different experiments” (2014). Some producers are less nuanced in communicating their differentiation. In a one-on-one interview, a producer commented “There are guys who started doing it (pearl farming)...who have no idea how it works.” Although these concerns focused mainly on micro and small producers, the sentiment was fairly widespread within all geographies. Two producers related these credibility concerns and tied them to their reluctance to collaborate on private sustainability governance initiatives.

The framework adds potential network member competency and credibility dynamics to the networked legitimacy concept. The next section applies the networked

legitimacy framework to assess producer-level support for two competing private sustainability governance initiatives.

3.5 Networked Legitimacy Framework: Implications for Private Governance Adoption

Pearl producers have a choice of which private sustainability governance initiatives to adopt. Some initiatives are better designed than others to address the legitimacy concerns outlined by the producers interviewed in this case study. This discussion section uses the networked legitimacy framework and the case study results to evaluate two private governance arrangements: third-party certifications and consumer product transparency systems.

3.5.1 Third-party Certifications

Third-party certifications are a common type of private governance initiative in which products and processes are certified to specific standards. Global certification in forestry, fisheries, and apparel emerged in the 1990s, but trace their roots back thirty years earlier to the fair trade and organic agriculture movements (Wahl & Bull, 2014). Their emergence coincided with the move from command-and-control regulations imposed by governments towards market-based self-regulation and new environmental policy instruments in the 1980s (Press & Mazmanian, 2010). Individual supply chain actors determine individual participation rather than nation-states (Auld et al., 2007; Cashore, Auld, & Newsom, 2003; Cashore et al., 2004; Guthman, 2008; VanDeveer, 2007). According to the Ecolabel Index, an internet based global directory of socio-

environmental labels, there are 458 ecolabels in 197 countries, and 25 industry sectors (“Ecolabel Index,” 2014). Third-party certifications differentiate themselves from other private sustainability governance initiatives through their signal mechanism. A label signals product compliance, allowing consumers to differentiate items that achieve the socio-environmental standards established through certification from those that do not. These labels allow consumers to quickly recognize social and environmental product performance. These outward consumer cues assist in product quality inference and expectation setting (Sammer & Wüstenhagen, 2006).

3.5.2 Consumer Product Transparency Systems

Consumer product transparency systems have grown out of the trend in product information disclosure. Consumer product producers are increasingly confronted with voluntary demands for transparency for their product inputs and production processes (Gupta, 2008, 2010; Mol, 2006) . In response to this demand, new systems infrastructures are developing to facilitate, translate, and articulate product information to make it available and useful to consumers. This distinct form of transparency, sometimes called governance by disclosure, holds value chain actors responsible by requiring disclosure of raw material and production practices to the end consumer (Gupta, 2008; Mol, in press). This disclosure method provides a contrast to third-party certifications which use labels to verify product adherence to uniform standards. Consumer product transparency systems contextualize sustainability attributes and serve as verification of adherence to environmental standards in production (Moser et al., 2012). An example within the marine arena is the consumer transparency initiative ThisFish. The ThisFish.info website

allows consumers to input a fish specific traceability code and view sustainability information including fisherman’s personal stories, fishing practices including methods and materials, catch date, and the approximate location of the seafood catch (“ThisFish | Seafood Traceability,” 2014). Such systems allow producers to choose the breadth and depth of product disclosure. The system aim is to directly connect consumers with producers’ stories.

3.5.3 Networked Legitimacy Framework Comparisons

This section uses the networked legitimacy framework to compare the two private sustainability governance initiatives, third-party certification and product based consumer transparency. The framework and the comparative approach allow for identification of networked legitimacy concerns that are likely to influence the adoption of third-party certification and consumer product transparency initiatives.

Institutional Legitimacy of the Private Sustainability Governance Initiative.

Institutional legitimacy focuses on the organizational design features of the emerging private governance initiatives. Themes from the interviews that relate to institutional legitimacy include rule setting consensus, inclusiveness of small holders, perceived effectiveness of mechanisms to enforce standards and overall initiative environmental outcomes. Table 6 highlights the producer concerns criteria and the advantages and disadvantages of third-party certification versus product based consumer transparency.

Table 6. Institutional Legitimacy Comparison: Third Party Certification versus Consumer Product Transparency Systems

Institutional Legitimacy of the Private Sustainability Governance Initiatives			
Producer Concerns	Third-Party Certification	vs.	Consumer Product Transparency Systems
Rule Setting Consensus. Concerns about the ability to come to consensus with competitors and other stakeholders.	Disadvantage. Strength of Rule setting standards raises concerns with ability to gain consensus.		Advantage Less stringent universal standards allow for more producer flexibility. Less concerns with rule making consensus.
Inclusiveness of Small Holders. Concerns about inclusiveness of small producer interests.	Advantage. Open process with a range of stakeholders. Most are inclusive of small holder interests.		Disadvantage. Lacks deliberate inclusiveness of a range of stakeholders.
Enforcement Mechanisms Effectiveness. Concerns with the ability to sanction members who fall out of rule compliance.	Advantage. Maintains effective auditing systems and sanction ability.		Disadvantage. Without a strong auditing capacity, difficult to determine compliance and enforce sanctions.
Environmental Outcome Effectiveness. Concerns with the effectiveness of environmental outcomes	Advantage. Strong standards can deliver improved environmental outcomes.		Disadvantage. Less stringent universal standards can lead to less effective environmental outcomes.

Institutional legitimacy is a strength of third-party certifications initiatives. From a structural legitimacy standpoint, third-party certifications can incorporate wide stakeholder representation in governance including small holder participation (Pérez-Ramírez et al., 2012; Peters et al., 2011; Schouten et al., 2012). Certification initiatives often have governance structures with corporate, nongovernmental agencies, and nation-state representation (Bernstein & Cashore, 2007; Cashore et al., 2004). In addition, third-party certification systems have professional managers who build consensus among network participants and also provide a basis for procedural legitimacy. With regard to consequential legitimacy, a differentiating feature of third-party certifications are their comprehensive auditing systems completed by a separate entity (Cashore et al., 2004). In

certain instances, credibility for claims can be increased with outside certification (Bush, Toonen, Oosterveer, & Mol, 2013). Certification guarantees include adherence to performance criteria and ongoing compliance monitoring, in which firms must participate to maintain certified status (McDermott, 2012). From the standpoint of marine cultured-pearl producers, a third-party certification could address many of the institutional legitimacy concerns raised during our industry interviews.

Due to the emergent nature of consumer product transparency initiatives, institutional organizational legitimacy is difficult to analyze. At present, these transparency institutions focus on disclosure of information by members, resulting in less emphasis on building their institutional legitimacy. Unlike third-party certification, consumer product transparency programs do not focus on inclusiveness or environmental outcome effectiveness.

Strategic Legitimacy of the Business Member Participant. Strategic legitimacy focuses on business member concerns such as the distribution of benefits and costs of adopting sustainability governance initiatives. Themes from the interviews that related to the strategic legitimacy of the business member include reputational impacts of industry standard setting and economic trade-offs of individual participation. Similar to the section above, these interview themes are used as the criteria for the comparative assessment of two private sustainability governance initiatives, third-party certifications and product based consumer transparency. These dynamics, summarized in Table 7, highlight the advantages of product-based consumer transparency over third-party certification initiatives.

Table 7. Strategic Legitimacy Comparison: Third Party Certification versus Consumer Product Transparency Systems

Strategic Legitimacy of the Business Member Participant		
Producer Concerns	Third-Party Certification	vs. Consumer Product Transparency Systems
Reputational Impacts of Industry Standard Setting. Concerns that the resulting standards delegitimize their individual production practices.	Disadvantage. Global standard setting is difficult to reconcile with individual production circumstances.	Advantage. Lack of uniform and universal standards allow for more flexibility to promote individual production practices.
Economic Trade-Offs of Individual Participation. Concerns that the cost of participation and compliance will exceed the benefits of participation.	Disadvantage. Higher costs of compliance due to stringency of standards. Concerns over individual brand marketing authenticity.	Advantage. Lack of uniform and universal standards reduces compliance and auditing cost. Format allows producers to feature their place-based and entrepreneurial story reinforcing their individual brand authenticity.

From a strategic legitimacy perspective, the effectiveness of third-party certifications within the marine cultured-pearl industry could be debated. In this area, producers’ pragmatic concerns centered on standards setting and cost/benefit analysis. Regarding cost/benefit analysis, producers had varying beliefs on the tradeoffs between the cost of compliance and potential revenue benefits, depending on their individual business circumstances. Many producers expressed concerns about the costs of stringent production standards. In addition, producers who viewed their environmental practices as a dimension of branding and authenticity expressed concerns that the third-party certifications could reduce their brand uniqueness. To gain producer support, advocates of third-party certification would also need to convince producers that it will gain critical mass in the jewelry marketplace. The promised revenue enhancements will only

materialize if the certification is recognized and valued by members of the supply chain. With regards to standard setting, the uniform and universal standards associated with third-party certification have risks for business members. As described in the previous section, producers expressed concerns about the relevance of universal standards to their individual production circumstances. For instance, if the third-party certification decided to require a 100 percent renewable energy standard to be in compliance, all members would need to implement it, regardless of cost or practicality. If a producer chooses not to follow the standard, they face the risk that their production practices will be delegitimized.

A major comparative strength of consumer product transparency systems is the focus on building the strategic legitimacy of member producers. By providing transparency to individual producer sustainability practices, these initiatives have more flexibility compared to third-party certifications. This flexibility addresses members concerns about the costs of compliance and legitimacy of individual production practices. In addition, the information disclosure format allows producers to feature their place-based and entrepreneurial story reinforcing their individual brand authenticity.

Pooled Interdependence Dynamics of the Network. Themes from the interviews that related to pooled interdependence include member competency and credibility. Similar to the section above, these interview themes are used as the criteria for the comparative assessment of two private sustainability governance initiatives, third-party certifications and product based consumer transparency. These legitimacy

dynamics, summarized in Table 8, highlight the advantages of consumer product transparency over third-party certification initiatives.

The pooled interdependence dynamics of the network provide the largest hurdle for adoption of third-party certifications. When the level of perceived competency and network member credibility is low, business members see significant risk in joining a third-party certification. Due to the legitimacy dynamics inherent in any certification label, there is strong pooled interdependence between participating business members. As discussed earlier, if one business member acts irresponsibly damage is done, not only to the organizational legitimacy of the private governance initiative, but also to other business members' legitimacy. In any initiative that relies on strong inter-organizational cooperation, respect and confidence in the other collaboration members is essential.

In contrast to third-party certifications, consumer product transparency systems offer advantages in the context of organizational and network dynamics. Because these systems focus on building the strategic legitimacy of member organizations, network pooled interdependence is lessened. If one business member acts irresponsibly, the damage mainly affects their individual organizational legitimacy rather than that of the entire network. With regards to network competency, producers provide transparency to their own story which weakens the ties of pooled interdependence. Compared to third-party certifications, advocates of consumer transparency systems would find it easier to gain producer support among the pearl producers in this study.

**Table 8. Interdependence and Dynamics of the Network
Comparison of Private Sustainability Governance Initiatives**

Pooled Interdependence Dynamics of the Network		
Producer Concerns	Third Party Certification	vs. Consumer Product Transparency Systems
Level of Network Competency. Concerns with the competitors competency to build effective sustainability standards.	Disadvantage. Extensive scientific and managerial competency needed to build effective sustainability standards. High reciprocal interdependence.	Advantage. Producers disclose their own production practices and raw materials. Lower level of reciprocal interdependence.
Network Member Credibility. Concerns involving the lack of trust in other business participants.	Disadvantage. Network member trust is necessary in the negotiation of sustainability standards. High reciprocal interdependence.	Advantage. Producers disclose their own production practices and raw materials. Lower level of reciprocal interdependence. Stronger producers can tell their stronger stories.

3.6 Conclusion

This research makes several contributions to the private sustainability governance initiatives literature. First, our empirical research in the marine cultured-pearl industry provides a case study on the dynamics of organizational legitimacy during early stages of developing private sustainability governance initiatives in the industry. By focusing on the early stages, insights were gathered about the interaction between the legitimacy-building activities of the emerging initiative and the legitimacy-enhancing goals of the network business participants. From the standpoint of institutional legitimacy, our interviews reinforce structural and procedural aspects such as initiative inclusiveness and characteristics of rule setting. From the standpoint of the business member’s strategic legitimacy, our findings reinforce the pragmatic legitimacy concerns of cost/benefits and standard setting. In addition, we found that the social license to operate, which is central to the motivations of many mining-oriented private sustainability governance initiatives

(Prno & Slocombe, 2012), was not a principle motivator or concern in our subject industry.

This research provides data to support an expansion of the networked legitimacy concept outlined by Mele and Schapner (2013). Our case study provided insights into the interdependence between the sustainability initiative's organizational legitimacy, the business participant's organizational legitimacy, and the inter-network dynamics of business participants. From this, we generated a networked legitimacy framework. The framework yields further insights into the world of private sustainability governance initiatives. By looking at only the institutional legitimacy of the private governance initiative, a researcher might conclude that there are fairly low barriers to acceptance of third-party certification in the marine cultured-pearl industry. However, when viewing certifications through the networked legitimacy framework, the main hurdles of third-party certifications become apparent. These include both strategic legitimacy and pooled interdependence concerns that are substantial barriers. The expanded framework illustrates why consumer product transparency is likely to be more attractive in the industry: it provides advantages in the areas of strategic legitimacy and pooled interdependence that third-party certification does not.

Overall, we conclude that the marine cultured-pearl industry does not have the conditions necessary for successful adoption of a third-party certification initiative. Two areas in our framework, strategic legitimacy of business member participants and pooled interdependence network dynamics highlight the concerns. First, producer interviews reveal major concerns with the economics trade-offs of third-party certification. Few

producers believed that the positive benefits outweighed the compliance costs. Second, the dynamics of member/competitor competency and credibility will remain hurdles for any initiatives with strong pooled interdependence. Actors seeking to introduce third-party certification would need to increase the duration of producer contact and the level of resource exchange to improve the ties that bind the business members.

The empirical results show a potential opportunity for consumer product transparency systems. By providing transparency to individual producer sustainability practices, these initiatives have more flexibility in standards compared to third-party certifications. In addition, by focusing on building the strategic legitimacy of the member organizations, the risks associated with pooled interdependence is lessened. This is a substantial advantage for areas of low network trust and concerns with competitive competencies.

The networked legitimacy framework can be used to not only evaluate hurdles to adopting private governance initiative, but also highlight opportunities for governance innovation. In addition, the results indicate that there is a greater opportunity to study pooled interdependence and network dynamics of other collaborations to promote sustainability.

3.7 Research Methods Appendix – Chapter 3

3.7.1 Pearl Farm Case Studies- Detail and Sources.

Theoretical sampling was used to select pearl farm case studies to maximize insight into organization and strategic legitimacy. Key informant interviews and a web

search of direct-to-consumer pearl farms provided a list of potential subjects among pearl-producing firms. Organizations with substantially different branding strategies, geographies, and production volumes were selected to maximize research breadth.

The key characteristics of the seventeen pearl farms are summarized in Figure 17. Five countries and four pearl types are represented in the research. Production scale varied between farms from large mechanized producing organizations to small family pearl farms. The production volume of each case study was estimated based on producer interviews and available market data. In addition to scale, farm case studies were selected to sample different branding strategies. The three most prominent marine pearl farmers from a perspective of quality and value were included in study, Robert Wan (Black), Paspaley (White South Seas), and Jewelmer (Golden South Seas).

Multiple methods of data collection were used, including semi-structured interviews, focus groups, audio/visual material review, and the observation of pearl farm practices. Details of the data collection by case study are provided in Figure 17. Twenty-three interviews were conducted, ranging from multiple-day production immersions on location to hour-long interviews. Notes and memos captured personal observations. Observation was conducted on marine cultured-pearl farms between the fall of 2012 and winter of 2014. In addition, a producer focus group was conducted in the summer of 2014 in Hong Kong.

	Pearl Type	Geography		Production Scale	Branding Strategy
		Topography	Country		
Producer #1	Black	Atoll	French Polynesia	Medium	Unbranded
Producer #2	Black	Atoll	French Polynesia	Medium	Unbranded
Producer #3	Black	Atoll	French Polynesia	Small	Unbranded
Producer #4	Black	Atoll	French Polynesia	Medium	Branded
Producer #5	Black	Atoll	French Polynesia	Medium	Unbranded
Producer #6	Black	Atoll	French Polynesia	Micro	Branded
Producer #7	Black	Atoll	French Polynesia	Micro	Branded
Producer #8	Black	Ocean Bay	Fiji	Small	Branded
Producer #9	Golden South Seas	Ocean Bay	Philippines	Large	Branded
Producer #10	Black	Atoll	French Polynesia	Small	Branded
Producer #11	Black	Atoll	French Polynesia	Micro	Unbranded
Producer #12	White South Seas	Offshore	Australia	Large	Branded
Producer #13	Black	Ocean Bay	Fiji	Micro	Branded
Producer #14	Black	Ocean Bay	French Polynesia	Large	Branded
Producer #15	Rainbow	Ocean Bay	Mexico	Micro	Branded
Producer #16	Black	Atoll	French Polynesia	Small	Unbranded
Producer #17	Black	Atoll	French Polynesia	Medium	Branded

	Certification Interviews		Production Observation		Retail Observation		Supporting Documents Reviewed and Other Interactions
	Number	Researcher	Yes	Researcher	Yes	Researcher	
Producer #1	1	Laurent	Yes	Laurent			
Producer #2	1	Laurent	Yes	Laurent			
Producer #3	1	Laurent					
Producer #4	1	Julie	Yes	Julie	Yes	Julie	Video, Website, Farm Tour
Producer #5	1	Laurent	Yes	Laurent			
Producer #6	1	Julie			Yes	Julie	
Producer #7	1	Julie	Yes	Julie	Yes	Julie	Website
Producer #8	2	Julie	Yes	Julie	Yes	Julie	Video, Website, Farm Tour
Producer #9	1	Laurent	Yes	Laurent			Video, Website, Roundtable
Producer #10	3	Julie	Yes	Julie			Video, Website, Roundtable
Producer #11	1	Julie					
Producer #12	1	Laurent	Yes	Laurent	Yes	Julie	Website, Roundtable
Producer #13	1	Julie			Yes	Julie	
Producer #14	1	Julie			Yes	Julie	Video, Presentation
Producer #15	3	Julie	Yes	Julie	Yes	Julie	Video, Website, Roundtable
Producer #16	1	Julie					Website
Producer #17	2	Julie	Yes	Julie	Yes	Julie	Website

Figure 17. Details of Seventeen Pearl Farm Case Studies

3.7.2 Key Stakeholder Interviews- Detail and Sources.

In addition to the pearl farms, thirty-two interviews were conducted with key industry stakeholders including non-governmental organizations, French Polynesia government officials, and pearl value chain participants. The key stakeholder organization, industry role, and primary region are summarized in Figure 18. Fair Trade,

the World Jewellery Confederation, and the Responsible Jewellery Council, the main sustainability organizations operating in the marine cultured-pearl industry, all participated in the research. The perspective of value chain participants was sampled during two main trade show events, Inhorgenta Munich 2014 (February 2014) and Hong Kong Jewelry & Gem Fair (June 2014).

	Organization	Industry Role	Key Stakeholder Primary Region
1	Pweniou Pearl Farm	Pearl Farm	Asia- Pacific- Micronesia
2	College of Micronesia	University	Asia- Pacific- Micronesia
3	Autore Pearls	Pearl Farm	Asia-Pacific- Australia
4	Linneys (Broome)	Retailer	Asia-Pacific- Australia
5	The Courthouse Collection (Broome)	Retailer	Asia-Pacific- Australia
6	Maison de la Perle, French Polynesia	Govt	Asia-Pacific- French Polynesia
7	Service de la Perliculture, French Polynesia	Govt	Asia-Pacific- French Polynesia
8	Univesity of French Polynesia	University	Asia-Pacific- French Polynesia
9	IFREMER	NGO	Asia-Pacific- French Polynesia
10	Consultant- NACAR	Consultant	Asia-Pacific- Hong Kong
11	Hosei	Middleman	Asia-Pacific- Hong Kong
12	La Peregrina	Middleman	Asia-Pacific- Hong Kong
13	World Jewelry Confederation	NGO	Asia-Pacific- Hong Kong
14	Atlas South Seas Pearls	Pearl Farm	Asia-Pacific- Indonesia
15	Hinata Trading	Middleman	Asia-Pacific- Japan
16	Hasuna	Retailer	Asia-Pacific- Japan
17	Otsuki Pearl Company	Pearl Farm	Asia-Pacific- Japan
18	Orient Pearl Company	Middleman	Asia-Pacific- Japan
19	Gellner	Middleman	Europe
20	Marc' Harit from Denmark	Middleman	Europe
21	Schoeffel	Middleman	Europe
22	Fair Trade Organization	NGO	Europe
23	Nesper Pearls	Middleman	Europe
24	Frieden	Middleman	Europe
25	Swiss Pearls	Middleman	Europe
26	Shanghai Gems	Middleman	Europe
27	Bucherer	Retailer	Europe
28	Responsible Jewelry Council	NGO	International
29	Cultured Pearl Association of America	NGO	North America
30	Kwan Collections	Retailer	North America
31	Pearls Paradise	Retailer	North America

Figure 18 Key Stakeholder Interviews within the Marine Cultured-Pearl Industry

3.7.3 Interview Questions and Data Analysis.

Interviews were conducted in a conversational style to build rapport and trust.

Several questions encouraged conversations about legitimacy.

- What organizations or individuals do you respect that operate within in the marine cultured-pearl industry? Who is most credible? Have you worked collectively with other producers? Have you worked collectively with public institutions? How do you view your pearl farm competitors? How do you interact with one another?
- Do you see a role for standards development across the industry? What are the advantages of adoption of industry standards? What are the disadvantages? What are your concerns?
- What are your impressions of organizations who are looking to develop industry standards such as the Responsible Jewellery Council, Fair Trade, and the Marine Stewardship Council?

From early interviews, certain legitimacy themes started to emerge. The two pooled interdependence themes, the lack of trust in other pearl farmers' competency and credibility were very apparent in the first interviews. Below are examples from initial interviews with a small sized pearl farmer and my theme coding.

Producer N: "You see here because we're dealing with some very corrupt business practices it's probably more importance than another place... you do get a lot of people with knockoffs. There are definitely some pearls in French Polynesia that are similar to ours." (Competitor Corruption)

Producer N: “Sometimes I have to walk a line. What’s wrong with every village having a pearl farm. There are guys who started doing it...who have no idea how it works. Why am I hesitant about a nationwide village-based pearl farming? I’m concerned because they won’t do it properly.”
(Competitor Competency)

The interviews were either recorded then transcribed, or notes were taken during the interview then transcribed. I sorted through the interviews to identify similar phrases, relationships between variables, and key themes. The key themes, shown in Figure 19, were first identified as a list of common concerns articulated about sustainability standards and private governance initiatives. HyperRESEARCH was used to organize the interviews and code for these key areas of concern.

Legitimacy literature was reviewed multiple times during the coding process to identify analytical dimensions. At first, the four categories of legitimacy (input/output/regulative/normative) were used to categorize the case study data. This information was presented in summary form at the US Ecological Economics conference in June 2013. Based on input and further analysis, the current framework was created. Summary charts were developed with framework dimensions to compare cases, looking for between-group similarities and differences. In order to highlight frequency of the results, I put together this theme visual summary for the committee.

Consensus Ability of Rule Setting	Theme 1
Initiative Inclusiveness of Small Holders	Theme 2
Effectiveness of Enforcement Mechanisms and Environmental Outco	Theme 3
Cost and Benefits of Individual Participation	Theme 4
Reputational Impacts of Industry Standard Setting	Theme 5
Moral Legitimacy- Social License to Operate	Theme 6
Concerns with Competitor Competency and Credibility	Theme 7

	Theme 1	Theme 2	Theme 3	Theme 4	Theme 5	Theme 6	Theme 7
Producer #1	X						X
Producer #2	X		X	X			X
Producer #3			X				X
Producer #4	X		X	X			X
Producer #5				X			X
Producer #6			X	X			X
Producer #7	X			X			X
Producer #8	X		X	X			X
Producer #9	X				X		
Producer #10	X	X	X	X	X		X
Producer #11		X	X	X			X
Producer #12	X		X	X	X		
Producer #13		X		X			X
Producer #14				X	X		
Producer #15	X	X	X	X	X		X
Producer #16				X			
Producer #17	X			X			X

Figure 19. Producer Themes Coded within HyperResearch.

CHAPTER 4: PRIVATE SUSTAINABILITY GOVERNANCE INITIATIVES: UNDERSTANDING THE VALUE CHAIN BARRIERS TO ADOPTION

Paper Working Title: Private Sustainability Governance Initiatives in the Marine
Cultured-Pearl Industry: Understanding the Value Chain Barriers to Adoption

Target Journal: Sustainable Development

4.1 Introduction

Marine ecosystems face threats as a result of overfishing, watershed based pollution, marine pollution, and unregulated coastal development (Halpern et al., 2007). Coral reefs are at the forefront, with more than sixty percent under immediate and direct threat from local, man-made, sources (Burke et al., 2012). In many Small Island Developing States (SIDS), corals and fisheries are the basis for functioning marine ecosystems which provide for human well-being. It is imperative that these ecosystems be protected in a manner that engages local stakeholders and provides tangible economic benefits for local communities (Cinner et al., 2009).

If managed responsibly, marine cultured-pearl farming can have a positive development footprint in many SIDS communities. Marine pearl cultivation is a vital source of livelihoods in remote Pacific islands, helping to stem outer island emigration and provide economic alternatives to tourism (Cartier & Ali, 2012). In addition, a thriving marine ecosystem offers pearl oysters the nutrients and water quality needed for healthy growth, creating an inherent economic incentive for pearl farmers to maintain ecosystem services (Southgate & Lucas, 2008).

Within this context, powerful jewelry industry actors have recognized the sustainable development potential of responsible pearl farming. In a recent Sustainable Pearls research forum, Gaetano Cavalieri, the president of the World Jewellery Confederation, stated, “When a consumer buys an item of pearl jewelry, they should feel that they have invested in our planet’s long-term survival, rather than having taken advantage of it” (Cavalieri, 2014). Cavalieri’s thoughts are echoed in the marine cultured-pearl community, with many key stakeholders recognizing that the positive environmental benefits represent an industry wide competitive advantage (Nash, Ginger and Cartier, manuscript in preparation). In response, the Sustainable Pearls research project was formed to enhance understanding of the industry’s positive environmental impacts and to explore alternative private sustainability governance initiatives.

Private governance initiatives focus on the complex networks of public and private organizations. Like public governance networks, these private governance entities are “characterized by the interdependency of network actors, the resources they exchange, and the joint purposes, norms, and agreements that are negotiated between them” (Koliba, Meek, & Zia, 2011, p. 54). These initiatives link interdependent members including non-governmental organizations, development agencies, and private business firms through informational, financial, and social resources (Gallemore & Munroe, 2013).

In this paper, we concentrate exclusively on private governance initiatives that collaborate on sustainability issues. These initiatives are a specific type of market-based incentive that endorses responsibly sourced and produced consumer goods (Bernstein &

Cashore, 2007). They coordinate inter-organizational activities and create tangible incentives to mitigate harmful business practices. In exchange for participation, companies have the opportunity to gain organizational legitimacy and product-competitive advantages (Biermann, Pattberg, van Asselt, & Zelli, 2009; Pattberg, 2005).

In the last decade, these private sustainability governance initiatives have flourished. Tracing their roots back to the 1960s, these initiatives sprang from the fair trade and organic agriculture movements. Global certification schemes in forestry (Forest Stewardship Council), and fisheries (Marine Stewardship Council) emerged in the 1990s (Wahl & Bull, 2014). In 2003, the World Bank estimated that as many as one thousand private codes of conduct and standards existed (G. Smith & Feldman, 2003). This burst of innovation resulted in a diversity of private sustainable governance initiative formats including third-party certification, consumer product transparency systems, and industry roundtables to promote sustainability standards. These programs compete to define the transformation and evolution of sustainability governance in an industry (Fischlein & Smith, 2010).

This research assesses how these private sustainability governance initiatives may disrupt or reinforce existing industry relationships and change the resources exchanged by different industry actors, affecting power distribution in the industry. By investigating the changes to organizational connections and resources, links are made between private governance initiative types and potential outcomes for industry actors. This research is designed to uncover hidden barriers to the early adoption of private governance initiatives and to develop recommendations for sustainability advocates.

To assess industry relationships and resources, the researchers use value chain theory and analysis. Value chain subsystems, just like other social system rules, serve as guides for industry participant perceptions and actions (Gereffi et al., 2005). Value chain theory has been used in the assessment of existing governance of sustainability initiatives (Lee, Gereffi, & Beauvais, 2012; Tran et al., 2013) but rarely in the exploration of early adoption dynamics of new initiatives (Wahl & Bull, 2014). The value chain framework provides the conceptual structure in our assessment of rival sustainability governance initiatives and factors that influence their early adoption. Our case study, marine cultured-pearls, represents a unique opportunity to examine the unfolding adoption dynamics within an industry primed for these initiatives.

This paper first provides background on the case study including the industry's current production network and value chain structures. Next, the impacts of alternative private sustainability governance initiatives on the production network and value chains are hypothesized, analyzed, and discussed. In conclusion, this paper outlines the research's contributions to private sustainability governance literature policy and implications for stakeholders advocating for sustainable development.

4.2 Case Study: Marine Cultured-Pearl Industry

4.2.1 Marine Cultured-Pearl Industry Background

Many marine cultured-pearl farms are located in areas of the Pacific that boast the greatest marine biodiversity on the planet. Healthy pearl oysters require both the nutrients and pristine water quality available in thriving marine ecosystems, setting up an inherent

environment and productivity linkage (Lucas, 2008). In addition, research on coral reefs and pearl farms in Ahe, French Polynesia, demonstrate that fish are more abundant in areas with pearl farms (Cartier & Carpenter, 2014), positively linking responsible farming to healthy coral reef environments (Cartier & Ali, 2012).

In remote Pacific islands, the marine cultured-pearl industry is an important means of support for the local populations. In Polynesia, the oyster has held a significant place in history, providing a plentiful source of food, and proving resilient in the face of storms and droughts (Macpherson, 2000). An additional attraction of the industry is its use of existing island skill sets, such as diving, fishing, and boating. These activities offer a working environment compatible with traditional occupations of the local population (Haws, 2000; Tisdell & Poirine, 1998). Because pearls are both lightweight and non-perishable, they are preferable to fish export, which requires refrigeration and extensive shipping facilities (Haws, 2000). In 2000, it was estimated that, in French Polynesia, seven thousand people depend on the cultured-pearl industry (Cartier & Ali, 2012).

Although marine cultured-pearl farming is widely acknowledged as an environmentally friendly activity, certain practices can result in negative environmental impacts (O'Connor & Gifford, 2008). First, when oyster nets are placed too closely together, as in high density aquaculture, bivalve waste can build up. These accumulations can potentially lead to eutrophication of marine sediments and a concurrent change in benthic fauna (Jelbart et al., 2011). Another potentially problematic impact of pearl aquaculture is alteration of the gene pool of the indigenous oyster population, which can arise from the translocation of oysters or the artificial propagation of species. Finally,

physical waste disposal can be an issue, especially in large mechanized pearl farms. Plastics, used for cages, floats and ropes, are common disposable items on marine cultured-pearl farms. If deposited directly into the marine environment, chemicals can leach into that environment and adversely impact aquatic life (Andréfouët et al., 2014; O'Connor & Gifford, 2008).

4.2.2 Participatory Action Research in the Marine Cultured-Pearl Industry

In response to the opportunity to promote responsible farming practices, the Sustainable Pearls project was founded. The project's aims were two-fold: to enhance understanding of the industry's environmental impacts, and to improve the sector's positive imprint through exploration of alternative private governance initiatives.

In keeping with the participatory action research model (Dover & Lawrence, 2010), the researchers engaged with key industry stakeholders and pearl farmers between 2012 and 2014. Eighteen pearl producing firms, covering such diverse geographic areas as Fiji, French Polynesia, Australia, Micronesia, and Mexico, joined in this research project. Twenty eight additional value chain actors, including pearl exporters, pearl distributors, traditional jewelry retailers and online retailers also participated. Certification agencies, such as the Responsible Jewellery Council and Fair Trade, and industry trade groups, such as Cultured Pearl Association of America, were interviewed.

In addition to wide ranging industry participation, key industry stakeholders partnered with researchers to craft alternative sustainable governance pathways. This partnership is essential to participatory action research since outcome legitimacy depends on a participant's influence on the research agenda (Dover & Lawrence, 2010). For this

project, key industry stakeholders were engaged, not only in the debate over the choice of alternative private sustainability governance initiatives, but also in the crafting of the analytical framework and questions.

4.2.3 Alternative Private Sustainability Governance Initiatives

Private sustainability governance initiatives are mechanisms that attempt to socially re-embed consumer products using standard-setting governing production, commercialization, and consumption (Cashore et al., 2004). These initiatives are voluntary private standards with no state entity requiring adherence to rules or controlling standard-setting (Cashore et al., 2004). The mechanisms are coined “market-driven” due to the ability for individual value chain actors to determine system inclusion (Auld et al., 2007; Cashore, 2002; Cashore et al., 2004; Guthman, 2008; VanDeveer, 2007). The goal of these initiatives is to entice consumer-product value chain actors to provide information to enable consumer understanding of the social and environmental conditions of production (Bernstein, 2004; Bernstein & Cashore, 2007; Cashore et al., 2004; Raynolds, 2002). The promise of consumer price premiums or concerns over negative consumer boycott campaigns provide value chain incentives (Auld et al., 2010; Cashore et al., 2004; Renard, 2003). The governance initiative’s success is owed to the market origin of rule-making (Cashore et al., 2004). In most instances, market-driven sustainability systems focus their standards on first-stage supply-chain companies (those who harvest the product’s natural resources) but gain support by pressuring the entire value chain including consumer product manufacturer or retailers (Cashore et al., 2004). Authority is grounded in market transactions, using a product’s global supply chain to

recognize, track, and differentiate products from environmentally and socially responsible businesses (Bernstein & Cashore, 2007). The mechanism gains validity through networked legitimacy, with each supply chain actor providing individual legitimacy to the scheme as a whole (see Chapter 3).

At the early adoption stage within an industry, key stakeholders can choose among competing private sustainability governance initiatives. In consultation with industry key stakeholders, three types of initiatives, third-party certification, consumer product transparency systems, and industry roundtables surfaced as potential directions for the industry.

Third Party Certification. Third-party certification confirms that products and processes meet specific sustainability standards. Global certification in forestry, fisheries, and apparel emerged in the 1990s, but trace their roots back thirty years earlier to the fair trade and organic agriculture movements (Wahl & Bull, 2014). Their emergence coincided with the move from command-and-control regulations imposed by governments towards market-based self-regulation and new environmental policy instruments in the 1980s (Press & Mazmanian, 2010). Third-party certifications differentiate themselves from other private sustainability governance initiatives through their signal mechanism, their label. A certification label signals product compliance, allowing consumers to differentiate items that achieve the socio-environmental standards (Sammer & Wüstenhagen, 2006). According to the Ecolabel Index, an internet-based global directory of socio-environmental labels, there are 458 ecolabels in 197 countries, and 25 industry sectors (“Ecolabel Index,” 2014).

Third-party certifications demonstrate wide stakeholder representation in governance (Pérez-Ramírez et al., 2012; Peters et al., 2011; Schouten et al., 2012) and third-party auditing systems (Cashore et al., 2004). Many times, third-party certification initiatives have governance structures with representation from corporations, nongovernmental agencies, and nation-states (Bernstein & Cashore, 2007; Cashore et al., 2004). For instance, within the marine arena, the Marine Stewardship Council's Board of Trustees has representatives from producing fisheries, seafood distributors, seafood retailers, and various nongovernmental agencies ("MSC Board of Trustees," 2014). This range of stakeholders within governance structures accentuates the need for third-party auditing. Given the cacophony of corporate claims of environmental responsibility, there is an increasing demand for independent auditing, to authenticate business adherence to specific performance criteria and ongoing compliance monitoring (Bernstein, 2004; Reynolds, 2012).

Consumer Product Transparency Systems. Consumer product transparency systems have grown out of the trend in product information disclosure. Consumer product producers are increasingly confronted with voluntary demands for transparency for their product inputs and production processes (Gupta, 2008, 2010; Mol, 2006). In response to this demand, new systems infrastructures are developing to facilitate, translate, and articulate product information in order to make it available and useful to consumers. This distinct form of transparency, sometimes called governance by disclosure, holds value chain actors responsible by requiring disclosure of raw material and production practices to the end consumer (Gupta, 2008; Mol, in press). These

consumer product transparency systems contextualize sustainability attributes and serve as verification of production environmental standards (Moser et al., 2012). In our industry discussions, the Sustainable Pearls group described consumer product transparency systems as a mechanism that would expedite consumer transparency about the underlying social and environmental conditions of the product and production (Mol, in press). An example discussed with pearl industry stakeholders was the consumer transparency initiative ThisFish. The ThisFish.info website allows consumers to input a fish specific traceability code and view sustainability information including fisherman's personal stories, fishing practices including methods and materials, catch date, and the approximate location of the seafood catch ("ThisFish | Seafood Traceability," 2014). In our Sustainable Pearls discussions, a producing firm's choice in the breadth and depth of product disclosure was emphasized. The system would directly connect consumers with producers' stories, with the option of setting up an alternative trading mechanism.

Industry Roundtables. Industry roundtables, the third form of private governance initiatives analyzed, have been growing in the private sector. Industry roundtables are private multi-stakeholder platforms comprised of business and non-governmental organizations, organized with the purpose of improving the social and environmental responsibility of a global commodity chain. Some recent examples include Roundtable on Sustainable Palm Oil, Roundtable on Responsible Soy, Better Cotton Initiative, Better Sugarcane Initiative, and Roundtable on Sustainable Biofuels. Industry roundtables are a form of industry self-regulation. Only private parties are able to participate in decision making while governmental agencies and scientists act as

observers or advisors (Schouten & Glasbergen, 2011). In many instances, industry roundtables are motivated to preempt governance regulation, erect barriers to entry, and address stakeholder pressures (Fischlein & Smith, 2010). The rules, norms, and standards develop within the organizational field to constrain collective action (Fischlein & Smith, 2010). Unlike other formats, such as third-party certification, industry roundtables do not emphasize participation in direct-to-consumer communication, instead focusing on communication among internal value chain suppliers and buyers (Schouten & Glasbergen, 2011). These forms of self-regulation are not without controversy, with researchers highlighting potential free-rider effects and difficulties with compliance assurance (Fischlein & Smith, 2010; King & Lenox, 2000).

The marine cultured-pearl industry represents a unique opportunity to examine the unfolding adoption dynamics within an industry primed for these private sustainability governance initiatives. At this early adoption stage, key stakeholders can choose among these competing private sustainability governance initiatives, third-party certification, consumer product transparency systems, and industry roundtables. By examining these industry dynamics, the research seeks to enhance the understanding of rival sustainability governance initiatives and study the general factors that influence early adoption of private governance initiatives.

4.2.4 Research Questions

These three private sustainability governance initiatives have fundamentally different impacts on the production network and industry actors. By assessing these

impacts, it is possible to identify previously hidden barriers impeding the early adoption of private governance initiatives. This research question section outlines specific analysis issues: overall network connections, resource value and distribution, and impacts on small producer participation and upgrading opportunities.

Impacts on Network Connections. The introduction of a new private sustainability governance initiative can have either a reinforcing or disrupting impact on existing value chain relationships. Reinforcing market initiatives have a stabilizing effect on the value chain, supporting the status quo. If these initiatives are complementary to the existing power structures, powerful industry actors can view them as organization-enhancing opportunities. On the other hand, disruptive initiatives exert pressure on the market power structure, creating impulses for market and value chain transitions. If these private initiatives have a competitive relationship with the existing value chain governance structure, powerful industry actors can view them as organizational threats (Geels & Schot, 2007). Whether these initiatives are viewed as threats or opportunities can have a large effect on early adoption dynamics.

In addition to the impact direction (reinforcing or disrupting), it is important to understand the magnitude of the governance impact. Meadow's (2008) outlines different system interventions and their relative change over competing interventions. Three interventions are of particular relevance to our analysis, substituting individual actors, adding new actors, and changing network interconnections. First, substituting individual actors in a network or system is a low impact intervention, as long as the new players fit into the old system. From a comparative leverage point of view, changing actors usually

has the least effect on the system (Meadows, 2008). Adding new actors to an existing network adds more than complexity; it can alter the balance of power within the network (O'Toole & Meier, 2004). Finally, changing interconnections or system structure can change the system dramatically (Meadows, 2008). These factors lead us to ask: How might the private sustainability governance initiatives disrupt or reinforce existing value chain relationships? What is the magnitude of the governance change to the value chain?

Impacts on Resource Value and Distribution. In the marine cultured-pearl industry, each member of the production network brings resources to the system. These resources provide the capacity for members to participate in the production network. The resource distribution supports the relative power of actors and institutions (Koliba et al., 2011). The introduction of a private sustainability governance initiative will have impacts on network actor resources and distribution. Within the marine cultured-pearl industry network, three resource categories are of particular interest: financial, human, and information.

- **Financial Resources.** Financial resources possessed and exchanged by network actors include tangible assets (cash, inventory, and facilities) and distribution of profits (jewelry revenue, production costs, and overhead costs). Two common financial assets discussed included credit and inventory provided to retailers and asset value of the pearl inventory carried by value chain participants.

- **Human Resources.** Human resources, such as skills and expertise, are essential for network actors to capitalize on product opportunities. Specific human resource examples include the skills of pearl farm operators, who can optimize high quality pearl production, and of master jewelers, who can set a pearl with imperfections to optimize the jewelry value.
- **Information Resources.** Information resources include brokering consumer and product information as well as controlling direct consumer access. Market agents, with greater access to information, possess a measure of power over their market partners. Direct consumer access can also be considered an information resource. Institutions with direct consumer access control the consumer relationship and have a significant opportunity to extract value and upgrade product offerings.

These factors lead us to ask: How might these private governance initiatives affect financial resources, such as existing actor product assets and profit distribution, human resources, such as existing/new skills and expertise, and information resources, such as flow of information and knowledge within the value chain?

Impacts on Small Producer Participation and Upgrading Opportunities.

Research has shown that product governance standards affect producer upgrading opportunities and small producer participation. Standards can provide an opportunity for firms to improve their position in the network through facilitation of upgrading (Von Hagen & Alvarez, 2011). An organization can “upgrade” by making products more

efficiently (process upgrading) or creating more sophisticated products (product upgrading) (Humphrey & Schmitz, 2000). Organizations that upgrade exploit opportunities to acquire additional competencies and capabilities. In certain situations, when producers comply with standards or certifications, their upgraded process or product may result in intersectoral upgrading.

Raynolds and Ngcwangu's (2010) investigation of Rooibus tea found that Fair Trade certification enabled the cooperative to upgrade its product by investing in processing, blending and packaging capabilities. Other evidence indicates that successfully implemented standards lead to industry homogenization (King & Lenox, 2000), which could impede entrepreneurial opportunities to upgrade beyond standards compliance. In addition to upgrading, standards impact small producer participation. Attaining the new performance and product standards may require costly capital or administrative investments that act as a barrier to small producer participation (Dolan & Humphrey, 2000). These factors lead us to ask: Are some private governance initiatives preferable for small producer upgrading opportunities and participation?

4.2.5 Global Value Chain Analysis Background

As our world has become increasingly interconnected by flows of information and by trade, research into international trade and production networks has accumulated. During the last twenty years, these trade and production networks were described first as commodity chains, then global commodity chains, and, most recently, as global value chains (Bair, 2009). Common to all these names is the production chain which performs a series of activities or functions (such as raw material production, product design,

manufacturing, and retail sales) to deliver a product to the final consumer. Supported by social sanctions and networks of control, global value chains (GVCs) structure and regulate industry transactions (Gereffi et al., 2005; Wahl & Bull, 2014). Advantageous positions in the value chain can provide organizations with important sources of power and influence (Gallemore & Munroe, 2013). The specific combination of an industry's value chains affect the performance of the overall industry production network (Alkemade, Frenken, Hekkert, & Schwoon, 2009; Talbot, 2009).

A key concept in GVC is the difference between producer-driven (Gereffi & Korzeniewicz, 1994), buyer-driven (Gereffi & Korzeniewicz, 1994) and international trade driven value chains (Gibbon, 2001; Talbot, 2009). Producer-driven value chains most commonly are found in capital and technology intensive industries, in which large integrated firms play key roles in coordinating the entire production network. These producers control key technology and production facilities (Bair, 2009; Gereffi & Korzeniewicz, 1994; Humphrey, 2000; Tran et al., 2013). In buyer-driven value chains, middlemen and retail companies exercise key governance functions in decentralized production networks. These buyers focus their own activities on design, retailing, and marketing, as well as the organization of the chain itself. The powerful network actors define the product but do not produce it themselves (Bair, 2009; Gereffi & Korzeniewicz, 1994; Humphrey, 2000; Tran et al., 2013). International trader-driven chains are controlled by organizing firms, mainly multinational trading houses. The organizations specialize in the buying, consolidation, and marketing of globally dispersed products to diffused retail chains (Gibbon, 2001).

“International trading companies play a coordinative role in these commodity chains by virtue of being able to procure continuously specific volumes and quality mixes for a number of processors. No individual supplier or country-specific association of suppliers has the capacity to perform this function, which moreover is uneconomic/impractical for processors to carry out.(Gibbon, 2001, p. 351)”

In the last few years, the GVC approach has been used not only to analyze network buyers’ challenges in adopting and implementing the private governance initiatives but also to study effects on the farmers, workers, and economies in developing countries (Wahl & Bull, 2014). From an individual business perspective, GVC has been used by businesses to develop strategies to better position themselves in the value chain (Wahl & Bull, 2014) and by sustainable development advocates to support industrial upgrading and economic development (Gereffi et al., 2005; Kaplinsky, 2000; Lee et al., 2012).

In this paper, the GVC framework is used as an organizing structure to examine the organization and coordination of industry actors such as pearl producers, traders, middlemen, and retailers. This framework provides the conceptual structure in our assessment of rival sustainability governance initiatives and factors that influence their early adoption. Our case study, marine cultured-pearls, represents a unique opportunity to examine these value chain dynamics within an industry primed for these initiatives.

4.2.6 Research Methods

Primary research for this paper in the marine cultured-pearl industry was collected between 2012 and 2014. Over the three year project, the authors and other team members

conducted extensive semi-structured interviews and observations of industry practices. Multiple methods of data collection were used, including the above referenced interviews and observations. The research subjects included pearl producers, value chain actors, and industry key informants.

Eighteen pearl producing firms participated in this research project. Theoretical sampling was used to select cases to maximize insight into the value chain dynamics. Key informant interviews and a web search of direct-to-consumer pearl farms provided a list of potential subjects among pearl-producing firms. Organizations with substantially different branding strategies, value chain configurations, and production volumes were selected to maximize research breadth. Semi-structured interviews and observations with pearl producers were conducted at pearl farms in Fiji, French Polynesia, Australia, Micronesia, and Mexico. Additional information on producer case studies is included in the Research Methods Appendix (4.6.1- Pearl Farm Case Studies- Analysis of Interview Data). In addition, discussions were held during industry gatherings at the Pearl Symposiums in Munich, Germany and Hong Kong, China during 2014. Interviews stretched from one hour meetings to multiple day on-site visits with key producer influencers. Interviews were conducted in a conversational style to build interpersonal connections (Patton, 1990; Strauss & Corbin, 1998). The depth and scope of the semi-structured interviews depended on the background and expertise of the participants. Pearl farmer sustainability questions focused on pearl production, environmental factors, social conditions, and resource constraints. Additional information on interview questions is included in the Research Methods Appendix (4.6.1- Pearl Farm Case Studies- Analysis of

Interview Data). Value chain questions focused on sources of information and knowledge, relationships with other organizations, and supplier/buyer relationships. Information was also collected involving reflections on future sustainability collaboration approaches.

Value chain actors in this research include producer cooperatives and consolidators, pearl middlemen and traders, jewelry manufacturers and craftsman, and jewelry retailers. To determine non-pearl farmer interview subjects, theoretical sampling was used to maximize insight into the thematic areas (Strauss & Corbin, 1998). Thirty one other value chain actors including pearl exporters, pearl distributors, traditional jewelry retailers and online retailers participated in the research. This information was augmented by retail visits, tradeshow visits, and industry forums at international jewelry events in Munich and Hong Kong.

Our research also included numerous interviews with jewelry and sustainability standards key informants. Industry standards and certifications agencies were interviewed, including the Responsible Jewellery Council, the World Jewellery Council, and Fair Trade. Participating industry trade groups included the Cultured Pearl Association of America. Government officials in French Polynesia were interviewed specifically at Maison de le Perle and the Marine Resources Authority.

For our data analysis, a variety of methods and analytical tools were used to develop research findings. Some included, but were not limited to, interview coding (Patton, 1990), theme charting (Miles & Huberman, 1994) and value chain mapping (Gereffi et al., 2005; Lee et al., 2012). Our first analysis stage included analysis of

interview data. HyperRESEARCH was used to organize and code the producer interviews. Data were sorted and combined into similar phrases, relationships between variables, and key themes. Audio/visual and written materials were reviewed to corroborate patterns seen in interviews and during direct observation. Within the producer interviews particular attention was paid to resource exchanges between industry actors.

Our second analysis stage included mapping the current industry market network and value chains (Gereffi et al., 2005; Lee et al., 2012). By tracing resource exchanges and implied power structures from producer and key industry stakeholder interviews, we mapped production functions, institutional actor's functional spans, and value chains within the marine cultured-pearl network. Our third analysis stage included creating and analyzing alternative sustainability governance networks. Comparative tables were developed to analyze the potential governance impacts on the different value chain structures and the resulting structural barriers. Additional information on the value chain analysis is included in the Research Methods Appendix (4.2.6 Value Chain Analytics). The results of this industry case study are described below.

4.3 Existing Industry Production Network and Resource Exchanges

Our industry interviews and observation research revealed that the marine cultured-pearl industry has a complicated production network with specialized production stages, diffuse industry actors, and multiple consumer pathways to purchase. To describe

this production network, this section outlines the existing production stages, the institutional actors, and the industry value chains including resource exchanges.

4.3.1 Marine Cultured-Pearls Production Stages and Participating Actors

Key stakeholders interviews and observation provided insights into the production stages of pearl jewelry. Figure 20 shows the key stages within the pearl jewelry production network including pearl production, pearl processing, jewelry manufacture, jewelry distribution and jewelry sales. This production network incorporates activities related to the flow and transformation of goods, from the production of raw materials through to the end consumers.

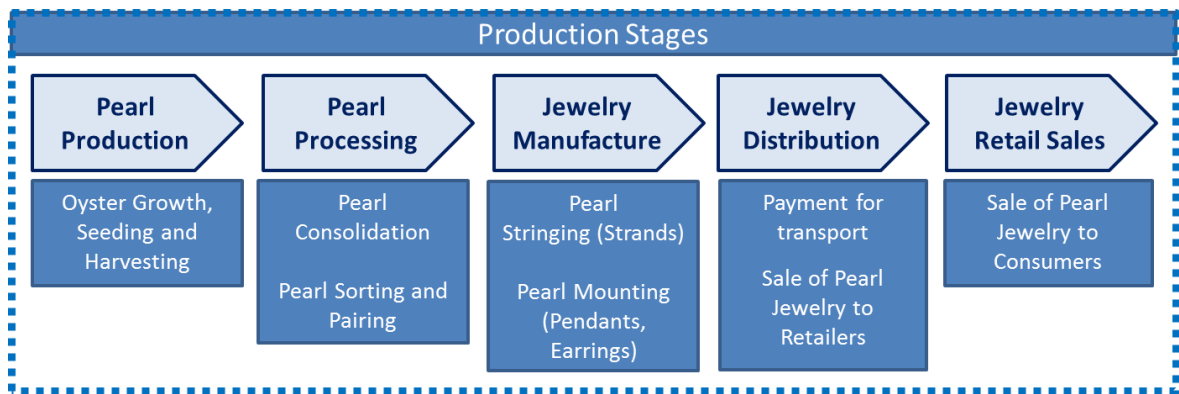


Figure 20. Overview of Five Jewelry Production Stages

Pearl Farming and Production. The two main areas within the pearl production cycle are oyster seeding and pearl harvesting. Pearl farmers are responsible for caring for oysters until they reach a grafting size. Oyster grafting, also called seeding, is a procedure that involves operating on an oyster so as to induce nacre secretion and the growth of a cultured-pearl. The oyster is opened and a nucleus is inserted, together with a piece of donor mantle tissue, into the oyster. After seeding, producers must clean and take care of

the oysters until harvest. Harvesting periods vary greatly between different pearl farms and depend on the size of operations, water temperatures, and the current health of oysters. For a first generation pearl, the marine cultured-pearl process from oyster birth to pearl harvesting can take between three to five years. For a large Tahitian or South Seas pearl, the process can be up to nine years.

Within the pearl farming and production stages, a handful of large producers dominate certain geographies including Paspaley in Australia and Jewelmer in the Philippines. The actors in French Polynesia vary from large producers such as Robert Wan to small and micro-sized unbranded producers who operate within the middleman-dominated value chain. International trade in the marine cultured-pearl industry was valued at \$397 million at this producer stage (Muller, 2013).

Pearl Processing, Jewelry Manufacture, and Distribution. As shown in Figure 20, once the product is harvested, the pearls are sold, processed, and distributed for resale. Along with the transportation and consolidation functions, the jewelry making takes place in this stage. Only in very rare cases is the final jewelry created in the place of pearl production. For instance, many Tahitian pearls are purchased by Hong Kong and Japanese traders. The pearls are then sorted into mixed pearl lots for sale. Even large producers only use a small amount of pearls for their own jewelry with the remainder sold at auction or directly to a pearl middleman. Most pearl jewelry is manufactured into earrings, pendants and necklaces in Thailand or China. The jewelry-making process includes steps such as pearl drilling, mounting, and stringing (the art of putting together a

well-balanced beautiful strand of pearls). All these stages prepare the pearl jewelry product for retail sale.

A host of actors operate in the pearl processing, jewelry manufacture, and distribution stage including vertically integrated pearl producers, pearl consolidators, traders and middlemen, jewelry manufacturers, and online or farm-direct retailers. Value is added to the pearl through preparing semi-finished products such as matching a necklace or pairing pearls for earrings. Many times pearls are purchased directly from farms by export consolidators because farms do not produce sufficient quantity to sell directly to distributors. The resource relationships between institutional actors including cooperatives, middlemen, manufactures and retailers will be explored in the Current Market Value Chain paper section.

Pearl Jewelry Sales. Traditional jewelry store outlets remain the primary avenue for retail jewelry sales (Encyclopedia of American industries, 2011). According to the 2011 United States census, there are just over twenty three thousand jewelry stores across the country (US Census Bureau, 2011). In addition, department stores and specialty outlets, such as Costco, are important channels in the United States market (Encyclopedia of American industries, 2011). In recent years, a new breed of retail, online stores, have appeared but sales through this new retail format will remain small in the near future. Unlike diamonds, which have a well-defined universal grading system, gem quality pearls have characteristics that are difficult to assess online. Another trend of importance is the emergence of vertically integrated pearl producers. In the last few years, large producers, such as Robert Wan, Jewelmer, and Paspaley, have expanded their retail

presence in developed and developing countries. Their goal is to capture more of the jewelry margins which can be as high as five to six times the producer value (Brodbeck, 2010).

4.2.2 Industry Production Network, Global Value Chains, and Resource Exchanges

The global value chain framework is used as an organizing structure to examine the power, resources and coordination dynamics of industry actors such as pearl producers, traders, middlemen, and retailers. As Talbot (2009) points out in his research on tropical commodity chains, no one value chain structure characterizes the production network. Our research showed that the marine cultured-pearl industry has a varied production network with examples of international-trader driven or middlemen-dominated, (Gibbon, 2001; Talbot, 2009), producer-driven (Gereffi & Korzeniewicz, 1994), and buyer-driven value chains (Gereffi & Korzeniewicz, 1994). Within the industry production network, our research indicates that the primary value chain is the middlemen-dominated value chains. The industry production network, including the primary, secondary and tertiary value chains, are shown in Figure 21.

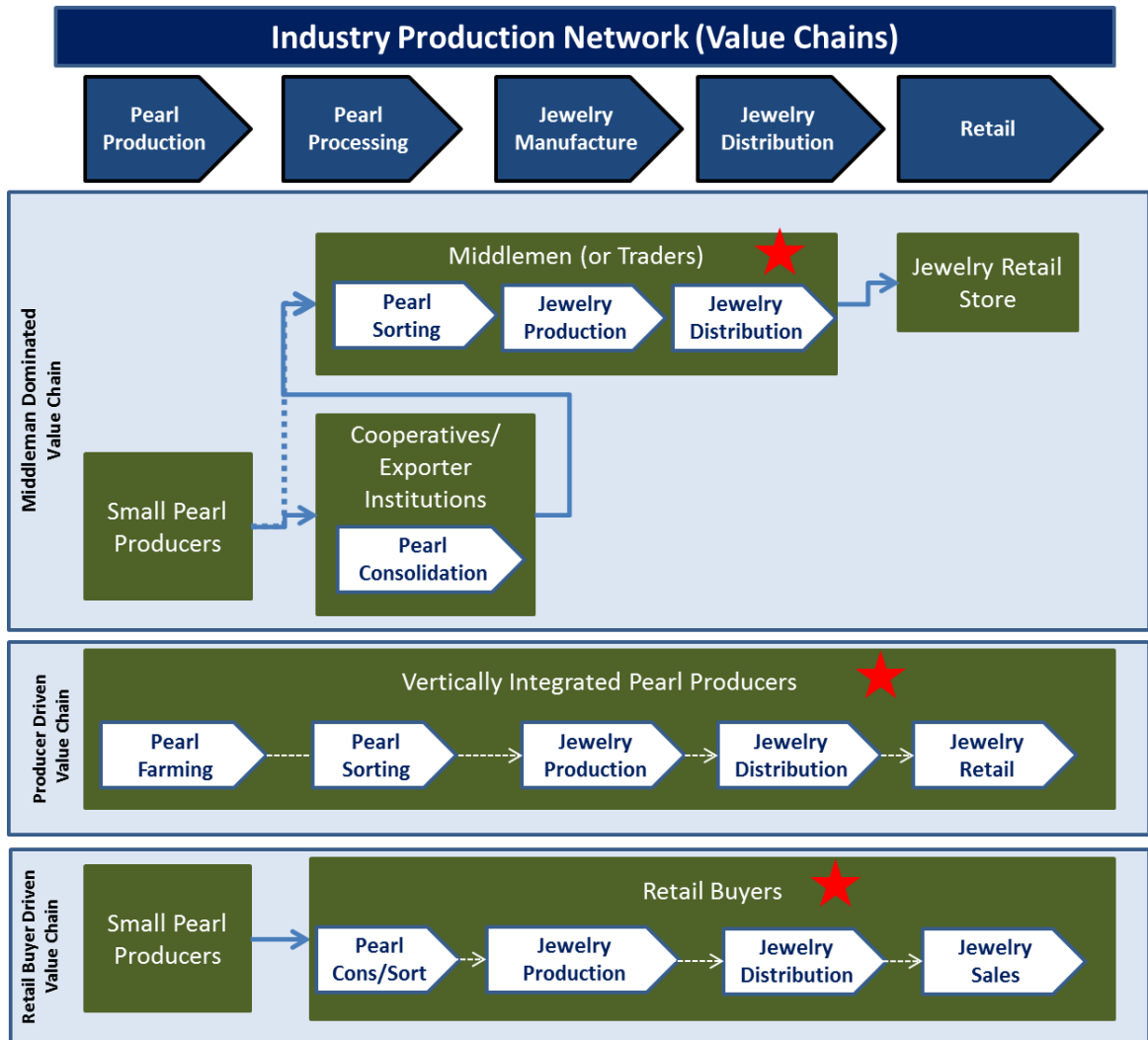


Figure 21. Overview of Industry Production Network including Value Chains

Since each of these value chains has implications for industry power structure and resource exchange, it is essential to outline the three different types.

Middleman Dominated Value Chains. Our analysis of the industry production network indicated that value chains dominated by middlemen are primary value chains in the marine cultured-pearl industry. Middlemen purchase pearls from pearl farmers or

pearl consolidators generally without keeping track of the pearl origin or production practices, transforming them into commodities on the market. With regard to financial resources, middlemen control physical pearls throughout the value chain and enjoy a larger portion of pearl jewelry profits. Within the areas of skills and expertise, middlemen orchestrate the jewelry production process and add value through top quality pearl consolidation, matching, and jewelry production. Within the area of information resources, middlemen are centers of information, sharing consumer and producer information upstream and downstream in the value chain. Table 9 provides an overview of the resource dynamics in this value chain.

Table 9. Pearl Industry. Resource Exchanges and Value Chain Types

	Financial Asset Value and Profit Distribution	Human Skills and Expertise	Consumer Information and Access
Middleman Dominated Value Chains (Primary Industry Value Chain)	Middlemen control and coordinate pearl processing, manufacture, and distribution. This advantageous position in the value chain results in a larger profit distribution.	Middlemen demonstrate expertise in jewelry production process including consolidation, matching, and production.	Middlemen manage information upstream and downstream in the value chain.
Producer Controlled Value Chain (Secondary Industry Value Chain)	Producers coordinate and control physical assets from pearl production to jewelry sales. All product profits are kept within these vertically integrated organizations.	Producers add value through their pearl farming practices, jewelry production, branding, and retail outlets.	Producers maintain direct consumer relationships.
Retail Buyer Controlled Value Chains (Tertiary Industry Value Chain)	Retail buyers coordinate and control the value chain from pearl processing to jewelry sales. This allows the organizations to capture all post farm profit distribution.	Retail buyers demonstrate expertise through top quality pearl consolidation, matching, jewelry production and retail sales.	Retail buyers maintain the consumer relationship. The buyers relay consumer information/ product specifications to producers.

Producer Dominated Value Chains. Our research within the marine cultured-pearl industry showed two distinct types of producer-driven value chains, domestic direct-to-consumer operations and vertically-integrated pearl producers/retailers. The domestic direct-to-consumer operations, sometimes called “boutique pearl farms,” sell products as part of an eco-tourism operation or through direct online sales. These are a small but profitable part of overall marketplace. The other producer-driven value chains are large vertically integrated pearl producers that have a diversified strategy. Their best quality pearls are sold through their own retail outlets. In these instances, the firms also orchestrate the functions of pearl consolidation, jewelry manufacturing, and jewelry distribution. These vertically integrated producers also sell pearls to middleman through direct sales or auctions. Producers control all financial and physical resources along the value chain in one vertically integrated organization. The producers maintain their own retail outlets or direct-to-consumer retail avenues. Producers add value through their pearl farming practices, jewelry production, branding, and retail outlets. Producers control the consumer relationship and the jewelry brand. Our research showed that although the vertically integrated producers represent only about twenty percent of the industry production network, these organizations control much of the high end marine cultured-pearls’ market.

Retail Buyer Dominated Value Chains. Our research showed variations in the retail buyer-driven value chain in the marine cultured-pearl industry. The structure of the retail buyer-driven value chain is predominant in a few large jewelry retail chains and direct-from-farm retailers. A few large retailers have established relationships with

multiple pearl farms and purchase pearls directly from them. On the other side of the spectrum is a new form of entrepreneurial enterprise that draws on the internet or other direct sales models. These direct-from-farm outlets comprise a small but growing market niche. Retailers control physical assets and enjoy a larger portion of pearl jewelry profits. The retailers maintain the pearl jewelry stock and retail outlets. Retail buyers control the jewelry production process and add value through top quality pearl consolidation, matching, jewelry production and retail outlets. Retail buyers control the consumer relationship and the jewelry brand. The buyers relay consumer information/ product specifications to the value chain. When compared to the other value chain structures, middleman and producers, retail buyer dominated value chains represent only about ten percent of the overall industry production network.

4.4 Comparison of Private Sustainability Governance Initiatives

This section reviews the three sustainability governance initiatives (third-party certification, consumer transparency systems, industry roundtables) and discusses impacts to key industry actors. It accomplishes this by examining the disrupting or reinforcing nature of these initiatives on existing value chain relationships and the affect on financial resources, human resources, and information resources.

Table 10. Summary Impacts and Support. Private Sustainability Governance Initiatives

Summary of Initiative Impacts			
	Third-Party Certifications	Consumer Product Transparency	Industry Roundtable
Network Connections Disruptive or reinforcing to network structure?	<ul style="list-style-type: none"> Limited Disruption- Adds a new actor to the network increasing overall complexity 	<ul style="list-style-type: none"> Limited Disruptive- Connects consumers with producers through communication and alternative trading. 	<ul style="list-style-type: none"> No Disruption- only minor impacts to actor interactions.
Financial Resources Impacts to product assets and profit distribution	<ul style="list-style-type: none"> Potential changes pearl asset value No change in profit distribution Adds transaction costs that are not anticipated to be offset by higher revenues 	<ul style="list-style-type: none"> No change in pearl asset value. Could result in change in profit distribution Adds transaction costs that could be offset by higher revenues 	<ul style="list-style-type: none"> No change in pearl asset value. No change in profit distribution Minimal change in transaction costs or revenues.
Information Resources Flow of information and knowledge	<ul style="list-style-type: none"> Changes dynamics of information in the value chains Not an avenue for enhanced consumer access for producers 	<ul style="list-style-type: none"> Changes dynamics of information in the value chains Avenue for enhanced consumer access for pearl producers 	<ul style="list-style-type: none"> Changes dynamics of information in the value chains Not an avenue for enhanced consumer access for producers
Actor Support for Initiatives			
	Third Party Certifications	Consumer Product Transparency	Industry Roundtable
Small Producers <i>in Middlemen Value Chains</i>	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> Potential Support 	<ul style="list-style-type: none"> Support
Cooperatives/Exporters <i>in Middlemen Value Chains</i>	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> Potential Support
Retail Buyers <i>in Middlemen Value Chains</i>	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> Potential Support
Middleman <i>in Middlemen Value Chains</i>	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> No Support
Large Producers <i>in Producer Driven Value Chains</i>	<ul style="list-style-type: none"> Potential Support 	<ul style="list-style-type: none"> Potential Support 	<ul style="list-style-type: none"> Support
Retail Buyers <i>in Retail Buyer Driven Value Chains</i>	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> No Support 	<ul style="list-style-type: none"> Potential Support

4.4.1 Third-Party Certification

A strong theme emerging from all key stakeholder interviews is that third-party certifications impose additional complexity and costs on the existing market network.

Table 10 provides a summary of third-party certifications impacts and actor support.

From a complexity perspective, third-party certification adds a new actor to the industry production networks. Although environmental standards focus on the pearl farm production, all entities in the value chain that handle or sell the certified pearls must prove the certification through chain of custody documentation. Although this does not disrupt the current value chain structure, the chain of custody components adds complexity and thus transaction costs to the production system.

Some of the strongest third-party certification concerns were voiced by small producers who anticipated that they would need to absorb these additional costs. One small producer stated that they were concerned that certifications would develop “like they did in coffee. So the producers put in all this extra efforts like not applying fertilizers... but the certifiers are flying around first-class. So the certifier gets the money and the power.” Specifically, small producers noted that they would not invest in farms certification without any guarantee that the exporters or middlemen would compensate them with higher product prices. Other interviews justified these concerns. Middlemen and other industry key informants were not convinced that consumers would pay a premium for third-party certification. Although literature shows that consumers prefer environmentally friendly products and, in many cases, are willing to pay more for these products (Auger et al., 2003), these industry stakeholders discounted these academic studies. They believed that luxury products are fundamentally different than the other products studied. Although profit distribution along the value chain is not changed, the additional transaction costs place a burden on the system.

In addition to transaction costs, many stakeholders pointed out that certification potentially devalues the current pearl assets in the market. To provide context, once marine cultured-pearls are sold from the producer farm, the individual pearls are quickly sorted by general quality attributes such as size, color and shape. A visual representation of this sorting and stringing process is shown in Figure 22. Once they have been collected and sorted it is not possible to trace these pearls back to their production practices.



Figure 22. Visuals Illustrating Sorting and Stringing Process

The images show the pearl sorting and stringing process at Pearl Paradise. Images retrieved from the Blog “The real art of making Tahitian pearl strands.” <http://blog.pearlparadise.com/2013/11/the-real-art-of-making-tahitian-pearl-strands>

Key stakeholders have commented that middlemen have vaults filled with different size, shape and color pearls, spending years gathering the perfect pearls to make a highly valued strand. As one small producer pointed out, if these exporters or middleman who hold significant pearl inventory are unable to trace the pearls back to farm production practices, a third-party certification could result in a devaluation of their

current pearls assets. Another producer pointed out, a string of pearls that is only partially certified would be a difficult commodity to sell.

It should be noted that one key industry stakeholder highlighted the potential economic and information benefits of third-party certification for producers. This stakeholder pointed out that for savvy vertically integrated producers, third-party certification can potentially stimulate a competitive advantage, as they will have an advantage in product consolidation and developing pearl strands. Yet in interviews with larger producers, they remain skeptical about the economic benefits of eco-label focused certifications. One producer commented, “I think that (certification label) in itself, is not good enough.” This person believed that, in order for the value to be realized, the pearl story needs to be traced back to the pearl farm.

From an information resource standpoint, third-party certification can be viewed as a threat to the middlemen and buyers’ role as information brokers within the supply chain. To provide context, certain middlemen are known for their expertise in consumer trends and buying habits, while other middlemen closely monitor other pearl prices and production. Certification systems often become information brokers providing valuable market and consumer information to all stakeholders within an industry. In this sense, in the cultured-pearl industry, certification initiatives would be in competition with middlemen.

4.4.2 Consumer Product Transparency Systems

From the standpoint of network connections, consumer product transparency systems aim to directly connect producers with consumers, resulting in potentially

disruptive impacts on the existing value chains. Within the marine cultured-pearl industry, these initiatives were discussed as potential alternative trading mechanisms. Therefore, to middlemen, the consumer transparency system could be considered a disruptive influence and competitive to the current value chain structure.

The implementation of a consumer product transparency system could have effects on producer revenue sharing and cost dynamics. Many producers anticipated that product transparency systems could connect them with more consumers and allow them to improve communication of their unique pearl product story. By providing transparency to individual producer sustainability practices, these initiatives have more flexibility in communication compared to third-party certifications. They allow producers to feature their place-based and entrepreneurial story and reinforce their individual brand authenticity. Due to this, almost all branded pearl producers expressed interest in consumer product transparency systems due to the potential for direct-to-consumer sales and the opportunity to build a stronger brand. If these opportunities were fully realized, these systems could provide both small and large producers a greater profit distribution. Since product transparency provides an opportunity for producers to gain consumer access, small producers could have enhanced upgrading opportunities.

From a human resources perspective, consumer product transparency systems do not change the skills or expertise of actors, but they do change the dynamics of information in the network. Similar to third-party certification, these systems could potentially reduce the value of the middlemen's knowledge and product information. In

addition, if this initiative has favorable market results, it could shift, perhaps subtly at first, the dynamics of middlemen value chains.

4.4.3 Industry Roundtables

Industry roundtables have relatively minor impacts on the industry production network and, in general, value chain actors exhibit support for this type of initiative. Producers were interested in the opportunity to interact and engage with other senior-level executives of producing organizations. Given the limited number of actors participating in roundtables (Schouten & Glasbergen, 2011), it is not surprising that they tend to be steered by the interests and values prevailing in the existing value chain, reinforcing the market status quo.

In addition, from a resource standpoint, industry roundtables were recognized as being very positive for producers. Producers expressed interest in industry roundtables' ability to change the dynamics of information in the network, providing avenues for sharing consumer information and production best practices. One key stakeholder referenced this need for consumer information sharing and expressed concerns that producers do not understand which attributes are meaningful to consumers. This stakeholder lamented, "in the last 15 years they (producers) have forgotten about marketing....they do not differentiate or segment themselves." This stakeholder went on to contend that with this improved consumer and product knowledge, profit distribution along the value chain could be effected.

4.4.4 Participatory Action Research Results

Based on this analysis, the Sustainable Pearls project team agreed that the industry roundtable format represents an opportunity for early industry action on sustainability. Although industry roundtables might result in less aggressive environmental standards, this format garnered support across a wide range of pearl farmers. Although third-party certifications, such as the Responsible Jewellery Council and Aquaculture Stewardship Council, have standards that could be available for quick implementation, the market dynamics outlined above demonstrated barriers to adoption. In the middlemen-dominated value chains, third-party certification has significant transaction costs and could potentially devalue the pearl assets in inventory. Given these financial resource dynamics, there would need to be major landscape level changes to make third-party certification feasible.

As a result of this participatory action research, the Sustainable Pearls project and key industry stakeholders organized the first marine cultured-pearl industry roundtable in June 2014. The group, representing both small and large industry pearl producers, reviewed and responded to a first draft of Sustainable Pearls principles. These principles and ongoing project work is outlined in Chapter 6.

From a small producer standpoint, our project indicates that consumer product transparency systems have inherent characteristics that provide an advantage in addressing producer upgrading opportunities. Product transparency systems, if set up as alternative trading systems, eliminate the middleman and directly connect producers with consumers. This route to direct consumer sales can provide small niche producers with a

potentially larger profit distribution. From a resource perspective, this initiative provides an opportunity for small producers to gain more expertise in pearl production and consumer marketing, the two main routes to upgrading in this industry. Given these factors, consumer product transparency systems need to be investigated further.

4.5 Conclusion

This participatory action research makes two distinct contributions to the private sustainability governance initiatives literature. First, the paper highlights the advantage of value chain analysis in uncovering hidden barriers to the early adoption of private governance initiatives. The current academic literature focuses on actor outcomes with little incorporation of industry structure (Lee et al., 2012). The paper incorporates value chain structures and resource dynamics for greater understanding of the implications for rival private governance initiatives. Through this analysis, we have shown that value chain analysis can be used by sustainability advocates to assess rival sustainability governance initiatives and evaluate hurdles to adopting private governance initiative. This case illustrates that impacts on actors are not uniform across an industry, but instead vary based on value chain structure and organizational position within the network. This results in divergent viewpoints on adoption and potential industry sustainability outcomes.

Second, this research highlights the role of product transparency in sustainability governance systems, specifically highlighting the potential advantages of consumer transparency systems. By providing transparency to individual producer sustainability

practices, these initiatives can provide distinct communication advantages to small producers compared to third-party certifications and industry roundtables.

From a sustainable development policy perspective, this analysis points to potential unintended consequences of current third-party certifications. This could have major implications for stakeholders advocating for the well-being of small producers. The research results illustrate different private governance initiatives present very different upgrading and participation opportunities for small producers. Since third-party certifications can be detrimental to middleman focused chains, small scale producers can be marginalized from this lucrative market. Our results indicated that third-party certifications provide an advantage to large-scale and intensive operations. On the other hand, our project indicates that consumer product transparency systems, with an alternative trading component have characteristics that provide an advantage in addressing producer upgrading opportunities and small producer participation. By eliminating the middlemen and connecting consumers with a producer's product stories, product transparency systems can result in a larger profit distribution for small producers. In order to advance the interest of small producers, it is essential that these advocates understand the industry structure, the role of small producers within specific global value chains, and the governance implications of the private initiative. Given the potential of consumer product transparency systems, these are worthy of additional research.

Through this analysis, we have shown that value chain analysis can be used by sustainability advocates to assess rival sustainability governance initiatives and evaluate hurdles to adopting private governance initiative.

4.6 Research Methods Appendix – Chapter 4

4.6.1 Pearl Farm Case Studies- Analysis of Interview Data

Theoretical sampling was used to select pearl farm case studies to maximize insight into organization and strategic legitimacy. Key informant interviews and a web search of direct-to-consumer pearl farms provided a list of potential subjects among pearl-producing firms. Organizations with different value chains and production volumes were selected to maximize research breadth. Figure 23 shows the producer details by value chain type and production volume. Detailed information on the pearl farm case studies key characteristics is included in 3.7.1 Pearl Farm Case Studies- Detail and Sources. These cases are roughly split between producer-driven and middleman-driven value chains. Unfortunately, the team did not have an opportunity to interview producers in buyers-driven chains. Instead, these value chain dynamics were explored in key interviews Nick Kwan of Kwan Collections and Jeremy Shepherd of Pearl Paradise. Additional details on Key Stakeholders in covered in section 3.7.2 Key Stakeholder Interviews- Detail and Sources.

HyperRESEARCH was used to organize and code the producer interviews. The researchers sorted through the interviews to identify similar phrases, relationships between variables, and key themes. Audio/visual and written materials were reviewed to corroborate patterns seen in interviews and during direct observation. Within the producer interviews, the researchers paid particular attention to resource exchanges between industry actors.

	Production	Value Chain		
	Scale	Value Chain Type	Branded	Consumer Communication
Producer #1	Medium	Middleman Driven	Unbranded	
Producer #2	Medium	Middleman Driven	Unbranded	
Producer #3	Small	Middleman Driven	Unbranded	
Producer #4	Medium	Middleman/Producer	Branded	Online, Retail, Farm Tour
Producer #5	Medium	Middleman Driven	Unbranded	
Producer #6	Micro	Producer Driven	Branded	Retail, Farm Tour
Producer #7	Micro	Middleman Driven	Branded	Retail, Farm Tour
Producer #8	Small	Producer Driven	Branded	Online, Retail, Farm Tour
Producer #9	Large	Producer Driven	Branded	Retail
Producer #10	Small	Middleman/Producer	Branded	Online
Producer #11	Micro	Middleman Driven	Unbranded	
Producer #12	Large	Producer Driven	Branded	Online, Retail
Producer #13	Micro	Middleman Driven	Branded	Retail
Producer #14	Large	Producer Driven	Branded	Retail
Producer #15	Micro	Producer Driven	Branded	Online, Retail, Farm Tour
Producer #16	Small	Middleman Driven	Unbranded	
Producer #17	Medium	Producer Driven	Branded	Online, Retail

Figure 23. Producer Case Studies and Value Chain Configuration

The individuals interviewed included either the firm’s owners or a top management team member. Interviews were conducted in a conversational style to build relationships and understanding. I used a number of different questions to encourage conversations about resources exchanges and value chain dynamics.

- What are your primary sources of information on pearl production practices and consumer/customer information? Who provides you trusted information?
- How do you interact with raw material suppliers? Pearls buyers? What customers do you consider most valuable? Why?
- How do you view your pearl farm competitors? How do you interact with one another? How do you view other members of the supply chain?

- What are your concerns about developing an industry focused third-party certification? Transparency systems?
- Do you think private sustainability initiatives would work? Why? Why not?
- Who, within the value chain, do you see as barriers to these initiatives?

In addition to the pearl farms, interviews were conducted with key industry stakeholders including non-governmental organizations, French Polynesia government officials, and pearl value chain participants. Fair Trade, CIBJO-The World Jewellery Confederation, and the Responsible Jewellery Council, the main sustainability organizations operating in the marine cultured-pearl space, all participated in the research. The perspective of value chain middlemen were sampled during two main trade show events, Inhorgenta Munich 2014 (February 2014) and Hong Kong Jewelry & Gem Fair (June 2014). Detailed information on the key stakeholder interviews is included in 3.7.2 Key Stakeholder Interviews- Detail and Sources.

4.6.2 Value Chain Analytics

Our second analysis stage included mapping the current industry market network and value chains. By tracing resource exchanges and implied power structures from producer, middlemen and retail buyer interviews, the researchers mapped production functions, and institutional actor's functional spans. After this, the researchers created network illustrations of the current value chains' configurations.

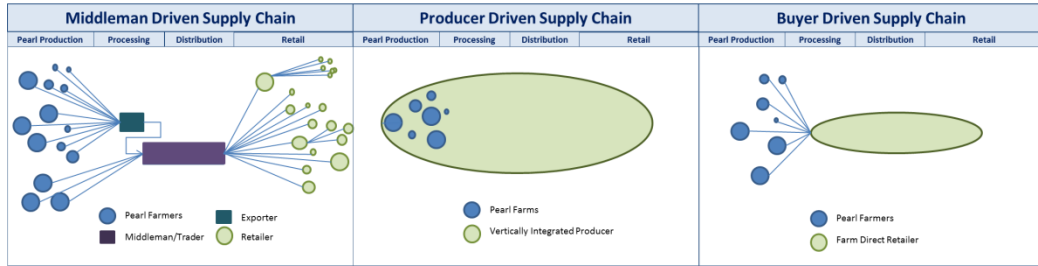
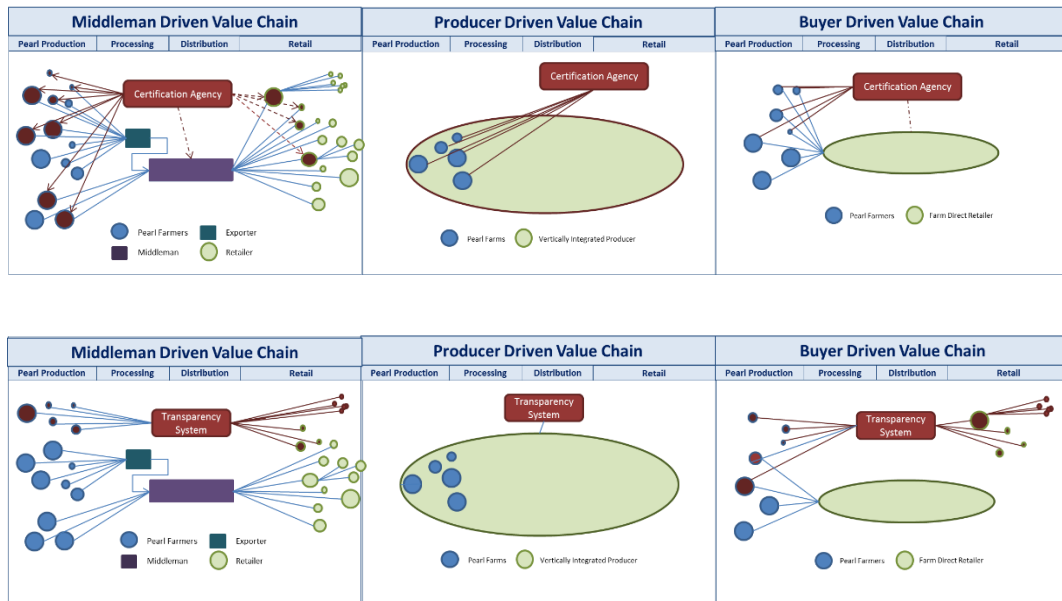


Figure 24. Illustrations of Dominant Supply Chain Forms in Marine Cultured-Pearl Market

Our third analysis stage included creating and analyzing alternative sustainability governance networks. Illustrations were developed to highlight the impacts of the competing initiatives on value chain network structures. Comparative tables were developed to analyze the potential governance impacts on the different value chain structures and the resulting structural barriers. Looking at the network maps, the research team projected actor support for the different private governance initiatives.



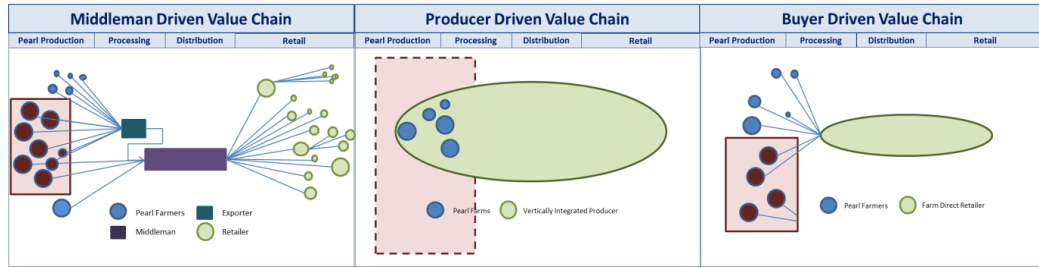


Figure 25. Illustrations of Impacts of Private Sustainability Governance Initiatives on Value Chains

CHAPTER 5: CONCLUSION

This chapter first summarizes the overall research results of the consumer, producer, and value chain oriented dissertation papers. It then outlines the overall participatory action results of the Sustainable Pearls project.

5.1 Overall Research Results

My dissertation's purpose was to enhance the understanding of the early adoption of dynamics involving rival sustainability governance initiatives. This was accomplished using the format of three research papers. The first paper focused on consumers' perception of messages related to environmental standards and third-party certification. The second paper investigated the issue of building legitimacy of the sustainability governance initiative and its member organizations. The final paper explored the influences of value chain network structure on early adoption dynamics. By looking at consumer, producer, and value chain, these papers provided insights into the barriers to early adoption of private sustainability governance initiatives.

5.1.1 Consumer Environmental Communication Results

Contrary to industry stakeholders concerns, socially conscious consumers are no longer a small niche within the jewelry industry. Over half the respondents stated that environmental conditions were extremely or somewhat important to their jewelry decision. In addition, this research showed that environmental conditions of production are more important to younger jewelry consumers.

Our research demonstrates that environmental messages can enhance consumer perceptions of luxury value. The transparency-oriented message, Standards to Protect Coral Reefs, performed better than control messages on consumer perceived value, quality, and uniqueness. In addition, it demonstrated statistically significant higher claimed word-of-mouth communications compared to the non-environmental messages. Our findings indicate that additional research is needed on third-party certification before recommending the adoption of these initiatives for the purposes of consumer communication. The Responsible Jewellery Council and Aquaculture Stewardship Council did not have a positive impact on the financial value or functional value elements compared to general environmental responsibility messages. This implies that the additional effort for certification might not be rewarded by consumers in the marketplace.

5.1.2 Producer Results

Our empirical research focused on marine cultured-pearl producers also highlights potential issues with third-party certifications. Two areas in our networked legitimacy framework, strategic legitimacy of business member participants and pooled interdependency dynamics, are the focus of concerns. First, producer interviews reveal apprehensions involving the economics trade-offs of third-party certification. Few producers believed that the positive benefits outweighed the compliance costs. Second, the network dynamics of member competency and credibility will remain hurdles for any initiatives with strong pooled interdependence.

These same empirical results show a potential opportunity for consumer product transparency systems. By providing transparency to individual producer sustainability practices, these initiatives have more flexibility in standards compared to third-party certifications. In addition, by focusing on building the strategic legitimacy of the member organizations, the risks associated with network pooled interdependence is lessened. This is a substantial advantage for areas of low network trust and concerns with competitive competencies.

5.1.3 Value Chain Results

The value chain research emphasizes the role of product transparency in sustainability governance systems, specifically highlighting the potential advantages of consumer transparency systems. From a small producer standpoint, our project indicates that consumer product transparency systems have characteristics that provide an advantage in addressing producer upgrading opportunities and small producer participation. As described above, product transparency systems can lead to consumer direct sales, providing small niche producers a potentially larger profit distribution. From a resource perspective, this initiative provides an opportunity for small producers to gain more expertise in pearl production and consumer marketing, the two main routes to upgrading in this industry.

5.2 Participatory Action Research Results

This dissertation was an integral part of the Sustainable Pearls action research project. The project's aims were two-fold, to enhance understanding of the industry's

environmental impacts, and to improve the sector's positive imprint through exploration of alternative private governance initiatives. In keeping with the participatory action research model, the researchers engaged with key industry stakeholders and pearls farmers between 2012 and 2014. In addition to wide ranging industry participation, key industry stakeholders partnered with researchers to craft alternative sustainable governance pathways. For this project, key industry stakeholders helped craft the analytical framework and questions, and participated in discussion and debate about the choice of alternative private sustainability governance initiatives. The results of this participatory action research are summarized below.

5.2.1 Sustainable Pearl Forum - Hong Kong

The Sustainable Pearls conference was held in Hong Kong in June 2014, coinciding with the summer international pearl industry trade show. This event brought together all the major pearl producers (Paspaley, Jewelmer and Robert Wan) and a number of smaller pearl producers (such as Sea of Cortez Pearls and Kamoka Pearls) to discuss sustainability issues in the industry. Forum speakers included the president of the World Jewellery Confederation, Responsible Jewellery Council, Tiffany & Co., the Swiss Gemological Institute, and The Nature Conservancy. All companies had sent their CEOs or high-ranking representative to this event, highlighting the importance of the issue and interest in promoting sustainability within the pearl industry. The presence of leading pearl producers at this event and industry media coverage raised considerable awareness about the project and the opportunities for sustainable pearls within the pearl and jewelry industry. At this forum, the findings of our project were presented to attendees, alongside

results from the consumer market survey and a draft set of sustainability principles for pearls. The event was filmed and videos of talks and copies of the presentations were placed online, so that the findings and outcomes of our project are accessible to a wide audience.

5.2.2 Sustainable Pearls Industry Roundtable - Hong Kong

At the Sustainable Pearls Forum, the research team convened the first Sustainable Pearls Industry Roundtable. Roundtable participants were key industry pearl producers who demonstrated personal engagement in sustainability issues and represented a diversity of sizes, value chain mechanisms, and geographies. During this meeting, the research team presented the United States consumer research results and reviewed the draft Marine Cultured-Pearl Industry - Sustainability Principles. The draft principles were developed in collaboration with leading pearl producers, scientists, and government authorities.

5.2.3 Marine Cultured-Pearl Industry - Sustainability Principles

The Marine Cultured-Pearl Industry - Sustainability Principles were researched and designed to accommodate differences in ecosystems, geographies, and business models and to facilitate a robust conversation on best practices. The principles display both environmental and social aspects of sustainability and allow for communication in a consumer friendly language.

The five sustainable pearl principles are:

- **Protection of the Biosphere:** We will safeguard all habitats in which we operate. We will strive to conserve or in some instances restore biodiversity, ecosystem structure, and ecosystem services. We will promptly and responsibly correct conditions we have caused that endanger the environment.
- **Sustainable Use of Natural Resources:** We will use natural resources responsibly. We will make sustainable use of renewable natural resources and conserve non-renewable natural resources through efficient use and careful planning.
- **Production Transparency and Product Disclosure:** We will be transparent in our pearl production practices, provenance claims, and product marketing representation.
- **Develop and Operate Farms in a Socially and Culturally Responsible Manner:** We will operate in a socially responsible manner with local communities.
- **Management Commitment and Local Law Compliance:** We will implement these principles and sustain a process that ensures that company management is responsible for environmental policy. We will comply with all local laws.

During the summer of 2014, multiple roundtable participants provided feedback on these overall principles and the industry best practices. This set of standards forms the basis for future work on sustainable pearls.

5.2.4 Participatory Action Research Future Directions

Following the successful completion of this three-year project funded by The Tiffany & Co. Foundation, the Sustainable Pearls team is exploring next steps to the project. Our research has shown that there is a reef conservation case for responsible

pearl farming and a clear business case for sustainable pearls in the jewelry industry.

There is also strong industry interest in the continuation of this project, as shown by the presence of leading players at the Sustainable Pearls Forum in Hong Kong in June 2014.

The follow-up project would capitalize on momentum for responsibly produced pearls through development of comprehensive sustainability indicators and would facilitate the creation of new business models for marine conservation in the Pacific.

APPENDIX 1- MARINE CULTURED-PEARL BACKGROUND

A1. Marine Cultured-Pearl Industry Development and General Economics

Natural pearls, proclaimed the world's oldest gem, were well loved in the ancient empires of China, Babylonia, Egypt, Persia and Rome. From the Roman Empire to imperial India to present day China and North America, the gems have been treasured, sought and bought, traded, and stolen (Dirlam & Weldon, 2013; Joyce & Addison, 1993; Strack, 2008). Their natural perfection was used both as an adornment and a symbol of worship (Joyce & Addison, 1993). Initially harvested in the Persian Gulf and also in China, natural pearls were gradually extracted globally, as first the people of the Middle Ages and then early modern Europeans coveted the natural pearls. Natural pearls were an important symbol of power, wealth, and status (Strack, 2008). "As with all gems, the value of the substance is determined by its rarity and the rigor involved in retrieving it" (Ali, 2010, p. 56). The Spanish explorations of the Caribbean and South America had, as a major objective, the discovering and harvesting of wild pearl oyster banks by native divers.

As a result, by the late 1800s, the exploitation of wild oysters decimated the population in many locations. In addition, the discarded refuse from harvesting the pearls polluted the marine ecosystems and ruined local fisheries. The natural pearl business had devolved from an industry to a chance discovery (Romero et al., 1999). This situation opened the way for entrepreneurs to develop the pearl culturing process. Kokichi Mikimoto, a Japanese businessman, recognized the disparity between product supply and

demand and created the cultured pearl in the late 1800s. He is also widely credited with developing campaigns to win acceptance of these cultured pearls (Taylor & Strack, 2008). In the 1920s, large scale production of cultured pearls began in Lake Biwa in Japan. In today's retail market, cultured-pearl production has overtaken natural pearls, with the vast majority of retail pearls being the cultured pearl variety (Dirlam & Weldon, 2013).

Whether natural or cultured, marine pearls are created inside a living mollusk, making it one of the only renewable gemstones. Most other gemstones, such as diamonds and rubies, come from minerals, which are inorganic materials. Pearls belong to a select group of gemstones from organic sources. Whether by natural causes or human intervention, the formation of a pearl remains an intricate process. Despite there being approximately 8,000 two-shelled mollusk species, the number that actually produce nacreous pearls is only about 20 (Dirlam & Weldon, 2013). Nacreous pearls are made of concentric layers of iridescent material. This nacre is called mother of pearl when it lines the inside of the shell. A pearl's unique iridescence comes from this layering process (Southgate & Lucas, 2008).

Many argue that pearls are the most complicated gem to evaluate (Dirlam & Weldon, 2013). Unlike some other precious gems, no standardized grading system exists for them. The Gemological Institute of America values pearls on an array of quality attributes including size, shape, shade, surface markings, and shine (luster). From a size standpoint, pearls are measured in millimeters and weighed in milligrams with larger and heavier pearls considered more valuable. Within shapes, round pearls are most valuable

(Dirlam & Weldon, 2013). Other shapes including buttons, circles, baroques, drops, and triangles have retail values ranging from 20 to 80 percent of round pearls. Price variations by color vary greatly based on consumer and retailer preferences (Gellner, 2014). Within the white pearls, individual pearls can vary in shade with colors such as cream, mocha, gold, taupe and yellow. Black pearls can have various hues including some startling colors such as green, blue, and red. The Gemological Institute of America has three ways to characterize color, by dominant color, tone and color saturation (Dirlam & Weldon, 2013). The surface of the pearl is also graded, with organizations using a multilevel grading system from clean (no blemishes) to heavily spotted or marked (covered in surface blemishes) (Gellner, 2014). Shine or luster is judged by evaluating the brightness and sharpness of reflections seen in the pearl. The Gemological Institute of America recommends judging luster compared to master reference pearls with varying levels of reflection (Dirlam & Weldon, 2013). The luster can change the value of the pearls greatly, with pearls with poorer reflectivity commanding only from 35 to 65 percent of the price of highest luster pearls (Gellner, 2014).

When these quality factors are outlined, two similar seeming pearls can command vastly different prices. See sample retail pricing structure in Figure 26. This example shows two eight millimeter, gray-green pearls. The first pearl is priced at \$35 dollars retail on PearlsParadise.com. This pearl has some tiny blemishes on the pearl surface (spot 2) and good reflective quality (AA). To provide a comparison, the retail price of another pearl is developed. Pearl 2 is similar sized gray-green pearl but it is round, free from blemishes, and demonstrates excellent reflective quality. To estimate the price of

this pearl, this dissertation utilizes a retail price methodology presented by one of the European pearl industries leading distributors, Jorg Gellner (Gellner, 2014). Using this methodology, the pearl should be listed retail price of \$520. In a recent market summary report, Andy Muller, another influential pearl trader, states that the price gap of some gem quality pearls to the lower grades can be a ratio of 1:80 or 1:100 (Muller, 2013).

	Size	Color	Shape	Spotlevel	Shine	Estimated Price
Pearl 1 <i>Characteristics</i> <i>Price Factors</i>	8 mm 100%	Grey- Green 100%	Circle 15%	Spot 2 67%	AA 67%	\$35
Pearl 2 <i>Characteristics</i> <i>Price Factors</i>	8 mm 100%	Grey- Green 100%	Round 100%	Spot 1 100%	AAA 100%	\$520
Factor Calculations	1.0	1.0	6.7	1.5	1.5	
Change in Value	\$35	\$233	\$233	\$348	\$520	

Figure 26. Marine Cultured-Pearl Quality and Price Dynamics

This figure highlights the retail pricing structure of two gray-green 8 mm pearls with different quality attributes.

Top quality pearl production is essential for the economic viability of marine cultured-pearl farms. Estimates in 2000 suggested that 95 percent of a pearl farm’s income came from two percent of its pearls (Haws, 2000). This is not surprising since, on average, only about 10 percent of a farm’s pearls are high grade commercial quality (Lo, 2014). Two main determinants of pearl quality are the technical skill of the grafter (including mantle tissue selection) and the environmental factors of the pearl farm. Experienced grafting technicians are highly valued and their grafting success rates are carefully tracked by producers. Although it is possible for a pearl farmer to learn how to

graft pearls, most employ grafting specialists who have perfected this skill over years of dedicated practice (Landman et al., 2001)

Compared to market drivers such as gold and diamonds, the overall pearl market is very small. Pearls, a micro-market within the entire jewelry industry, encompass only two to five percent of the global jewelry market (Brodbeck, 2010). Of this, only a small fraction of the pearl volume is comprised of marine cultured-pearls. Freshwater pearls make up the majority of the market volume (Gauthier & Karampelas, 2009). In the summer of 2013, Andy Muller estimated that the total value of seawater cultured-pearls was approximately US\$397 million (Muller, 2013).

In both production and economics, fresh-water pearl farming contrasts with the salt-water cultured pearl process outlined above. Most of the fresh water pearls are produced in inland lagoons in China. Freshwater pearl culturing began to overpower global markets during the late 1990's (Dirlam & Weldon, 2013). Rather than pearl oysters, fresh water farmers use mussels which can produce up to twenty or more pearls per mussel. These factors result in not only lower production cost but, until recently, lower quality pearls. Historically, freshwater pearls were usually small in size and rice shaped, clearly distinct from their round, large salt-water counterparts (Landman et al., 2001). In recent years however, the Chinese fresh water pearl industry has evolved, producing better quality pearls and, in some areas, such as Akoya pearls, closing the fresh-salt water quality gap. Given this new competitive threat, members of the salt-water cultured-pearl industry are becoming concerned about the price-value proposition for their cultured pearls (Cartier & Ali, 2012).

A2. Marine Cultured-Pearl Jewelry Production

This section provides additional detail surrounding the production stages of the marine cultured-pearl jewelry.

Pearl Production. The pearl culturing process begins with the collection of young pearl oysters, called spat. Pearl farmers obtain these juvenile pearl oysters (spat) from outside firms that specialize either in collection from the wild or from hatchery operators. These techniques vary by country (Southgate & Lucas, 2008). Many farmers in French Polynesia buy wild juvenile oysters from specialized spat collectors while others have successful internal spat collecting operations. In areas of Australia, adult wild oysters (of specific sizes) are collected under a strict quota system regulated by government (Southgate & Lucas, 2008). This ensures that the wild oyster stocks are not depleted and gives farmers access to strong adult oysters that can be used for cultured-pearl production (Southgate & Lucas, 2008).

Pearl farmers are responsible for caring for oysters until they reach a grafting size. After about a year, the marine pearl oysters are grafted. Oyster grafting, also called seeding, is a procedure that involves operating on an oyster so as to induce nacre secretion and the growth of a cultured pearl (Southgate & Lucas, 2008). The oyster is opened and a nucleus is inserted together with a piece of donor mantle tissue into the oyster (Southgate & Lucas, 2008). Senior operators can graft 600 shells per day (Jacques Christophe Branellec, 2014). Harvesting periods vary greatly between different pearl farms and depend on the size of their operations, water temperatures, and the current health of oysters (Southgate & Lucas, 2008). The marine cultured-pearl process from

oyster birth to pearl harvesting can take between three to five years (Southgate & Lucas, 2008).

After grafting, oysters are returned to the ocean. A healthy oyster is more likely to retain the nucleus, fight off diseases, and produce a higher quality cultured pearl (Southgate & Lucas, 2008). Good pearl farming practices include reducing stocking densities of oysters (cage and line) and frequent cleaning (defouling) of oysters (Southgate & Lucas, 2008). For the highest quality pearls, with many fine nacre layers, the oyster birth to pearl harvest can take up to five years (Southgate & Lucas, 2008). Oysters that have produced good quality pearls may be re-grafted to produce pearls for another cycle. In responsible pearl farming, particular attention is paid to oyster shell reuse and oyster meat uses.

Pearl Processing, Jewelry Manufacture, and Jewelry Distribution. Once the product is harvested, the pearls are sold, processed, and distributed for resale. Along with transportation and consolidation functions, jewelry making takes place in this stage. Only in very rare cases is the final jewelry produced in the place of pearl production. For instance, many Tahitian pearls are purchased by Hong Kong and Japanese traders. The pearls are then sorted into mixed pearl lots for sale. Even large producers only use a small number of pearls for their own jewelry with the remainder sold at auction or directly to a pearl middleman. Most pearl jewelry is manufactured into earrings, pendants and necklaces in Thailand or China. The jewelry-making process includes steps such as pearl drilling, mounting, and stringing (the art of putting together a well-balanced beautiful strand of pearls). All these stages prepare the pearl jewelry for retail sale.

A host of actors participate in the pearl processing and distribution, including vertically integrated pearl producers, pearl consolidators, traders and middlemen, jewelry manufacturers, and online or farm-direct retailers. Value is added to the pearl through preparing semi-finished products such as matching a necklace or pairing pearls for earrings. Many times pearls are purchased directly from farms by export consolidators because farms do not have sufficient quantity to sell directly to distributors.

Pearl Jewelry Sales. Jewelry store outlets remain the primary avenue for retail jewelry sales (Encyclopedia of American industries, 2011). According to the 2011 United States census, there are just over 23,000 jewelry stores distributed across the country (US Census Bureau, 2011). In addition, department stores and specialty outlets such as Costco are important channels in the United States market (Encyclopedia of American industries, 2011). In recent years, a new breed of retail, online stores, have appeared but sales through this new retail format will remain small in the near future. Unlike diamonds, which have a well-defined universal grading system, gem quality pearls have characteristics that are difficult to assess online. Another trend of importance is the emergence of vertically integrated pearl producers. In the last few years, large producers, such as Robert Wan, Jewelmer, and Paspaley, have expanded their retail presence in developed and developing countries. Their goal is to capture more of the high end jewelry margins which can be as high as five to six times the producer value (Brodbeck, 2010)

A3. Marine Cultured-Pearl Varieties

Marine cultured-pearls occur in a wide variety of shapes and colors. Marine cultured-pearl varieties include Black Pearls, White/Golden South Seas Pearls, Akoya Pearls, and Rainbow Lipped Pearls. These pearl varieties are commercially farmed in Australia, Indonesia, the Philippines, French Polynesia, Cook Islands, Fiji, Micronesia, and Mexico (Dirlam & Weldon, 2013)

Black Lipped Pearls (*Pinctada Margaritifera*). The *Pinctada Margaritifera* mollusk has a wide geographic distribution, including the Pacific Ocean, Indian Ocean, and Red Sea. Commercial pearl cultivation centers are located in French Polynesia, the Cook Islands, Fiji, and Micronesia (Southgate & Lucas, 2008). Currently, French Polynesia dominates the market with roughly 95 percent of the global production (Muller, 2013) and exports more than 90 percent of its pearl production (Haoatai & Monypenny, 2011). The dark, iridescent inner shell distinguishes the black-lipped pearl oyster from other species. Their pearls are generally black or gray but contain shades of blue, green, and silver (Southgate & Lucas, 2008).

White and Golden South Seas-Pearls (*Pinctada Maxima*). The *Pinctada Maxima* mollusk is one of the principle pearl species in the Indo-Pacific area. Commercial cultivation centers are located in Australia, Indonesia, Myanmar, and the Philippines. The *Pinctada Maxima* has white-lipped and gold-lipped varieties producing pearl colors ranging from silvery-white to deep-gold (Southgate & Lucas, 2008). Due to the mollusk's size, these South Seas pearls are typically larger than other commercially-

harvested cultured pearls with harvest sizes routinely over 10 mm in diameter (Shor, 2007).

Rainbow-Lipped Pearls (*Pteria Sterna*). The *Pteria Sterna* mollusk is distributed along the west coasts of the Americas, extending from the Mexican to Peruvian coasts. Commercial cultivation is limited to one area in the Gulf of California. The pearl colors are unique, sporting a true rainbow of hues (Southgate & Lucas, 2008).

Akoya Pearls (*Pinctada Facata/Martensii*). The *Pinctada Facata* (also called *Pinctada Imbricata*) mollusks, similar to the black lipped variety, have a wide geographic distribution. The earlier mentioned Japanese entrepreneur, Kokicki Mikimoto, commercialized cultured pearl farming with Akoya pearls in the early twentieth century (Landman et al., 2001). Currently, Akoya pearls are commercially farmed mainly in Japan with minor production in Vietnam and China (Muller, 2013; Southgate & Lucas, 2008).

BIBLIOGRAPHY

- Achabou, M. A., & Dekhili, S. (2013). Luxury and sustainable development: Is there a match? *Journal of Business Research*, 66(10), 1896–1903.
- Ali, S. H. (2010). *Treasures of the Earth: Need, Greed, and a Sustainable Future*. New Haven, Conn.; London: Yale University Press.
- Alkemade, F., Frenken, K., Hekkert, M. P., & Schwoon, M. (2009). A complex systems methodology to transition management. *Journal of Evolutionary Economics*, 19(4), 527–543.
- Anderson, W. T., & Cunningham, W. H. (1972). The Socially Conscious Consumer. *Journal of Marketing*, 36(3), 23–31.
- Andréfouët, S., Thomas, Y., & Lo, C. (2014). Amount and type of derelict gear from the declining black pearl oyster aquaculture in Ahe atoll lagoon, French Polynesia. *Marine Pollution Bulletin*, 83(1), 224–230.
- Antil, J. H. (1984). Socially Responsible Consumers: Profile and Implications for Public Policy. *Journal of Macromarketing*, 4(2), 18–39.
- Atkinson, L., & Kim, Y. (2014). “I Drink It Anyway and I Know I Shouldn’t”: Understanding Green Consumers’ Positive Evaluations of Norm-violating Non-green Products and Misleading Green Advertising. *Environmental Communication: A Journal of Nature and Culture*, 0(0), 1–21.
- Auger, P., Burke, P., Devinney, T. M., & Louviere, J. J. (2003). What will consumers pay for social product features? *Journal of Business Ethics*, 42(3), 281+.
- Auld, G., Balboa, C., Bartley, T., Cashore, B., & Levin, K. (2007). The Spread of the Certification Model: Understanding the Evolution of Non-State Market Driven Governance. *Conference Papers -- International Studies Association*, 1–44.
- Auld, G., Cashore, B., Balboa, C., Bozzi, L., & Renckens, S. (2010). Can Technological Innovations Improve Private Regulation in the Global Economy? *Business and Politics*, 12(3).
- Bair, J. (2009). *Frontiers of Commodity Chain Research*. Stanford University Press.
- Baum, J. A. C., & Oliver, C. (1991). Institutional Linkages and Organizational Mortality. *Administrative Science Quarterly*, 36(2), 187–218.
- Becker-Olsen, K. L., Cudmore, B. A., & Hill, R. P. (2006). The impact of perceived

- corporate social responsibility on consumer behavior. *Journal of Business Research*, 59(1), 46–53.
- Belk, R. W. (1988). Possessions and the Extended Self. *Journal of Consumer Research*, 15(2), 139–168.
- Bendell, J., & Kleanthous, A. (2007). *Deeper Luxury*. World Wildlife Fund. Retrieved from http://www.wwf.org.uk/deeperluxury/_downloads/DeeperluxuryReport.pdf
- Bernstein, S. (2004). Legitimacy in Global Environmental Governance. *Journal of International Law and International Relations*, 1, 139.
- Bernstein, S., & Cashore, B. (2000). Globalization, Four Paths of Internationalization and Domestic Policy Change: The Case of EcoForestry in British Columbia, Canada. *Canadian Journal of Political Science / Revue Canadienne de Science Politique*, 33(1), 67–99.
- Bernstein, S., & Cashore, B. (2007). Can non-state global governance be legitimate? An analytical framework. *Regulation & Governance*, 1(4), 347–371.
- Biermann, F., & Gupta, A. (2011). Accountability and legitimacy in earth system governance: A research framework. *Ecological Economics*, 70(11), 1856–1864.
- Biermann, F., & Pattberg, P. (2008). Global Environmental Governance: Taking Stock, Moving Forward. *Annual Review of Environment and Resources*, 33(1), 277–294.
- Biermann, F., Pattberg, P., van Asselt, H., & Zelli, F. (2009). The Fragmentation of Global Governance Architectures: A Framework for Analysis. *Global Environmental Politics*, 9(4), 14–40.
- Bitektine, A. (2011). Toward a Theory of Social Judgments of Organizations: The Case of Legitimacy, Reputation, and Status. *Academy of Management Review*, 36(1), 151–179.
- Boisvert, V., Méral, P., & Froger, G. (2013). Market-Based Instruments for Ecosystem Services: Institutional Innovation or Renovation? *Society & Natural Resources*, 0(0), 1–15.
- Boström, M. (2006). Regulatory Credibility and Authority through Inclusiveness: Standardization Organizations in Cases of Eco-Labeling. *Organization*, 13(3), 345–367.
- Brodbeck, D. (2010). *Etude du marché international de la perle de culture de Tahiti - Etude du marché international de la perle de culture de Tahiti*. Papeete, French Polynesia: Projet de professionnalisation et de pérennisation de la perliculture. Retrieved from <http://www.servicedelaperliculture.pf/spip.php?article12>

- Bucklin, L. P. (1963). Retail Strategy and the Classification of Consumer Goods. *Journal of Marketing*, 27(1), 50.
- Burke, L., Reytar, K., Spalding, M., & Perry, A. (2012). *Reefs at Risk Revisited*. World Resources Institute.
- Bush, S. R., Toonen, H., Oosterveer, P., & Mol, A. P. J. (2013). The “devils triangle” of MSC certification: Balancing credibility, accessibility and continuous improvement. *Marine Policy*, 37, 288–293.
- Cartier, L., & Ali, S. (2012). Pearl Farming as a Sustainable Development Path. *Solutions*, 3(4).
- Cartier, L., & Carpenter, K. E. (2014). The influence of pearl oyster farming on reef fish abundance and diversity in Ahe, French Polynesia. *Marine Pollution Bulletin*, 78(1–2), 43–50.
- Cartier, L., Krzemnicki, M., & Ito, M. (2012). Cultured pearl farming and production in the Federated States of Micronesia. *Gems & Gemology*, 48(2), 108–122.
- Cashore, B. (2002). Legitimacy and the Privatization of Environmental Governance: How Non–State Market–Driven (NSMD) Governance Systems Gain Rule–Making Authority. *Governance*, 15(4), 503–529.
- Cashore, B., Auld, G., & Newsom, D. (2003). Forest certification (eco-labeling) programs and their policy-making authority: explaining divergence among North American and European case studies. *Forest Policy & Economics*, 5(3), 225.
- Cashore, B., Auld, G., & Newsom, D. (2004). *Governing through markets : forest certification and the emergence of non-state authority / Benjamin Cashore, Graeme Auld, Deanna Newsom*. New Haven: Yale University Press.
- Catry, B. (2003). The great pretenders: the magic of luxury goods. *Business Strategy Review*, 14(3), 10–17.
- Cavalieri, G. (2012, December 12). *A CSR doctrine for the jewellery industry that is pertinent to our times*. Presented at the 3rd International Gem and Jewellery Conference GIT, Bangkok Thailand. Retrieved from <http://www.cibjo.org>
- Cavalieri, G. (2014, June 21). *Responsible business practices: global jewelery industry*. Presented at the Sustainable Pearl Forum, Hong Kong China.
- Cervellon, M.-C. (2013). Conspicuous Conservation: using semiotics to understand sustainable luxury. *International Journal of Market Research*, 55.

Cervellon, M.-C., & Shammass, L. (2013). The Value of Sustainable Luxury in Mature Markets: A Customer-Based Approach. *The Journal of Corporate Citizenship*, (52), 90–101.

Christmann, P., & Taylor, G. (2002). Globalization and the environment: Strategies for international voluntary environmental initiatives. *Academy of Management Executive*, 16(3), 121–135.

Cinner, J. E., McClanahan, T. R., Daw, T. M., Graham, N. A. J., Maina, J., Wilson, S. K., & Hughes, T. P. (2009). Linking Social and Ecological Systems to Sustain Coral Reef Fisheries. *Current Biology*, 19(3), 206–212.

Dacin, M. T., Oliver, C., & Roy, J.-P. (2007). The legitimacy of strategic alliances: an institutional perspective. *Strategic Management Journal*, 28(2), 169–187.

Davies, I., Lee, Z., & Ahonkhai, I. (2012). Do Consumers Care About Ethical-Luxury? *Journal of Business Ethics*, 106(1), 37–51.

De Barnier, V., Rodina, I., & Valette-Florence, P. (2006). Which luxury perceptions affect most consumer purchase behavior? A cross-cultural exploratory study in France, the United Kingdom and Russia. Presented at the International Congress “Marketing Trends,” Venice, Italy.

Delmas, M. A., & Montes-Sancho, M. J. (2010). Voluntary agreements to improve environmental quality: symbolic and substantive cooperation. *Strategic Management Journal*, 31(6), 575–601.

Dens, N., & De Pelsmacker, P. (2010). Consumer response to different advertising appeals for new products: The moderating influence of branding strategy and product category involvement. *Journal of Brand Management*, 18(1), 50–65.

De Nys, R., & Ison, O. (2008). Biofouling. In *The pearl oyster*. Elsevier.

Dirlam, D. M., & Weldon, R. (Eds.). (2013). *Splendour and Science of Pearls* (1st ed.). Carlsbad, California: GIA.

Dover, G., & Lawrence, T. B. (2010). A Gap Year for Institutional Theory: Integrating the Study of Institutional Work and Participatory Action Research. *Journal of Management Inquiry*, 19(4), 305–316.

Ecolabel Index. (2014). Retrieved September 25, 2014, from <http://www.ecolabelindex.com/>

- Edwards-Jones, G., Davies, B., & Hussain, S. S. (2009). *Ecological Economics: An Introduction*. John Wiley & Sons.
- Encyclopedia of American industries*. (2011). Gale Research.
- Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication*, 43(4), 51–58.
- Fischlein, M., & Smith, T. M. (2010). Rival private governance networks: Competing to define the rules of sustainability performance. *Global Environmental Change*, 20(3), 511+.
- Friedman, V. (2008). Michael Kowalski: Tiffany parades its voluntary standards. *FT.com*.
- Gallemore, C., & Munroe, D. K. (2013). Centralization in the global avoided deforestation collaboration network. *Global Environmental Change*, 23(5), 1199–1210.
- Gauthier, J.-P., & Karampelas, S. (2009). Pearls and Corals: “Trendy Biomineralizations.” *Elements*, 5(3), 179–180.
- Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, 36(3), 399–417.
- Gellner, J. (2014, February 15). *Pricing of Pearls*. Presented at the International Pearl Forum 2014, Munich Germany.
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The Governance of Global Value Chains. *Review of International Political Economy*, 12(1), 78–104.
- Gereffi, G., & Korzeniewicz, M. (1994). *Commodity chains and global capitalism*. Westport, Conn.: Praeger.
- Gibbon, P. (2001). Upgrading Primary Production: A Global Commodity Chain Approach. *World Development*, 29(2), 345–363.
- Golding, K., & Peattie, K. (2005). In search of a golden blend: perspectives on the marketing of fair trade coffee. *Sustainable Development*, 13(3), 154–165.
- Gulbrandsen, L. H. (2009). The emergence and effectiveness of the Marine Stewardship Council. *Marine Policy*, 33(4), 654–660.
- Gupta, A. (2008). Transparency under scrutiny: Information disclosure in global environmental governance. *Global Environmental Politics*, 8(2), 1–7.

- Gupta, A. (2010). Transparency in Global Environmental Governance: A Coming of Age? *Global Environmental Politics*, 10(3), 1–9.
- Guthman, J. (2008). Neoliberalism and the making of food politics in California. *Geoforum*, 39(3), 1171–1183.
- Halpern, B. S., Selkoe, K. A., Micheli, F., & Kappel, C. V. (2007). Evaluating and Ranking the Vulnerability of Global Marine Ecosystems to Anthropogenic Threats. *Conservation Biology*, 21(5), 1301–1315.
- Haoatai, H., & Monypenny, R. (2011). Export Demand for Tahitian Black Pearls. *Australasian Agribusiness Review*, 19, 1–15.
- Hartmann, P., Ibáñez, V. A., & Forcada Sainz, F. J. (2005). Green branding effects on attitude: functional versus emotional positioning strategies. *Marketing Intelligence & Planning*, 23(1), 9–29.
- Haws, M. C. (2000). *The Basics of Pearl Farming: A Layman's Manual*. Honolulu, Hawaii: Center for Tropical and Subtropical Aquaculture. Retrieved from <http://www.ctsa.org/publications>
- Hennigs, N., Wiedmann, K.-P., Klarmann, C., & Behrens, S. (2013). Sustainability as Part of the Luxury Essence: Delivering Value through Social and Environmental Excellence. *Journal of Corporate Citizenship*, 2013(52), 25–35.
- Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, 25(5), 481–492.
- Humphrey, C. D. & J. (2000). Governance and Trade in Fresh Vegetables: The Impact of UK Supermarkets on the African Horticulture Industry. *Journal of Development Studies*, 37(2), 147–176.
- Jacques Christophe Branellec. (2014, February 15). *Farming golden pearls in the Philippines*. Presented at the International Pearl Forum, Munich Germany.
- Janssen, C., Vanhamme, J., Lindgreen, A., & Lefebvre, C. (2014). The Catch-22 of Responsible Luxury: Effects of Luxury Product Characteristics on Consumers' Perception of Fit with Corporate Social Responsibility. *Journal of Business Ethics*, 119(1), 45–57.
- Jelbart, J. E., Schreider, M., & MacFarlane, G. R. (2011). An investigation of benthic sediments and macrofauna within pearl farms of Western Australia. *Aquaculture*, 319(3–4), 466–478.

- Jernakoff, P., & Wells, F. E. (2006). An assessment of the environmental impact of wild harvest pearl aquaculture (*Pinctada maxima*) in western Australia. *Journal of Shellfish Research*, 25(1), 141+.
- Joyce, K., & Addison, S. (1993). *Pearls: Ornament and Obsession* (First Edition edition.). New York: Simon & Schuster.
- Kane, R. E. (2009). Seeking Low-Cost Perfection: Synthetic Gems. *Elements*, 5(3), 169–174.
- Kapferer, J., & Michaut-denizeau, A. (2014). Is luxury compatible with sustainability? Luxury consumers' viewpoint. *Journal of Brand Management*, 21(1), 1–22.
- Kaplinsky, R. (2000). Globalisation and unequalisation: What can be learned from value chain analysis? *The Journal of Development Studies*, 37(2), 117–146.
- Kastner, T., Kastner, M., & Nonhebel, S. (2011). Tracing distant environmental impacts of agricultural products from a consumer perspective. *Ecological Economics*, 70(6), 1032–1040.
- King, A. A., & Lenox, M. J. (2000). Industry self-regulation without sanctions: The chemical industry's responsible care program. *Academy of Management Journal*, 43(4), 698–716.
- Koliba, C., Meek, J. W., & Zia, A. (2011). *Governance networks in public administration and public policy*. Boca Raton, Fla.: CRC Press.
- Landman, N. H., Mikkelsen, P., Bieler, R., & Bronson, B. (2001). *Pearls: A Natural History* (1st ed.). Harry N. Abrams.
- Lee, J., Gereffi, G., & Beauvais, J. (2012). Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries. *Proceedings of the National Academy of Sciences*, 109(31), 12326–12331.
- Lees, G., & Wright, M. (2004). The Effect of Concept Formulation on Concept Test Scores. *Journal of Product Innovation Management*, 21(6), 389–400.
- Lo, C. (2014). Personal Correspondence.
- Lozano, J., Blanco, E., & Rey-Maqueira, J. (2010). Can ecolabels survive in the long run?: The role of initial conditions. *Ecological Economics*, 69(12), 2525–2534.
- Lucas, J. (2008). Environmental Influences. In *The pearl oyster*. Elsevier.
- Luxury's little green secret. (2007, March 2). *Financial Times*, p. 6. London (UK),

United Kingdom.

Macpherson, C. (2000). Oasis or Mirage: The Farming of the Black Pearl in the Northern Cook Islands. *Pacific Studies*, 23, 33–55.

McDermott, C. L. (2012). Trust, legitimacy and power in forest certification: A case study of the FSC in British Columbia. *Geoforum*, 43(3), 634+.

Meadows, D. H. (2008). *Thinking in Systems: A Primer*. Chelsea Green Publishing.

Mele, V., & Schepers, D. H. (2013). E Pluribus Unum? Legitimacy Issues and Multi-stakeholder Codes of Conduct. *Journal of Business Ethics*, 118(3), 561–576.

Mena, S., & Palazzo, G. (2012). Input and Output Legitimacy of Multi-Stakeholder Initiatives: *Business Ethics Quarterly*, 22(3), 527–556.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed.). Sage Publications, Inc.

Mintrom, M. (1997). Policy entrepreneurs and the diffusion of innovation. *American Journal of Political Science*, 41(3), 738–770.

Mol, A. P. J. (in press). Transparency and value chain sustainability. *Journal of Cleaner Production*.

Mol, A. P. J. (2006). Environmental governance in the Information Age: the emergence of informational governance. *Environment and Planning C: Government and Policy*, 24(4), 497 – 514.

Monteforte, M., & Cariño, M. (1992). Exploration and Evaluation of Natural Stocks of Pearl Oysters *Pinctada mazatlanica* and *Pteria sterna* (Bivalvia: Pteriidae): La Paz Bay, South Baja California, Mexico. *Ambio*, 21(4), 314–320.

Moser, R., Schaefers, T., & Meise, J. N. (2012). Consumer Preferences for Product Transparency in Emerging Markets - Lessons Learned from India. *Marketing Review St. Gallen*, 29(3), 22–27.

MSC Board of Trustees. (2014, September). Retrieved September 25, 2014, from <http://www.msc.org/about-us/governance/structure>

Muller, A. (2013). *A brief Analysis of the Global Seawater Cultured Pearl Industry (Past, Present, Future)*. Hong Kong Jewellery & Gem Fair.

O'Connor, W. A., & Gifford, S. P. (2008). Environmental Impacts of Pearl Farming. In *The pearl oyster*. Elsevier.

- O'Toole, L. J., Jr., & Meier, K. J. (2004). Public Management in Intergovernmental Networks: Matching Structural Networks and Managerial Networking. *Journal of Public Administration Research and Theory: J-PART*, 14(4), 469–494.
- Pae Tai-Pae Uta. (2003). Étude d'Impact sur l'Environnement pour la Filière Perlicole dans l'Archipel des Tuamotu. *Papeete, French Polynesia*.
- Pattberg, P. (2005). The Institutionalization of Private Governance: How Business and Nonprofit Organizations Agree on Transnational Rules. *Governance*, 18(4), 589–610.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods (2nd ed.)*. Thousand Oaks, CA, US: Sage Publications, Inc.
- Pérez-Ramírez, M., Phillips, B., Lluch-Belda, D., & Lluch-Cota, S. (2012). Perspectives for implementing fisheries certification in developing countries. *Marine Policy*, 36(1), 297–302.
- Peters, N. J., Hofstetter, J. S., & Hoffmann, V. H. (2011). Institutional entrepreneurship capabilities for interorganizational sustainable supply chain strategies. *International Journal of Logistics Management*, 22(1), 52–86.
- Pirard, R. (2012). Market-based instruments for biodiversity and ecosystem services: A lexicon. *Environmental Science & Policy*, 19–20, 59–68.
- Plec, E., & Pettenger, M. (2012). Greenwashing Consumption: The Didactic Framing of ExxonMobil's Energy Solutions. *Environmental Communication: A Journal of Nature and Culture*, 6(4), 459–476.
- Press, D., & Mazmanian, D. A. (2010). Toward sustainable production: finding workable strategies for government and industry. In *Environmental Policy (7th edn., pp. 220–243)*. Washington, DC: CQ Press.
- Prno, J., & Slocombe, S. D. (2012). Exploring the origins of “social license to operate” in the mining sector: Perspectives from governance and sustainability theories. *Resources Policy*, 37(3), 346–357.
- Raynolds, L. T. (2002). Consumer/Producer Links in Fair Trade Coffee Networks. *Sociologia Ruralis*, 42(4), 404–424.
- Raynolds, L. T. (2012). Fair Trade: Social regulation in global food markets. *Journal of Rural Studies*, 28(3), 276–287.
- Ray, P. H., & Anderson, S. R. (2001). *The Cultural Creatives: How 50 Million People Are Changing the World*. Three Rivers Press.

- Renard, M.-C. (2003). Fair trade: quality, market and conventions. *Journal of Rural Studies*, 19(1), 87–96.
- Rex, E., & Baumann, H. (2007). Beyond ecolabels: what green marketing can learn from conventional marketing. *Journal of Cleaner Production*, 15(6), 567–576.
- Rivera, J. E. (2010). *Business and Public Policy: Responses to Environmental and Social Protection Processes*. Cambridge University Press.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). New York: Free Press.
- Romero, A., Chilbert, S., & Eisenhart, M. G. (1999). Cubagua's Pearl-Oyster beds: the first depletion of a natural resource caused by Europeans in the American continent. *Journal of Political Ecology*, 6(1), 57–78.
- Sammer, K., & Wüstenhagen, R. (2006). The influence of eco-labelling on consumer behaviour – results of a discrete choice analysis for washing machines. *Business Strategy and the Environment*, 15(3), 185–199.
- Sanguanpiyapan, T., & Jasper, C. (2010). Consumer insights into luxury goods: Why they shop where they do in a jewelry shopping setting. *Journal of Retailing and Consumer Services*, 17(2), 152–160.
- SAS Institute Inc. (2014). JMP® Pro (Version 11). Cary NC.
- Schouten, G., & Glasbergen, P. (2011). Creating legitimacy in global private governance: The case of the Roundtable on Sustainable Palm Oil. *Ecological Economics*, 70(11), 1891–1899.
- Schouten, G., Leroy, P., & Glasbergen, P. (2012). On the deliberative capacity of private multi-stakeholder governance: The Roundtables on Responsible Soy and Sustainable Palm Oil. *Ecological Economics*, 83, 42–50.
- Shah, K. U. (2011). Organizational Legitimacy and the Strategic Bridging Ability of Green Alliances. *Business Strategy and the Environment*, 20(8), 498–511.
- Shaw, D., & Newholm, T. (2002). Voluntary simplicity and the ethics of consumption. *Psychology and Marketing*, 19(2), 167–185.
- Shor, R. (2007). From Single Source to Global Free Market: the Transformation of the Cultured Pearl Industry. *Gems & Gemology*, 43(3), 200–226.
- Smith, G., & Feldman, D. (2003). *Company codes of conduct and international standards: An analytical comparison*. World Bank.

- Smith, S. M., & Albaum, G. S. (2005). *Fundamentals of Marketing Research*. SAGE.
- Southgate, P., & Lucas, J. (Eds.). (2008). *The Pearl Oyster* (1st ed.). Elsevier Science.
- Stevens, R. E. (2006). *The Marketing Research Guide*. Routledge.
- Stiglitz, J. E. (2006). *Making globalization work*. New York: W.W. Norton & Co.
- Strack, E. (2008). Introduction. In *The pearl oyster* (pp. 1–35). Elsevier.
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research (text only) 2nd(Second) edition* by A. C. Strauss, J. M. Corbin (2nd ed.). Sage Publications, Inc.
- Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *The Academy of Management Review*, 20(3), 571–610.
- Talbot, J. (2009). The comparative advantages of tropical commodity chain analysis. *Frontiers of Commodity Chain Research*, 93–109.
- Taylor, J., & Strack, E. (2008). Pearl Production. In *The pearl oyster*. Elsevier.
- ThisFish | Seafood Traceability. (2014). Retrieved September 26, 2014, from <http://thisfish.info/about/what/>
- Thomas, D. (2008). *Deluxe: How Luxury Lost Its Luster* (Reprint edition.). New York: Penguin Books.
- Thompson, J. D. (1967). *Organizations in action; social science bases of administrative theory*. New York: McGraw-Hill.
- Tisdell, C., & Poirine, B. (1998). *Socio-Economics of Pearl Culture: Industry Changes and Comparisons focusing on Australia and French Polynesia*. University of Queensland.
- Torelli, C. J., Monga, A. B., & Kaikati, A. M. (2012). Doing Poorly by Doing Good: Corporate Social Responsibility and Brand Concepts. *Journal of Consumer Research*, 38(5), 948–963.
- Tran, N., Bailey, C., Wilson, N., & Phillips, M. (2013). Governance of Global Value Chains in Response to Food Safety and Certification Standards: The Case of Shrimp from Vietnam. *World Development*, 45, 325–336.
- Ugla, Y., & Olausson, U. (2012). The Enrollment of Nature in Tourist Information: Framing Urban Nature as “the Other.” *Environmental Communication: A Journal of Nature and Culture*, 7(1), 97–112.

- US Census Bureau. (2011). Retrieved from <http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>
- VanDeveer, S. (2007). Comparing Transnational State Driven and Non-State Certification Schemes: Lessons from Fair Trade and Extractive Industries Campaigns. *Conference Papers -- International Studies Association*, 1.
- Vigneron, F., & Johnson, L. W. (1999). A Review and a Conceptual Framework of Prestige-Seeking Consumer Behavior. *Academy of Marketing Science Review*, 1999, 1.
- Vigneron, F., & Johnson, L. W. (2004). Measuring perceptions of brand luxury. *Journal of Brand Management*, 11(6), 484–506.
- Von Geibler, J. (2013). Market-based governance for sustainability in value chains: conditions for successful standard setting in the palm oil sector. *Journal of Cleaner Production*, 56, 39–53.
- Wahl, A., & Bull, G. Q. (2014). Mapping Research Topics and Theories in Private Regulation for Sustainability in Global Value Chains. *Journal of Business Ethics*, 124(4), 585–608.
- Ward, D., & Chiari, C. (2008, October 28). Keeping Luxury Inaccessible. Retrieved August 13, 2012, from <http://mpa.ub.uni-muenchen.de/11373/>
- Wassmer, U., Paquin, R., & Sharma, S. (2012). The Engagement of Firms in Environmental Collaborations: Existing Contributions and Future Directions. *Business & Society*.
- Webster, F. E. (1975). Determining the Characteristics of the Socially Conscious Consumer. *Journal of Consumer Research*, 2(3), 188–196.
- Wiedmann, K.-P., Hennigs, N., & Siebels, A. (2007). Measuring consumers' luxury value perception: a cross-cultural framework. *Academy of Marketing Science Review*, 7(7), 333–361.
- Young, S. B., Fonseca, A., & Dias, G. (2010). Principles for responsible metals supply to electronics. *Social Responsibility Journal*, 6(1), 126–142.