
How do Dutch retailers and importers of shrimp cope with the multiplicity of certification schemes on sustainable shrimp?



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Abstract

Shrimp farming has attracted criticism of being destructive to marine ecosystems and mangrove forests, livelihoods and of high use of antibiotics. Third-party certification is a way to ensure these concerns are addressed by the farms. Based on findings in the scientific literature, the current MSc Thesis indicated four major certification schemes on sustainable seafood: Aquaculture Stewardship Council (ASC), Best Aquaculture Practices (BAP), GlobalGAP (GGAP) and Friend of the Sea (FoS). The existence of several certification schemes on sustainable seafood might have some negative consequences, which may hinder the adoption of practices aimed at sustainability. Multiplicity might confuse consumers, increase costs of the companies and lead to contradictory implementation of sustainable practices. The objectives of the research are both empirical and theoretical. The first relates to the preferences and the tactics of Dutch importers and retailers to manage this multiple standards. The second connects to the debates and future development of the aforementioned standards.

The MSc thesis answers the question whether and how shrimp importers and retailers cope with the existence of multiple standards. The MSc research reviewed existing official documents of the certification schemes and conducted interviews with various importers and retailers. The MSc thesis consists of four different research questions. First, MSc thesis presents to what extend certification schemes differ in their organizational structure, supporting stakeholders and the content of the standards. Second, the thesis follows the power relations in the value chain, especially those between importers and retailers as these relations determine the ability to make independent choices. Third, the criteria of importers and retailers to choose for a certification scheme are analyzed. These were separated into two groups: based on the reputation and stakeholder networks on the one hand and the content of the standards, on the other. Fourth, the MSc thesis discusses the tactics to manage the multiplicity adopted by retailers and importers. Main conclusions of the MSc research are that the shrimp value is retailer-driven, reputation is the main reason for choosing a certification scheme and that multiplicity is mainly a problem for the importers, especially for the smaller companies. Finally, the empirical and theoretical implications of the research are discussed. The emphasis falls on the role of the NGOs in driving the certification and the indications for convergence between the schemes.

Keywords: Shrimp, multiplicity, networks, content of the standards, importers, retailers

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1. Introduction: Problem Statement. Structure of the MSc thesis

1.1 Problem Statement

Aquaculture is one of the fastest growing food production sectors in the world. The global aquaculture production has an annual growth of 7 per cent. As the capture of fisheries has reached their limits and the global demand for aquatic food continues to rise, global aquaculture would grow at least to 80 million tones per year to respond to the demand (FAO, 2006). Shrimp farming is a substantial aquaculture sector in China, India and South-East Asia but also in Latin America in countries such as Ecuador, Brazil (WWF, 2013) and recently, Mexico (NACA, 2005). Aquaculture has also been included in the talks over food security with the FAO project “the Aquaculture for Food Security, Poverty Alleviation and Nutrition” (AFSPAN, 2013).

Along with its remarkable growth, shrimp industry has attracted criticism of being destructive to marine ecosystems and mangrove forests, livelihoods and of high use of antibiotics (FAO, 2008). Issues of animal rights in aquaculture also attract attention of the civil society (WWF, 2010). Consumers are increasingly becoming aware that their purchasing choices can be used to make businesses more sustainable. Young et al. (1999) names this phenomenon “green consumerism”. A major challenge is that the ethical consumer can not measure the value of the products on the market shelves as the ethic qualities are a result of a production process and not of the qualities of the product itself (Klintman and Boström, 2011). Therefore, there is a need of guarantees. Governments have established food safety control agencies but they only respond to the health concerns of the consumers. State agencies are perceived as inadequate to ensure quality and sustainability of the goods on the market (FAO, 2013, page 5). In addition, control of the production processes goes beyond the reach of state authorities as global trade products are produced in different sovereign countries. As a result, private regulations of transnational stakeholders have come to fill the regulation gap (Oosterveer and Sonnenfeld 2012, page 13-33).

Certification is a procedure by which a certification body gives written or equivalent assurance that a product, process or service conforms to specified requirements (FAO, 2011). These requirements may concern food safety, environmental, socio-economic impacts or animal welfare and are incorporated into approved documents (standards) against which the product is evaluated. Certification can be public (done by state institutions) or private (FAO, 2011). State ability to regulate food trade is limited by the rules of the World Trade Organization (WTO). States can impose additional requirements on food trade only on condition that food quality and the human and animal health are under threat. Imposing barriers on food trade for other reasons (such as environmental impact) can lead to international sanctions. This further increases the importance of the private standards and certification (Oosterveer and Sonnenfeld, 2012, page 69-71).

The four components of any certification process are standard setting, compliance verification, awarding the certification document and revision. A certification has a standard setter that determines the principles and rules of the certification criteria against which the certified

products will be evaluated. Standard setters often (but not always) are responsible for the scheme management (Resolve, 2012). The assessment component is carried out by auditors, certification bodies and accreditation bodies. Auditors are the individuals who assess the compliance. Audit can vary from a checklist to more sophisticated methods including interviews with employees, managers and etc. Certification bodies make a decision to award a certificate to the applicant on the basis of the audit. Accreditation bodies evaluate the work of the certification bodies and whether they comply with the established standards. There are three models of compliance assurance: first-party assessment (self-assessment), second-party assessment (done by an interested party i.e. buyer) and third-party assessment (done by party unrelated to the entity being assessed). The fourth and last component of the certification is the evaluation of the schemes and the feedback given by the stakeholders (Resolve, 2012).



Figure 1. *Components of certification (Source: Resolve, 2012).*

The research problem is about the existence of four big certification schemes on shrimp (based on papers of WWF, 2007; DNV, 2010; FAO, 2011 and the article of Boyd and McNevin, 2011). This multiplicity may create confusion among consumers and contradictory implementation of sustainable practices. Application of several different standards may also lead to increase in costs of the companies (Fransen, 2011, Reinecke et al., 2012) on the market. All these consequences of the multiplicity may hinder the adoption of practices aimed at sustainability. The current MSc thesis will focus on certification schemes Aquaculture Stewardship Council (ASC), Best Aquaculture Practices (BAP), GlobalGAP and Friend of the Sea, which are the most widely used certifications (see DNV, 2010; WWF, 2007). Organic shrimp certifications are outside the scope of the current study because of their limited market share (Boyd and McNevin, 2011).

Although the certification is mainly aimed at the farm level, the consumption of the globally traded shrimp mostly takes place in Western countries and Japan (FAO, 2012, page 77). In the food sector the retailers are the point where the product reaches the final consumers and have concentrated enormous economic power (Gereffi et al., 2005, Oosterveer and Sonnenfeld 2012, page 200-203). The retailer decision to support or demand a certification may have significant impact on the shrimp value chains and on the development of the certification schemes. The other group in which the current research is interested is the importers. They link the exporting companies and the producers in developing countries with the retailer sector and the consumers in developed countries. They often process and package the imported shrimp (CBI, 2010). While importers are important part of the shrimp value chain, compared to retailers, they receive little attention from the literature. Due to logistic reasons (the author is based in Wageningen, the Netherlands), the study will concentrate on the Dutch importers and retailers.

The current MSc Thesis has theoretical and empirical objectives related to the existence of multiple certification schemes on sustainable shrimp. First, the thesis aims at studying the preferences of retailers and importers in choosing a certifications scheme and thus, it hopes to contribute to future attempts to increase the spread of certification schemes on sustainable shrimp. Second, the thesis has to contribute to the theoretical debate on multiplicity of certification schemes. This multiplicity manifests itself in pluralism in the standards content and the configuration of stakeholders supporting the certification schemes.

The research question is: **how do Dutch importers and retailers of shrimp cope with the multiplicity of certification schemes on shrimp in the European Union?**

This question can be further divided into several sub-questions.

- What are the differences of the certification schemes on sustainable shrimp in terms of organization, stakeholder participation and the standards content?
- What is the power relation between the Dutch importers and retailers?
- What are the criteria, which Dutch importers and retailers use to make a choice of a certification scheme on sustainable shrimp?
- How multiplicity of certification schemes on sustainable shrimp is viewed by Dutch importers and retailers? Is it a problem and what are the strategies for its resolution?

In order to answer these questions, the MSc thesis will use the studies of Gereffi (1994) and Gereffi et al. (2009), Smith and Fischlein (2010) and Reinecke et al. (2012). The global value chain theory developed by Gereffi (1994) and Gereffi et al. (2009) is the theory that can best explain the power relations between importers and retailers and their freedom to make independent choices. The study of Smith and Fischlein (2010) introduces the importance of reputation as criteria for the choice. Their study reflects on competition between the certification schemes by their involvement in various stakeholder networks. The paper of Reinecke et al. (2012) gives another perspective on the competition between certification schemes: that of the content of the standards. Schemes make alterations in some of their attributes to attract supporters but keep consensus with the other schemes over critical issues.

1.2 Structure of the MSc Thesis

Including the introduction, the MSc thesis consists of eight chapters. The rest of the thesis will be structured as follows:

In chapter 2 the MSc thesis will present the theories and the key elements that guided the research. This will be followed by explanations of the research methodology.

Chapter 3 shows the results of the comparison between the certification schemes. This includes their organizational specifics, the content of the standards. The chapter ends with a comparison of the older and newer version of the BAP standard in order to draw some conclusions about the development of the certification schemes.

Chapter 4, 5 and 6 present the results of the interviews made. Chapter 4 focuses on the issues of power in the value chain and between the retailers and importers. Chapter 5 shows which characteristics of the certification schemes (good reputation or standards content) are most attractive to importers and retailers. Chapter 6 discusses whether multiplicity of standards is problematic and what the tactics of the importers and retailers are in order to overcome potential problems.

Chapter 7 summarizes the results of the research and answers the research questions. The chapter also discusses the practical and theoretical implications of the research.

Chapter 8 contains the limitations of the MSc thesis and makes a recommendation for further research.

2. Conceptual Framework and Methodology

2.1 Conceptual Framework

Most aquaculture certifications aim at sustainable development, which as a concept is defined by the World Commission on Environment and Development (1987) as “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This broader concept of sustainability includes environmental and social welfare concerns as well as food safety issues. In its benchmarking report on certification, WWF (2007) also includes animal welfare.

The study compares the four standards on the basis of their governance and content. Attention is paid to the classification of DNV (2010) of the requirements as management plan based, descriptive and value-based. This might reveal some principal differences in committing the audit against the schemes. With regards to the governance structure and the relations between the supporters of the scheme (horizontal and vertical partners), the study builds on the theory of Smith and Fischlein (2010). For studying the trends (differentiation, convergence) between the certification schemes, the study makes use of the theoretical framework of Reinecke et al. (2012). With regards to the content, the schemes are compared on the basis of the four aspects of sustainability plus compliance to the national laws as a fifth principle. The latter is needed because certification schemes can be sometimes viewed as a competitor to the national authority (Resolve, 2012, page 35).

The subject of the research is the choices made by retailers and importers. These choices can be restricted by the power of different actors in the value chain. Power is the “the capacity or ability to direct or influence the behavior of others or the course of events” (The Oxford Dictionary, 2014). Issues of power and governance in the global value chain are the main theme in the work of Gereffi (1994). Gereffi (1994) define two types of global value chain governance: buyer-driven and producer-driven. Producer-driven value chains are characterized by capital and technology intensive industries and are dominated by the manufacturers. Buyer-driven chains have a labor-intensive production process where the decentralized production systems are coordinated and controlled by retailers and traders (Gereffi, 1994, Gereffi et al., 2005, Tran et al. 2013). The departure point is the work of Arndt and Kzierzowski (2001), which describes the separation of the production process in different countries as “fragmentation”. These activities are: production of the inputs (feed and broodstock), growing, processing, distribution and retail (Gereffi et al., 2009). As a result, the importance of inter-firm networks operating across different countries has grown. These firms depending on their position in the value chain are classified as producer, processors (factories), traders (middlemen, exporters and importers) and retailers (Gereffi, 1994; Gereffi et al. 2009, Boyd and McNevin, 2011).

There are different ways to exercise power over the other stakeholders and control over these spatially separated activities. Vertical integration and direct ownership over the production are one way to proceed but it involves transaction costs. Networking via mutual dependence and trust is another strategy (Gereffi et al., 2005). In this way *governance structures* are shaped, which highlights authority and power in the flows of goods but also information along the chain (Gereffi et al., 2009). There are five types of coordination: by price (ad-hoc partnerships

on the spot market), by explicit coordination (modular, relational and captive depending on the level of coordination) and by ownership (vertical integration) (Gereffi et al., 2005). While the two extremes (coordination by price and ownership) are self-explanatory, the three types of explicit coordination need to be further discussed. The modular explicit coordination is where actors still switch partners and products follow accepted parameters (the certification standards and quality parameters). The ability to switch partners is limited in relational type of coordination as the parties are mutually dependant. The ability to switch partners is only limited for one of the parties in a captive relationship, which leads to the domination of the other party. From the preceding lines, the study used two indicators to measure power between the actors: the ability to switch partners, and to define the price and characteristics of the traded product.

The governance structures exist within a context shaped by the three other components of the value chain: *inputs and outputs, geography and institutions*. (Gereffi et al., 2009) The fragmentation of inputs and outputs in various geographic locations has been already discussed above. However, for the analysis of the choices that the stakeholders made, a special attention will be paid to the *institutional framework* (governments and non-governmental organizations (NGOs)). Although they do not strictly participate in the production activities and the shrimp value chain, they determine the regulatory environment and may influence the preferences of the actors for one certification scheme or another. The role of these stakeholders will be one of the points in the chapter discussing the criteria for the choices.

There are two different perspectives to the criteria for the choice of a certification scheme: one based on the stakeholder networks behind the certification schemes and the other on the content of the standards. The study of Fischlein and Smith (2010) focuses on the interplay between networks of actors and the flow of reputation. Networks compete to set the rules in new organizational fields such as the sustainability. In their struggle networks attempt to attract key partners and to use their assets in their struggle. There are two groups of partners: horizontal and downstream (vertical) partners. Horizontal partners have access to the “inner cycle” of standard development and management. Horizontal actors contribute with access to inputs (scientific, managerial, social) and provide exclusive access to their networks. Competitive schemes are denied access to these resources. Downstream partners are those that apply the created standards and have no or limited access to governance bodies of the scheme. Downstream partners contribute with capital and knowledge but their resources are not exclusive to a single certification scheme.

Actors can also benefit from the network by acquiring positive reputation. Reputation is “a general assessment of the desirable conduct of an organization that is publicly formed and held” (Dasgupta, 2000). Reputation has a role in improving the competitiveness of the companies (van Woerkum and Lieshout, 2007). As noted by Smith and Fischlein (2010), there is a two-way transfer of reputation between the partners of a network, which a certification scheme is. Therefore, the quest for affiliation with a rule-setting network and acquiring a positive reputation is expected to be one of the motivations for a choice of a certification scheme. A logo can communicate to the public affiliation with a certification scheme that guarantees that the product is sustainable. Logo is “a recognizable and distinctive graphic design, stylized name, unique symbol, or other device for identifying an organization” (Business Dictionary, 2013). As noted by van Woerkum and Lieshout (2007), reputation and image are linked to each other. Other researchers (Reinecke et al. 2012) emphasize the role of the content of the standards. According to the second view, the Dutch importers and retailers will argument their choices on the basis of the standards cover of environmental and social

sustainability and food safety. References to the costs of the implementation of the standard and the price of the certified product will also be taken under account. The study will try to find out the relationship between the two perspectives and more specifically, which perspective dominates among the businesses.

Finally, the study discusses whether the multiplicity of certification schemes is a problem and for whom it might be a problem. Based on the studies of Reinecke et al. (2012) and Fransen (2011), indicators for problematic multiplicity are increased certification costs and confusion among companies and consumers. Additional indicator is whether importer and retailers have expressed desire for convergence and even merge of the schemes. The study will summarize the tactics of the different stakeholders and whether they are reflected by the development of the certification schemes. From this point, the study of Reinecke et al. (2012) is useful as it discusses the trends of “meta-standardization” in the coffee industry. It claims standards converge in some criteria and differentiate in other. Thus, “rules of the game level” (Reinecke et al. 2012) is created but schemes preserve unique characteristics on the basis of which they are chosen. The current study will expand this terminology upon the networks and observe whether there is convergence between the horizontal and vertical networks.

2.2 Methods & Methodology

The MSc thesis used a literature review for acquiring background information, the theoretical framework, background information and for comparing the standards. Information on the power relations between the stakeholders, their preferences and tactics are mainly derived from semi-structured interviews and questionnaires supplemented by consultations on particular topics with people from the field of sustainability. Units of the analysis are Dutch importers and retailers and the selection for the interviews will be on the basis of snowball and convenience sampling. As retailers and importers do not become certified under the farm standards, by “choice” and “coping with” certification schemes, the study understands their decision to demand a certain certification and/or become certified under a chain of custody of a scheme.

The comparison of standards will determine how different the standards are, which will be an object of choice from retailers and importers. Standards comparison is also important to trace how standards have evolved and whether they follow the preferences of retailers and importers. The study used not only the standard documents of ASC, GGAP, BAP and FoS but also audit manuals and checklists and in several cases, personal communication. For the standards comparison, the methodologies suggested by Marrit Rooda, standards coordinator at ASC was be used. Reason for the first choice was the fact the author of the study had already used the aforementioned methodology while carrying out a task of standards comparison for the ASC. Another reason is that the methodology includes comparison at the lowest level (indicators and requirements of the standards themselves). In order to prevent bias against any of the certification schemes, the current study removed and added different indicators and requirements and ensured that all requirements and indicators demanded by other certification schemes and not by ASC (in animal welfare and food safety, for example) are included. The comparison was organized on the existence of common elements between the various requirements and indicators and their emphasis in scientific literature, the FAO Guidelines and ILO documents. The current research also used a study made by the certification body

DNV because of its reputation and practical experience in the field of seafood certification and its emphasis on the different ways of assessment against the standard (i.e. through management plan, description of desired outcome or measurement of certain values).

The answer of the remaining research questions on power relations, preferences and tactics of retailers and importers were acquired by the means of interviews. Interviewees were employees of importers of seafood and retailers. Their positions were of traders, food quality managers and sustainability managers (see Annex B Table B1). Some of the results were also discussed with employees of an NGO. As the number of importers and retailers is limited, the author of the current study tried to access as many companies as possible. For the purpose lists with Dutch importer companies from the Internet were used. In order to assure that important companies were not missed, interviewees were asked for names of big companies from the sector.

There was significant problem with access to leading importers and retailers, which was partly overcome through the support of Wageningen University. The author successfully contacted various companies (or their former employees), which have more than half of the market share in the importer and retailer sector. Most of the companies were operating in the Netherlands. Two interviews were conducted with employees at a trader and managerial level of a big exporter and importer company working in the Spanish and French market. It gave an insight on some general trends on the European market. As part of the interviewees requested staying anonymous, the study will not reveal the identity of the interviewees and the companies.

Interviews were based on a list of questions whose consequence was adapted per interviewee. The questions were based on the commitments made on company's websites, concepts found in the scientific literature or topics underscored by previous interviewees. During the research process, the interview questions underwent some modifications but the main topics were kept. Both oral interviews and questionnaires were used. The oral interviews varied significantly in length and content because different interviewees showed different availability and willingness to be interviewed. In general, the bigger companies were willing to give longer interviews, which allowed the use of more narrative approach. Story-telling and unsolicited answers reduce the influence of the researcher on what is said (Atkinson and Hammersley, 2007, p. 101). All of the interviews were conducted through the telephone and therefore, the non-verbal behavior of the interviewees was impossible to be evaluated.

Either note-taking or taping of the interviews was used after which a summary of the interviews was written. For processing of the written information, the study adopted a thematic content analysis (Green and Thorogood, 2004, p. 177-180) where the various themes in the different interviews were marked. The presence/absence of certain topics and the accounts on these topics were then analyzed and included into the chapters of the current study.

In order to increase the factual soundness (validity) of the findings and their better understanding, more than one method was used (triangulation of methods (Green and Thorogood, 2004, p. 207). The interview findings were juxtaposed with information from scientific literature, which gave the theoretical framework and the context of the study. In addition, in several cases, observation on the market shelves of the supermarket was used.

3. Comparison of the Certification Schemes

The current chapter will compare the four certification schemes (GAA/BAP, GGAP, ASC and FoS) with regards to the scope, organizational structure and how internal and external stakeholders are involved and can influence the making of standards. The sources such as WWF (2010), DNV (2010), Boyd and McNevin (2011) point out the four as main certification for sustainable seafood (including shrimp). The four organizations have different genesis, scope (GGAP for example covers also crops and animal husbandry) and procedures, which affect their future development and potentially, their appeal for the stakeholders. The coming chapter will also trace the similarities and differences in the structure and content of the standards. Finally, the chapter ends with a study on the most recent update of one of the standards (BAP) and how it differs from the previous version. This last step might indicate future trend of evolution of the standards.

3.1 Comparison of the Organizational Structure

3.1.1 Scope

Global Aquaculture Alliance (GAA) is responsible for the development of Best Aquaculture Practices (BAP) standards, which includes standards for hatcheries, farms, processing facilities, repacking facilities and feed mills. GAA does not have explicit chain of custody standard, which is integrated into the other BAP standards. ASC and GGAP have a farm and chain of custody standards. GGAP is the only scheme that requires farms to be compliant with more than one standard: All Farm Base and Aquaculture Standards. GGAP has three other standards that are beyond the scope of this thesis: crops, livestock and feed. FoS has a standard both for aquaculture farms and wild-catch fisheries and requires traceability. FoS does not have a separate chain of custody standard.

3.1.2 Organizational Structures

The four organizations have different genesis and created in a different time. The oldest in aquaculture is GAA, which began in 1997 as a trade association of producers and importers (Kalfagianni and Pattberg, 2013; GAA, 2014). In the same year GGAP (then EurepGAP) has been found by retailers and producers but its initial scope did not include aquaculture. In the early 2000s attempts have been to create modules for different species such as shrimp and salmon. Eventually, one standard for all the aquaculture species was created in 2011 (Seafood Source, 2011). FoS was founded in 2006 by Paolo Bray, then European director of Earth Island Institute Dolphin-Safe Project, the most popular certification in tuna. ASC is the most recent certification scheme that was founded in 2010 (ASC Deed, 2010) by the environmental NGO WWF and the Dutch NGO for development IDH (Initiatief Duurzame Handel or Dutch Initiative for Sustainable Trade). The current constitution of the Boards of the four organizations, which take the strategic decisions and approve the final standards, reflects their origins. GAA board is comprised of representatives of industry (importers and producers) as well as officers of GAA and the standards team for BAP (GAA, 2014). GGAP board if filled

by representatives of producers and retailers (GGAP, 2014). FoS Board is dominated by NGO activists related to the Dolphin Safe Project (FoS, 2014). The ASC Board includes members of IDH, WWF, fish and feed industry (ASC, 2014). GGAP and GAA have membership, which gives the right to elect the Board and be represented in various committees. GGAP membership is reserved for retailers and producers where aquaculture is only a fraction of all the members. GAA is strictly aquaculture oriented with producers, importers, food service as its members.

The schemes try to establish partnerships with external stakeholders, which are not represented in the Board. All of the schemes have technical committees, which do the technical work in preparing the standards. Technical committees include experts and representatives of affected stakeholders and try to achieve balance between stakeholders interests and science. ASC and GGAP also have a Stakeholder committees to facilitate the interaction with interested parties and key stakeholders. GGAP has committees to facilitate the interaction with certification bodies.

3.1.3 Standard Setting, Revision and Involvement of External Stakeholders

GGAP, BAP and FoS have procedures for standard-setting and revision. According to these procedures, the standards are prepared or revised in technical working groups, which undergo one or two rounds of comment process by external stakeholders. FoS does not have requirement for comment by external stakeholders. ASC does not have an official standard-setting procedure as ASC standard-setting process precedes the creation of the ASC. These standards were a result of years-long extensive stakeholder consultation (NGOs, industry and scientists) organized by the WWF as Aquaculture Dialogues. However, it is currently working on such a procedure that has to be in line with the ISEAL requirements. This includes two rounds of comment by external stakeholders (pers. comm. with ASC, 2013).

3.1.4 Assessment against the Standards

All the four standards use third-party certification for assessment against their standards. The certification is done by special entities (certification bodies), which are independent from the standard owner organization. ASC is the only scheme that publishes the full reports of the certification bodies, on the basis of which certification is granted.

The certification bodies undergo a special procedure giving them right to certify. This is so called accreditation procedure. GAA, GGAP and ASC use the services of independent accreditation organizations while FoS requires accreditation by national authorities. Originally, the accreditation for GAA was done by a body related to the organization but GAA has abandoned this practice (GAA, 2014).

3.2 Structure and Content of the Standards

3.2.1 Structure of the Standards

ASC and BAP have a standard document and a checklist for (self-)auditing of the standards. ASC is the only standard that makes public the instructions to the auditors. Both BAP and ASC have extensive description of the reason for the requirements and the implementation. GGAP is the only of the four standards that require compliance of the farms with more than

one standard document. Aquaculture producers have to comply with two standards: The All Farm standards (compulsory for all GGAP standards) and the Aquaculture Standard of GGAP. The GRASP (social) standard is voluntary. GGAP does not have different documents for the standard and the checklist. GGAP document resembles the audit manual of ASC and to some extend BAP. FoS also does not have a separate the standard document but the checklist is very generally formulated and explains very little on the auditing process itself. In some situation that makes the standard less clear than ASC, GGAP and BAP. (for more details, use the Annex)

BAP, GGAP and ASC have differences in how they name and arrange the various levels of the standards from principles to instructions to the applicants for self-evaluation (compliance criteria). However, their level arrangement is similar to each other. FoS have been less consistent in the elaboration of the different levels.

With regards to the determining the final decision for granting a certification, there are two approaches. ASC and BAP require covering of all the requirements of the standards. BAP and ASC can allow certain extend of non-conformity with the requirements. BAP mentions three types of non-conformities: critical (concerning food safety and legal compliance), major (general policies) and minor non-conformities. The first group is most serious and leads to loss of the certification or for non-certified farms, failure to certify. The other two allow for corrective actions by the certified farm. ASC classifies non-conformity into major and minor. Major non-conformity leads to failure to certify. Minor non-conformity has to be addressed within a period that shall not exceed 1 year. Until formal definition for these non-conformities is elaborated by ASC, non-conformities are defined by the certification bodies. (pers. comm. with ASC, 2013).

Other standards require compliance only with a certain percentage of the requirements. GGAP divides its compliance points into major and minor musts. Each of the two compulsory standards (All farm and Aquaculture) GGAP requires full compliance with 100% of the major musts and 95% with the minor musts. FoS divides the requirements into essential, important and recommendation. Shortfall with the essential requirements results has to be addressed before certification. Shortfall with an important requirement requires proposal of a corrective action plan before the certificate is granted. Within a year the plan has to be implemented. Non-compliance with a recommendation will not affect the certification but it will be noted in the documentation.

3.2.2 Content of the Standards

The current section uses the final version of the standards as of January 2014. Up to this date, ASC Shrimp Standard is still not operational but is on the stage of its final draft. The four standards will be compared in the three major field of sustainability: environmental, social and food safety. In addition to that, animal welfare has been emphasized by certain stakeholders (WWF, 2007). As an overarching principle, all standards emphasize the compliance with the national laws in the producing country. As a result, the standards will be grouped in these five criteria: legal, social, environmental, animal welfare and food safety. The environmental section is divided into several sub-categories based on the emphasis of these categories in the literature and the standards. These sub-categories are: biodiversity, feed, water quality, waste and energy. The comparison also took into account the approaches described in the paper of DNV (2010). They could provide more information about the auditing compatibility between the standards. Three approaches have been identified: management based where the standard requires a written management plan and the risks are defined by the applicant; descriptive where risks are defined by the standards owner

(certification scheme), in that case questions are instructive or could be answered with yes or no; finally, the third, value-based uses scoring or parameter measurement (i.e. effluent concentration in water). The value-based requirements often require measurement to be done by the auditor (pers. comm.. with certification body Control Union, 2014). The standards were also compared to the Technical Guidelines on Aquaculture Certification created by the authoritative Food and Agriculture Organization of the United Nations (FAO). These Technical Guidelines are a recognized benchmark against which certification schemes are compared (see for example GSSI, 2014)

Table 1. *Sustainability aspects covered by each of the four standards and comparison with the FAO Guidelines for Aquaculture Certification. Note: Voluntary requirements are not included*

Cert. Scheme/ Sustainability aspects covered	Environment	Social	Animal Health & Welfare	Food Safety	Legal	Compliance with FAO Guidelines
ASC	Yes*	Yes*	Partial (weak on animal welfare)	No	Yes*	Yes
BAP	Yes	Yes	Yes*	Yes	Yes	Yes
FoS	Yes	Partial	Partial (weak on animal welfare)	No	Yes (labor and environmental laws only)	Partial
GGAP	Yes	No	Yes*	Yes*	Yes	Yes

the star (*) signifies the scheme has higher requirements than the other schemes.
Source: Own Research (2014)

The result of the comparison showed:

- Environment-Feed ASC, GGAP and BAP have detailed regulation on shrimp feed. ASC is most thorough by including issues of feed use, sustainable sourcing of marine ingredients. ASC is the only scheme that also has compulsory requirements on sustainable sourcing of terrestrial feed ingredients and as a unique requirement: record-keeping and disclosure of GM feed ingredients. GGAP regulates most of the issues covered by the ASC and has requirements on storage and disposal of feed. BAP has detailed requirements on the (effective) use of marine feed ingredients. There is a slight difference between the nature of the standards (descriptive, management or value based) in the feed section where ASC and BAP require calculations on feed used and GGAP and FoS a management plan. All the schemes are compliant with the requirements of the FAO Guidelines on feed.
- Environment-Biodiversity: ASC, BAP, GGAP and FoS cover almost identical issues on environmental sustainability. In a limited number of cases they have different approaches: GGAP has adopted management based approach on issues such as predator control, mangrove restoration, for which the other standards have descriptive requirements. Both ASC and GGAP require environmental impact assessment but ASC explicitly requires that the assessment is done by external consultants. From the four standards, ASC and GGAP regulate the most issues. BAP is less systematic as it requires environmental impact assessment (FAO criterion) only if it is required by national legislation. BAP does not explicitly ban or regulate the use of genetic modified organisms. FoS lacks requirements for broodstock and seedlings, which are substantive FAO requirements. ASC, BAP and GGAP fully cover the other issues under the FAO Guidelines.

- Environment-Water, Waste and Energy: ASC, GGAP and BAP cover almost identical topics. FoS also covers most of the topics with the exception of chemical waste and storage, sediments and organic waste. There is significant difference in the approaches of the standards. A major difference between the standards is that ASC and BAP have value-based requirements and require measurement of the water quality to be done by the auditors while GGAP requires only a management plan, records of water measurement and compliance with the national legislation. FoS requires that the auditors check past records and method of measurement of the water quality. All the standards are compliant to the FAO Guidelines in this section
- Social: ASC excels the other three certification schemes in the social sustainability. FoS and GGAP have few or none compulsory social requirements. The newer version of BAP covers most of the ILO issues (child labour, forced labour, discrimination, working hours and etc.) but with regards to the relations with the local communities it regulates only certain aspects (access to traditional natural resources for the communities and conflict resolution). ASC only requires a thorough assessment of the possible impacts for communities. Auditing of the social part require employing of auditors different than those who assess the other aspects of the standards (pers. comm. with certification body Control Union, 2014). There is no significant difference between the nature of the standards (descriptive, management or value based) in the social section. Only ASC and BAP are compliant with the social requirements of the FAO Guidelines.
- Animal Health and Welfare: GGAP and BAP have detailed and almost identical requirements in this section. ASC is weaker in some aspects such as animal stress and the prescription of medicines by a veterinarian. ASC forbids the use of the ASC logo on shrimp treated with antibiotics. FoS is lacking with regards to animal health and welfare as it covers only some aspects of antibiotic and chemical use. There is no significant difference between the nature of the standards (descriptive, management or value based) in the Animal health and welfare section. With regards to the FAO Guidelines, none of the schemes has requirements on polyculture. Excluding this requirement, BAP and GGAP are fully compliant to the FAO Guidelines. ASC and FoS do not cover all the requirements but animal health and welfare is not their focus.
- Food Safety and Hygiene (without antibiotic and chemical use): GGAP and BAP have detailed regulation on food safety and hygiene such as residue levels. GGAP is more systemic than BAP: it has more requirements such as hygiene risk assessment. There is no significant difference in the approaches taken (management based and descriptive). GGAP and BAP are fully compliant with this section of the FAO Guidelines. The remaining two schemes (ASC and FoS) do not regulate or claim to regulate food safety and hygiene. ASC does not regulate food safety and hygiene. This has been explicitly left outside the scope of the organization as other schemes have already handled the issue (ASC, 2014). FoS mission is “ to conserve the marine habitat” (FoS, 2014) and also does not cover hygiene and food safety.
- Legal: All the standards have requirements on compliance with national laws. GGAP, ASC and BAP require compliance with property rights laws, operational permits and licenses, labor (except GGAP) and environmental laws. FoS has requirements only on labor and environmental laws. GGAP is very detailed as it uses legal compliance as a basis for its environmental impact assessment and for some requirements (effluents, for example). ASC has unique requirement that requires licenses and permits to be publicly available, possibly to prevent fraudulent practices. There is no significant difference between the nature of the standards (descriptive, management or value based) in the legal section.

3.2.3 Chain of Custody

Chain of custody shows that every step in the chain has been assessed to trade seafood from a certified source. All the four schemes have mechanisms to prevent mixing of certified with non-certified products. The MSc thesis focused on the farm standards and did not conduct a detailed analysis of the chain of custody between the standards. It will only mention some specifics in the chain of custody management approach of the chain of custody certification. BAP does not have a separate standard document on chain of custody and includes requirements on traceability and separation in its hatchery, feed mill, farm and processing/repacking standards. GGAP and FoS have separate documents on chain of custody where FoS has only three requirements and GGAP a more detailed regulation of the matter. ASC does not have its own chain of custody standards but uses the chain of custody of a certification scheme for wild caught seafood: Marine Stewardship Council. From the four certification schemes, only GGAP does not have a logo, which can appear on the package and inform the consumer that the product is certified. The use of a consumer logo requires compulsory certification to the chain of custody and also requires a fee for being used.

3.2.4 The Evolution of the BAP Standard

BAP has recently undergone a revision, which may tell more about how certification schemes evolve. The newer revised version for Crustaceans and Finfish was published by the BAP in April 2013 (BAP, 2013). This version had to replace the old Shrimp standard and finfish standards (except for salmon) as of January 2014. This was an opportunity to trace the evolution of one of the standards that might hint the future development of the aquaculture certification. The comparison between the two versions covered the evaluation requirements, the structure and the content of the standards.

In the older version, the evaluation requirements were divided into critical, scored and informational. Full compliance was required with the critical, 70 % of the maximum scores (80 of 114) was required. The latter means that better performance on some requirements may compensate for the lacking of other requirements. The original standard document was very abstractly formulated and there was only a general guidance for implementation. Detailed guidance was given only in the application form. The old assessment system has abolished the scored system and requires compliance to all the requirements. The new version has a larger scope and includes not only shrimp but also other crustaceans and finfish (except for salmon). The requirements of BAP have been made explicit in the standard document.

The scope of the standard was significantly expanded. The expansion is most noticeable in the social part: the original version regulated only child labour, minimum salary, worker's safety and relations with communities. The new standard has added almost all of the issues under the International Labor Organizations. The standard has also improved its animal welfare and health section with the inclusion of a veterinary health plan and animal stress and its environmental section with addition of feed requirements (the list is not exhaustive; for more information, see the annex). The new BAP standard was weakened only with regards to the complete ban in siting in mangroves. The new BAP requires no net loss of mangrove vegetation. There is also attempt to make auditing of some of the requirements easier: instead of measuring the soil salinization, the auditors have to observe whether vegetation is dead.

3.2.5 Standards Comparison: Conclusions

The analysis showed similarity of the organizational structure of the organizations. The four schemes have been created and governed by different actors (NGO, industry) but despite that, there is significant similarity in how schemes revise their standards, commit to third party assessment and involve outsiders. The similarities are biggest between ASC, GAA and GGAP while in some aspects FoS remains different (lack of comment procedure when revising the standards and the accreditation of the certification bodies). In general, ASC is the most transparent scheme as it publishes the audit assessment assessments on its website.

The comparison found significant similarities between the standards in the environmental sustainability issues and divergence in food safety and social sustainability. This has been noticed in the most popular certification schemes in the Netherlands (ASC and GGAP) as well as between GGAP and ASC and the American BAP. The certification schemes arrange their documents (standard documents, self-assessment documents, auditor checklists) and levels in not very much different manner. Their approaches (management based, descriptive and value based) differ for certain requirements. There are no fundamental differences, though GGAP have relatively larger component of management based approach while BAP, for example, is more descriptive. ASC, GGAP and BAP cover approximately the same topics with some advantage of ASC followed by GGAP and BAP. Food safety and animal welfare were best covered by BAP and GGAP with a prevalence of GGAP. With regards to the social sustainability, ASC is the most robust scheme followed by BAP. FoS and GGAP are significantly behind the first two as FoS covers only a limited number of issues as compulsory components and GGAP has only an optional module. Overall, FoS regulates fewer topics compared to the other certification schemes and is not entirely compliant to the FAO Guidelines. All of the standards have some level of separation of certified from non-certified products. However, three of the certification schemes have a consumer logo while GGAP policy is not to have a consumer logo.

The study also traced the development of the BAP standard. The analysis showed that BAP has lost some distinctive features such as the scoring system and its structure resembles the documents of GGAP and ASC. Contentwise, BAP resembles GGAP and ASC. BAP has acquired new requirements in the food safety, environmental and has significantly expanded its social section. Although BAP is less systemic than ASC and GGAP (with regards to the impact assessments), it combines food safety, animal welfare, environmental and social sustainability, which together do not exist in any of the “European” schemes GGAP, ASC or FoS.

4. Power Relations

The choices of certifications schemes can be restricted by the power of different actors in the value chain. The current research checked whether a certification scheme was chosen by a company or by a client (retailer or wholesaler). Where a certification scheme was demanded because of a client, account was held whether this actor is a retailer or a wholesaler. Interviewees were asked to arrange the stakeholders by their influence on other actors. Additional indicators for power were the ability to switch partners and define the characteristics of the product (Gereffi et al., 2005). After the power hierarchy has been defined, the study discusses the opportunities of importers and retailers to maneuver in their choice in their (stronger or weaker) hierarchical position.

4.1 Power Hierarchy

Due to time limitation and/or lack of certified products, only twelve of the sixteen importers gave a clear answer why they chose a certain certification scheme. From these interviewees 9 mentioned the demand from a client as the reason for choice of a certification schemes. Several importer employee did not even wait for the question to be read and stated that their choice was made because of a client. This included one of the two biggest Dutch shrimp importers, mentioned the demand from a client as the reason for choice of a certification schemes. In the majority of the cases (7 interviewees) where a certification scheme was chosen because of a client, this client is either a retailer or a wholesaler working for a retailer.

None of the interviewees ranked the importers before the retailers on their influence on other actors. Different drivers of seafood value chains and certification were mentioned: national governments (#9), certification owner organizations (such as ASC and MSC) (#2) but most interviewees pointed out the retailers.

4.2 Space for Making Choices

The MSc thesis investigated whether retailers leave to their suppliers (i.e. importers and producers) space to make their choices. This question arose at a later stage of the research based on claims of several interviewees (#2, #9, #11, #14, #18). First, importers might choose the moment of certification. One of the companies (#2) adopted a scheme before it is actually requested by retailers, though they did share that retailers like some features of the certification scheme. Another company (#11) kept a certification without a current demand. A retailer interviewee (#18) divided the businesses into “pioneers” and “followers”, which showed some difference in businesses to adopt a certification scheme. Interviewee #18 did not explicitly state whether these businesses are importer businesses or producer businesses. As already discussed in the previous section, the majority of the importers waited for the demand from a client.

Second, there might be space for choosing (or recommend to suppliers) a certification. One of the companies (#11) successfully managed to persuade a retailer to accept one of the certification schemes. The company's most important argument is that certificates are based on the requirements of the buyer. A second condition is that the certificate should be well-known to the public. Such possibility has been also pointed out by one of the retailer employees, though it was not clear enough whether it is the current state of affairs or a desired result (#18). An interviewee # 9 described a different reality. While he confirmed the retailers gave their suppliers more freedom to choose a certification in the past, now supermarkets are increasingly requiring a certain certification scheme (Aquaculture Stewardship Council). Two other interviewees also remarked the strong marketing of the ASC and MSC by the retailers (#12 and #14). For #14 some retailers explicitly preferred ASC because of their agreement with the environmental NGO WWF.

Third, the possibility not to be under/require a sustainability certification has been also explored. One of the importers (#6) noted that this is mainly in case where food service and wholesalers are the end customer. Retailers also do not always require certification on sustainability. In an interview with employees in Dutch supermarkets, it was mentioned that food safety (#16) and price (#17) are a priority and a sustainability standard has a secondary role.

4.3 Price

The MSc Thesis also researched whether the suppliers are able to extract additional income in the form of price premium as an indicator for their power. It was only solicited in retailer interviews but not in the interviews with importers. No indication for (high) premium prices was given. Some importers complained that certification schemes are expensive (#6, #9, #14) and clients (also retailers) "look very much at price" (#14) and are mainly concerned about low price, volume and food quality issues (#16, #17, #20). One of the interviewee (#9) mentioned that the support for producers by IDH and the Dutch government is one of the reasons the certification is affordable. The only mentioning of premium price was by interviewee #17 who mentioned "small amount" of additional payment for ASC certification of another species (tilapia) when the standard was launched in 2012. A retailer employee was able to give more information on the mechanism of price formation (interview # 18): premium prices are dependant on the abundance or scarcity of products certified under a certain certification scheme. The scarcity of premium prices, which based on characteristics determined by the buyer (quality and certification) is another point that proves that the retailers are the more powerful party.

4.4 Ability to Switch Partners

The ability to switch partners has also been researched. Despite the (oligopolic) structure of the Dutch shrimp industry that is dominated by two big importer companies (van Diemen and van Dongen, 2008), all the interviewees from the retailer sector explained that alternatives are possible (#16, #17 and #18). This has also been confirmed by the employees of big companies

(#14 and #19). Directly contracting the farmers in developing countries and contracting importers outside of the Netherlands are possible options (interview #17). A representative of one of the two big Dutch importers also confirmed that retailers are able to switch partners easily (#14). In the last several years one of the big Dutch supermarkets increased the number of suppliers (#18). There is also evidence for direct contracts between retailers and suppliers in developing countries in other European countries (#19) and other commodities sold in Dutch supermarkets (#16).

The ability to switch partners does not mean that shrimp trade is carried out as a spot market. At least some of the retailers show more commitment to their suppliers (including importers) and as long as they are satisfied with the quality and reasonable price of their supplier, they do not plan to change their supplier (#16 and #17).

The research also found out an additional limitation factor for the importers. None of the importers that were asked this question (#11, #15) pointed out that they will change their partners in developing countries because of a new certification scheme. Some importers even picked up a certification after their suppliers (#9). Instead importers were working together with their suppliers for achieving the standards (#15). Where an importer did not have suppliers under one scheme, the company would rather lose a customer than replace a supplier its suppliers (#11). As one interviewee explained, new certification schemes and requirements continue to appear and it would not be reasonable to switch suppliers every time. Some importers could afford finding new suppliers (#14, #15) but preserving the relations with the existent one. An explanation for this behavior is that shrimp trade is “tricky business” (#16). Good knowledge of the trade partner is required in order to secure the supply of good quality shrimp.

4.5 Power Relations: Conclusions

Evidence showed that shrimp value chain is buyer-driven. Retailers are pointed out as the most powerful actor in the value chain. These observations are confirmed by the findings in the literature. The study of Van Diemen and Van Dongen (2008) quotes data of the Nederlands Visbureau showing 79 per cent of the fish in the Netherlands is sold via the supermarkets. The domination of the supermarkets is even bigger in the frozen (and processed) products such as shrimp. There is inconclusive evidence to how much exactly freedom retailers allow their importers. This freedom concerns the choice of the moment of certification (before or after it is demanded by a retailer) but might also be discretion in selecting a certification scheme as long as it complies with the requirements of the buyers. Characteristics of the products are also defined by the retail and there is no evidence of (sufficient) price premiums. According to an article in the Undercurrent News (2013) certification is the means to preserve an existent market share rather than being a way for market expansion or receiving a price premium.

Following the terminology of Gereffi et al. (2005 and 2009), the relationship between importers and retailers can be defined as modular where actors switch partners and products follow accepted parameters (the certification standards and quality parameters). Reasons for this is that shrimp has many controversial issues (WWF, 2013), which have to be communicated and addressed by the suppliers. Importers are less maneuverable as they depend on the producers/exporters in developing countries. Therefore, the economically less

powerful importers are more vulnerable to problems with the supply of shrimp than retailers. The study finds evidence of a trend for increase in retail power. Retailers have increased the number of their shrimp suppliers. Practices from other countries and the Dutch coffee supply indicate that retailers may bypass the importers and establish direct relations with suppliers from developing countries.

5. Criteria for the Choice

After defining the power relations between importers and retailers, the study focused on what determines the preferences of importers and retailers. Based on findings from the literature, these criteria have been grouped into two big groups. The first group is related to the reputation that importer/retailer hopes to acquire through participation in a network of actors such as a certification scheme (Smith and Fischlein, 2010). The second perspective emphasizes on what exactly a standard contains and their requirements (Reinecke et al. 2012).

5.1 Reputation

5.1.1 Reputation Gains as a Result of Affiliation to a Certification Scheme

The majority of the interviewees explicitly mentioned that reputation has more weight for the businesses (retailers and some importers) than the content of the standards (#2, #4, #6 #9, #11, #12, #13, #14 and the three interviewees from the retailer sector). Some of the importers (especially those with their own brands) and retailers are interested in a number of issues such as demonstration of a commitment to sustainability, boosting the credibility of own brand, avoiding “bad publicity”. As interviewee #14 has summarized it: “People never look at the standard”. In addition, #14 mentions that ASC is “imitating GGAP all the time”. Retailers evaluate certification schemes through benchmarking activities after they have already adopted some of them (#18). Additional evidence supports the reputation factor in choosing a certification. Importer #11 seems unwilling to stay without a sustainability certification scheme, despite the costs, the lack of demand and scarce supply. He considers abandoning it only after a new certification scheme becomes available.

The importance of communicating the affiliation with a certification scheme to the public (customers and NGOs) is another evidence for the importance of the reputation factor. The importance of the logo appeared in interview #2, which led to the inclusion of this topic in the lists of questions. From the 16 interviewed importers, 3 did not answer the question because they were not certified under a scheme with a consumer logo (#6, #7), they did not specify why exactly a scheme was demanded by a client (#3) or the question on label was not asked (#1). One of the interviewees (#8) did not sell shrimp and did not have any of the four schemes for certified farmed fish. From the remaining 12 companies, 6 importers explicitly mentioned logo is important. Most of the others mentioned a client demand or reputation but they did not comment on the logo (though these might not be unnecessarily incompatible). In the interviews with importers, logo was preferred for two reasons. First, some importers and retailers wanted to boost the reputation of their own brands (#2, #4, #5, #9, #11). Second, importers pointed out that retailers encouraged and demanded a label (#2, #9, #12).

Contrary to statements of the importers, the interviewees from the retail sector were skeptical of the use of consumer labels. “There was a lot of discussion when the MSC was launched” around the integration between the MSC and ASC logos (interview #17). The large number of logos is confusing for the consumer as new initiatives are expected to come into being in developed or developing countries (interviews #17 and #18). Sustainability was suggested to be communicated through the general policy of the retailer and “out of the scheme”

(interviewee #17). An importer (interview #11) explained how message can be sent to consumers without a logo. This approach can be utilized when multiple certifications are used for one package or when the scheme does not have a consumer logo such as GGAP. In these cases, the scheme provides with documentation and claims for sustainability are included in the general policy of the retailers.

Despite that, observation on the shelves of the interviewed retailers showed extensive use of logos. This is most typical for pangasius and tilapia, where almost all products have the ASC logo. In a few cases, there is no logo but statement of sustainable (ASC) certification on the back of the product. There is more differentiated approach for salmon and shrimp in the retailer with well developed sustainability policy. For salmon and shrimp chilled products consumer logo of third-party certification (MSC or organic) is used only for the high quality house brand of the retailer. For the non-organic farmed shrimp there is no third party certification. For frozen shrimp (which is in bigger volumes) sustainability has been communicated not through a consumer logo but with a statement on the back of the package. The issue of logo use has led the author of the current research to discuss the issue with an employee at the IDH. According to her, while the retailers are unwilling to use logo, they need them in the short term to gain a reputation of their brands. In the long term, however, the retailers will aim for removing the labels from their (own branded) products. This was in line with the claims of one of the retailers that certification are tool for the brands and there “might not even be the logo” (#18)

5.1.2 Influential Supporters

The reputation flows not only from a certification scheme to various actors but can be organized the other way round. Influence of stakeholders (international NGOs or the retailers) behind the scheme influenced the choice of a certification scheme (#2, #6, #7, #9, #11, #12, #13, #14 and the three interviewees from the retailer sector). This has been found out by using closed answers and mentioned in the context of the demand from retailers. One of the reasons why the Aquaculture Module of GGAP was created, was that the GAA was originally viewed as a producer/importer driven and not an impartial organization (#14, #18). While the importance of retailers lies in their powerful position in the value chain, they are vulnerable to media attacks. Such attacks can inflict significant reputation damage for the targeted product(s) and the retailer. Several interviewees from retailer and importer sector (#9, #11, #13, #14, #16, #17, #18) discussed the importance of media and NGO campaigns in pushing the retailers for certification. Interviewee #9 said “You don’t want WWF against you”. Importer #11 even noted that WWF has a role in defining what sustainability in general is. WWF has also been mentioned to favor and promote the ASC certification scheme (#14).

In addition to retailers and NGOs, other credible certification schemes can be key stakeholders. Marine Stewardship Council (MSC) was mentioned when answering questions on whether the importers have or will adopt ASC (#2, #3, #11, #13, #15, #20). In most of the cases, the choice has been due to the organizational integration of the chain of custody of the two organizations. However, interviewee # 13 openly stated that ASC is popular because it follows the steps of the MSC. ASC and MSC seem to share similarities in name as well as a logo design.

A certification scheme does not only rely on a limited number of key stakeholders. Involvement of a wide range of stakeholders in the standard setting and revision processes is found to be important for the retailers and a big Dutch shrimp importer. Friends of the Sea is not considered important by the big Dutch retailer (interview #16 and #18) because FoS did not engage into a multi-stakeholder dialogue and ignored the signals from retailers for

possible improvements. A retailer found ASC certification scheme to be “a very promising initiative” (#17) as it had one of the most robust standard setting processes existent. The presence of “interesting names” and organizations such as WWF and national government in the ASC standard setting led to interest from retailers that are not traditionally involved in sustainability (interview #17). The national government (especially the Dutch one) plays a role that goes beyond the reputation issues, as it has funds to promote sustainability among producers in developing countries (#9, #17). This help may lower the costs of certification and has been stated to be extremely useful by some interviewees (#11 and #17).

Reputation and influence issues are not exhausted with establishing partnerships with a wide range of actors. A certification may give a protection against NGOs and media campaigns that are not affiliated to any scheme. “Radical NGOs” (NGOs that are not involved in partnerships with the businesses) give a major push to the certification in meat industry. However, such NGOs are less active in the fish sector, which leads to a slower adoption of sustainability policies there (interview #17). In Europe retailers and importers united efforts and created an aquaculture certification for seafood in GGAP after a critical report on salmon by the BBC (interview #18). Reputation and content can not be strictly separated from each other: the scheme has to ensure that the standard and the auditing process are to be reliable in order to avoid bad publicity (interviews #5 and #9). Retailers also emphasized on the stringency of the standards (#16 and #18). The stated stringency is the means to fulfill the sustainability commitments and show retailers aim for continuous improvement.

5.2 Content of the Standard

The content of the standard is another reason to choose a certification scheme. The research probed the interest in sustainability and animal welfare from importers and retailers. Two additional issues with the content of the standards arose during the interviews with retailers: food safety and the price of the certified seafood.

5.2.1 Sustainability

Importers predominantly emphasized on the reputation of the scheme and the demand from a buyer. Some of them also commented on sustainability issues. Interviewee #5 chose for the robustness of standards when selecting one of his certification schemes (GGAP). He explained that the importers are not able to supervise the producers closely and therefore, the need of (credible) certificate is needed. For him, important issues were environmental sustainability and the working conditions for the personnel. Interviewee #2 also paid attention to the sustainability issues and added animal welfare. Interviewee #2 also used the term “evolution”: ASC is more robust with regards to environmental and social sustainability than the earlier scheme GGAP. Interviewee #13 also pointed out the trend of increasing stringency of the standards.

Content of the standard was also used to argue for the quality of one or more certification schemes. From the importers the greater emphasis on the content of the standard was put by the big Dutch shrimp importer, which is involved in the technical committee of GGAP (interview #14). The interviewee built an argument on the content of the standards why, according to him, GGAP is better standard than BAP and ASC. BAP was criticized for being dominated of the producers as well as lack of sufficient cover of social and environmental

issues. Another point of him was that ASC failed to be stricter than GGAP with regards to sustainability and it does not cover issues of animal welfare and workers' safety. He also explained the "failure" of ASC with the NGOs making the standards who could not tackle the complexity of the matter at a higher level than GGAP. The interviewee also mentioned that these were the same NGOs involved in writing the GGAP standard. Another importer (#6) was generally skeptic to all the certification schemes and criticized all the schemes of not having an impact.

Employees of the retail sector also commented on the content of the sustainability standards. Some retailers made benchmarking between sustainability standards an element of their strategy (#18). This has to reveal whether the standards are as stringent as they claim or are promoted by NGOs. The idea was to put a scientific evidence against the rhetoric of the NGOs and thus to increase the maneuverability (and power) of the retailers (#17).

5.2.2 Food Quality and Price

Even where importers and retailers were committed to sustainability, they admitted that at this moment food quality, volume and price are their major concerns (#16 and #18). Volume may sometimes require sourcing of non-certified products (#16, #17, pers. comm. with GAA/BAP, 2014). 11 out of 16 interviewed importers explicitly mentioned food quality as a specific aspect of the certification standards despite the fact their interest in food quality was not probed. Some of the criticism was based on the lack of food quality aspect in the ASC certification scheme (interviews #4, #6 and #14). Two others (#9 and #15) mentioned that they have customers that are only interested in the food quality and price. The importer from interview #1 shared that the main issue is food quality and certificates such as GGAP are a sign of professionalism of the producer and only "the first step" in their business partnership. Similar hints came from one of the interviewed employees from the retail sector and from international shrimp exporter/importer (#13 and #19, #18).

Half of the interviewed importers and all of the retailers talked about the price issue. The importing company from interview #1 mentioned that price has to be acceptable in order the certified product to be purchased. In other cases price was a major criticism against some certification schemes, particularly those with consumer labels/logos. Interviewee #6 and #14 criticized schemes such as MSC, BAP and ASC for the fact they collect money for their logos and raise prices. The price as a cost of certification came up as a crucial criterion for the choice in the interviews with the retailer employees (#16, 17, 18) and some importers. One of the interviewees (#9) went as far as to name the Dutch government (by funding the NGO IDH) as a driver of the certification schemes: without their money, many producers and therefore, importers would do not be able to afford sustainability certification. According to the retailers, commitments to a certification can be stopped or softened if the price of the product is too high (#16, #18). Although there are nuances between the Dutch retailers, supermarkets do not tend to switch suppliers on a (lack of) sustainability certification only (#16). Deficiency of supply is another reason why non-certified products may appear on the shelves (#16). The different emphasis on food quality and price against sustainable sourcing of food results into conflicts between the sustainability and sales teams in some supermarkets ("This created tensions between the sustainability and commercial guys" #17).

5.2.3 Producers Capacity

Some of the interviewed importers were influenced by the fact their suppliers already offered some production under a certain certification scheme. In the case of interviewee #9, #10 and #11, the availability of a certified product influenced the decision to become certified under a

chain of custody. The importers' coordination with producers and exporters is also related to other factors such as a demand by a client: for example, interviewee #11 did not join the BAP scheme, despite the opportunity to have certified products, as there was no demand for it.

5.3 Other Criteria

The study also found out a few additional reasons that can not be strictly put in the reputational or content of the standards sections. It mainly concerns the use of sustainability policy to secure the supply and personal preferences in the board of one of the retailers. The Dutch retailer with well developed sustainability policy is pointed out to use sustainability as a way to secure the supply by paying higher price for the production than its competitors. Where there was no well developed sustainability strategy, personal preferences and persuasive abilities play a role. That has been the case with another Dutch retailer (#17)

5.4 Criteria for the Choice: Conclusions

Reputation has significant role when choosing a certification scheme. Retailers and importers choose for certification schemes that have legitimacy as rule-setters and are backed by influential businesses, NGOs and a broad range of interested stakeholders. The use of logos also supports the importance of reputation factor. Although retailers claim logos cost money and are confusing to the consumers, in the short-term they rely on them to gain a reputation of sustainable business. Importers follow the demand for logos and also use them to boost their brands, if they are brand-owners. The study found significant importance of NGOs and governments. Governments channel significant funds to NGO networks for supporting of sustainability of producers in developing countries. An influential NGO such as WWF can bring significant reputation and network capital to a certification schemes. WWF is a common founder of MSC and ASC, which is probably one of the reasons for the close collaboration between the two schemes. NGOs trigger the demand of sustainable products, which supports the theory of Islam (2007) for a twin-driven (by retailer and NGOs) value chains. In a broader context, it supports the hypothesis that the NGO activism rather than initiative of the businesses explain the rise of eco-labeling schemes (Gulbrandsen, 2006).

Although reputation is the primary driving force for choosing a certification, the content of the standard has to support the claims made. Only then a protection for the businesses against "bad publicity" and NGO activism can be assured. Compared to other characteristics of the product, sustainability was little emphasized in the interviews. Sustainability was sometimes appreciated as an indicator for professionalism of the producer. What interviewees mostly emphasized was the sufficient supply of quality seafood and its price, which can overrule commitments to sustainability. Producer capacity is also an important factor for the importers in choosing a certification scheme. Factors such as securing the supply and personal convictions in the board of directors of the stakeholders can also influence a decision to commit to a certification scheme.

6. Managing the Problem of Multiplicity of Schemes

The chapter will discuss whether the multiplicity of certification schemes is viewed as a problem and whether harmonization as the most radical solution is favored by importers and retailers. The study will then proceed to study what the different tactics of the Dutch importers and retailers are to cope with it.

6.1 Is Multiplicity Problematic for Importers and Retailers?

Where more time for the interviews was available, importers were asked whether they view the multiplicity of sustainable shrimp certification as problematic. Nine importers were asked this question. Seven of them pointed out that the multiplicity is problematic (#2, #7, #9, #10, #13&19, #14 #15) because they cost money (all except #10 and #15), create problems with supply (#10) or are confusing for the final consumer (#15). Some importers (#11, #14, #19) also mentioned that they use certification schemes on food safety in addition to sustainability ones, though answers on purely food safety certifications were not solicited. The big companies (13&19, the integrated exporter and importer and #14, the big Dutch importer) had more nuanced opinion on the topic. Employee of an integrated shrimp exporter mentioned that existence of multiple schemes is only partially problematic for big companies as it excludes smaller companies from lucrative markets (#19). Interviewee #14 also referred to the issue as “not problematic” but “only money” matter. From all the importers, only the big Dutch importer wanted an additional certification scheme addressing explicitly the sustainability. Among the retailers, even within one company, opinions on multiplicity varied from a problem (“it costs a lot of money”, #16) to a positive phenomenon (encouraging competition, #18). The retailers were only unanimous that multiple logos on the package are confusing to the consumers.

6.2 Harmonization?

Most of the interviewees related harmonization to the final shift and merging of standards. Five importers (#2, #7, #9, #10, #20) of the nine discussing the multiplicity shared that all sustainability certification schemes have to be merged into one.

Most of the employees in the retailer sector (#16 and #17) found (full) harmonization desirable but not feasible. All retailers were unanimous that (full) harmonization is practically impossible. Various countries (USA, Thailand or Indonesia) have different needs that have to be respected (#18). Another reason is that certification organizations have “big ego” and once they mature, they do not wish to merge with and even cooperate with other organizations (#17). The stakeholders helping to write the standards also steer the schemes in different directions: a social NGO has a different agenda from an environmental NGO (#17). However, as interviewee #18 stated, harmonization efforts in certain aspect between the scheme are encouraged in order “not to end up with completely different model from what exists now”.

This has resulted into Agreement of Mutual Understanding (AoMU) between the GGAP, BAP and ASC. The AoMU includes harmonization efforts in specific areas: feed standards and audit processes (including auditor training), shared approaches in chain of custody certification, and shared IT platforms (ASC official website, 2013).

Interviewees #16 and #18 gave indications of specialization of the standards. The big Dutch importer and interviewee #18 claimed that merging the organizations would create a monopoly i.e. it is undesirable. He pointed out differentiation of standards is on the basis of the characteristics of the buyer countries (USA and EU countries) as well as standards initiatives in producing countries to “shape their own future”. Interviewee #16 explained that different certificates are required depending on the risks in the producer regions (environmental and social).

6.3 Tactics for Tackling the Multiplicity

The importers and retailers adopt different behavior in trying to resolve the problem of the multiplicity of certification schemes. Tactics to cope with the multiplicity can be divided into two big groups: tactics in combining existent certification schemes and tactics for standards development in the desired direction. The first group includes combining assessment against two or more certification schemes in one audit and switching from one scheme to another. The second group includes communication with certification owner organization, participation into the development of the scheme and the comparison of standards.

Tactics in combining existent certification schemes are found to be used by importers. Three of the importers (#2, #5 and #11) pointed out that they will opt for choosing one certification scheme. The one audit option was mentioned by another three importers (#2, #3, #5, #11 and #14). Additionally, several importers were utilizing the ASC and MSC common chain of custody auditing. For them (#2, #3, #11), the easy audit was even a reason to become certified under both schemes (see chapter 5: criteria for the choice).

Tactics for standards development in the desired direction are used by both importers and retailers. Most of the importers go no further than communication. Communication with the certification owner organizations was mentioned by five of the interviewed importers (#3, #9, #10, #13, #14) but it was practiced only by few of them. For interviewee #3 the subject of communication was not the content of the standards but whether there is a demand for the certified product. # 10 did not contact the certification NGOs directly but used the auditors as channel for communication. Despite being a big international company, #13 preferred not to communicate directly but through producer associations in developing countries and only on matters of food safety. Another interviewee (#11) stated that he wished to contact a certification owner organization but he was not sure how to do this. There was a direct communication only in the cases of interviewees #9 and #14. #9 used international expositions (such as the Brussels Seafood exposition) in order to suggest harmonization at least between the three big certification schemes (GGAP, BAP and ASC). #14 is a big Dutch importer, which participates in the management of a certification scheme. Dutch retailers with well developed sustainability agenda are found to intensely communicate with certification owner organization (#18). Certification owner organizations tend to follow their advice if the certification schemes are to access the mainstream market (#16). Furthermore, retailers can be one of the channels of the importers/processors for a feedback to the certification schemes.

Biggest companies - big Dutch importer of shrimp and a retailer - participated in the governance of certification schemes. The importer from interview #14 participates into the governance of one of the certification schemes and used this position to facilitate a dialogue between the certification schemes, which has resulted into the already mentioned Agreement of Mutual Understanding between GGAP, BAP and ASC. Other big importers deliberately stayed at arm's length from the management of certification schemes (#13). Retailers also have a say in the governance of certification owner organization and certain aspects of the standards development. This influence is a reason why there is preference for GGAP to the BAP where Dutch retailers are no governing members (#16). Some retailers are also involved in working groups of certification schemes without participating in the governance structure (#18). In this way they try to ensure that certification schemes are not "completely different model from what exists now".

Retailers pursuing a sustainability agenda have unique tactics compared to the other seafood actors: they compare the content of the standards in order to increase their maneuverability between schemes. As part of these efforts, they cover part of the costs of their suppliers for a gap assessment. The gap assessment has to demonstrate that suppliers (and the certifications they use) are consistent with the requirements of the retailers. Some of the retailer requirements are based on a commitment to a certain certification scheme (for example, "ASC or equivalent") and certification schemes benchmarked against international standards (FAO Guidelines).

Another form of comparison but this time with internationally recognized criteria is benchmarking. Benchmarking is used only by some companies in the retailer sector, particularly those that have a sustainability agenda. Benchmarking could be effective not only in reflecting the NGO rhetoric (see chapter 5: criteria for the choice) but can encourage the certification schemes to share common elements.

6.4 Managing the Problem of the Multiplicity: Conclusions

Most of the importers that were asked this question found multiplicity as problematic or at least increasing the costs. Most of them openly favored harmonization and merging the schemes. Some of the biggest importers had more nuanced view as multiplicity also meant dropping from the markets for the weaker companies. The retailer interviewees were unanimous that harmonization in the form of merging the certification schemes is not feasible. Certification schemes reflect different interests of the different standard setter and might not be willing to merge.

Full harmonization might also be undesirable. The big retailer and big importer stated that certain differentiation between the content of the standards is also useful as in different situation, different certification schemes might be chosen. Organizational merging of the certification scheme was also undesirable according to one of the retailer interviewees because it would create a monopoly in the standard-setting. At the same time, retailers are interested in convergence around common principles ("rules of the game" (Reinecke, 2012)) of the schemes in order to reduce the costs of combining different certification schemes.

There are two groups of tactics to overcome the multiplicity of standards: tactics of standards development and tactics of combining existent certification schemes. Tactics of standards

development (communication, governance and comparison of standards) were used mainly by the retailer sector and by the biggest importers. Comparison of standards (gap assessments and benchmarking) is unique initiative for those retailers that have well developed sustainability agenda. Most of the importers mainly used tactics of combining existent certification schemes (combining assessment and switching from one scheme to another). As shown by the AoMU and the analysis in chapter 3.2 with one of the certification schemes of the current MSc thesis, convergence trend is in place, which follows the wishes of the retailers. Although certification schemes have different attributes, as explained in chapter 3.2, evidence for a trend of differentiation is not convincing. This might hint that big businesses might be not so consistent/motivated to press towards differentiation but further research is needed in that direction.

Based on the findings above, the study concludes that multiplicity is mainly a problem for the weaker parties. Most vulnerable are the importers - especially the smaller companies - that face higher costs in application of multiple certifications. Importers are under pressure from retailers to offer attractive price and at the same time, importers are restricted by their suppliers. In addition, there seems to be few or no channels of communication between the majority of the importers and the certification owner organizations. Retailers view the situation as less problematic and are working on a diverse arsenal of tactics to successfully cope with it. Using their significant market power, retailers seem successful to push certification schemes towards certain extend of convergence, which at this moment benefits big and smaller businesses. However, a future effort might be done towards more communication between the certification schemes and the smaller enterprises.

7. Conclusion and Discussion

The Discussion Chapter of the current thesis will present the implications of the previous chapter and will further proceed to connect these implications with findings in the scientific literature. The Discussion Chapter will first review the research objectives and research questions and will follow the structure of the research sub-questions. The only exception is the first sub-question on the differences between the certification schemes: issues relevant to the schemes comparison will be distributed among the other certification schemes. The chapter will conclude with an advice to some stakeholders and on the future development of the certification schemes.

The current study began with theoretical and empirical objectives related to the existence of multiple certification schemes on sustainable shrimp. The current MSc thesis aimed at studying the preferences of retailers and importers in choosing a certifications scheme and thus, it could contribute to increasing the spread of certification schemes on sustainable shrimp. The second goal was to contribute to the theoretical debate on multiplicity of certification schemes. This multiplicity manifests itself in pluralism in the standards content and the configuration of stakeholders standing behind the certification schemes.

The research question of the current study is: “How do the Dutch importers and retailers cope with the multiplicity of certification schemes on sustainable shrimp?”. This question was separated into four sub-questions:

- What are the differences of the certification schemes on sustainable shrimp in terms of organization, stakeholder participation and the standards content?
- What is the power relation between the Dutch importers and retailers
- What are the criteria, which Dutch importers and retailers use to make a choice of a certification scheme on sustainable shrimp
- How multiplicity of certification schemes on sustainable shrimp is viewed by Dutch importers and retailers? Is it a problem and what are the strategies for its resolution?

7.1 Shrimp Value Chain

The research interviews showed that shrimp value chain are –using the terminology of Gereffi – **buyer (retailer) driven**. Interviewees (both retailers and importers) were unanimous that retailers dominate the value chain. This has been traced via different indicators such as arranging the influence of various stakeholders, reporting choosing a scheme because of a client, evidence of price premiums and ability to switch partners. Facts also confirm this conclusion. The study of Van Diemen and Van Dongen (2008) quotes data of the Nederlands Visbureau showing 79 per cent of the fish in the Netherlands is sold via the supermarkets. The domination of the supermarkets is even bigger in the frozen (and processed) products such as shrimp. The Dutch consumption is controlled only by seven big supermarket chains (Distrifood, 2012).

The study found a trend for **increase in retail power**. One of the big retailers no longer relies on a single big company to supply its shrimps but now chooses between 2 or 3 importers. In addition, retailer employees mentioned that there are different options for supplying shrimp outside the Dutch market, dominated by two big shrimp importers. This includes using importers outside of the Netherlands or entering in direct relations with the suppliers from developing countries. The latter already happens in supply of shrimp by retailers in other countries (France) or other food sectors in the Netherlands.

Importers have limited discretion in choosing a certification scheme. This discretion can be expressed in choosing a different certification scheme and choosing the moment of certification. The first was reported by a very few importers (one of them operating mainly in Belgium). This discretion happens within the requirements set by the retailer. More importers reported freedom to choose the moment of their chain of custody certification as some of them became certified before there is demand from a retailer. One of the importers even maintains a certification without a current demand from a retailer and sufficient number of suppliers.

7.2 Criteria for the Choice

7.2.1 Reputation

The interviews showed **significant role of the reputation** when choosing a certification scheme. Some of the importers, especially those with own brand, and retailers select certification schemes in order to demonstrate commitment to sustainability, avoid “bad publicity” and boost the credibility of own brand. These are attributes aimed at formulating a conduct of the company that is desirable by the society (based on the definition for “reputation” of Dasgupta, 2000; see introduction).

The use of **logos** to communicate commitment to sustainability has been discussed in a significant number of interviews. The logos were perceived differently by retailers and importers. For some importers, the logo was even a reason to change the certification scheme. According to importers, retailers liked the use of logo on the packaged products. Retailer interviewees did not express such enthusiasm and were very critical to the use of logos as they confused the consumer. Observations on the retailer shelves and after consulting an employee working in the field of sustainability led to the conclusion that despite their reluctance, the retailers extensively use logos of reputable third-party certification schemes. Extensive use of logos is aimed to enhance the general reputation of the retailer and for those retailers with most developed sustainability policy: some of the house brands of the retailer. In the long term, this may lead to changes of the way sustainability is communicated (see the study on eco-brands by Chkanikova and Lehner, 2014)

Support from powerful stakeholders is crucial factor for determining what reputable certification is. Importers select schemes that are supported by the retailers. Retailers choose for certification schemes that are backed by NGOs and a broad range of interested stakeholders. National governments, as the case with the Dutch government is, can also engage in networking and channel significant amount of money through NGOs to support certification and sustainability. The results from the comparison between the schemes and the interviews showed that acceptability of the certification schemes depends on their ability to

involve retailers and NGOs in horizontal or vertical partnerships. This supports the theory of Smith and Fischlein (2010) that private governance in new domains of sustainability, is carried out by networks of actors.

While retailer participation is important because their market power, NGOs were found to bring significant reputation and network capital to a certification schemes. Most of the interviewees of the big shrimp importing companies and of the retailers underscored **that NGOs and media are the trigger on matters of sustainability**. NGOs can wage campaigns that can make some consumers reconsider their purchasing behavior. Therefore, retailers prefer to cooperate with the NGOs on the matters of sustainability. These findings are further confirmed by the scientific literature. Islam (2007) writes that shrimp value chain is not buyer-driven but twin-driven by both retailers and NGOs. In a broader aspect, findings of the interviews lead to the conclusion that the NGO activism rather than businesses own initiative has been causing the recent rise of eco-labeling schemes (Gulbrandsen, 2006). This matter will be discussed in further details in the concluding part of the discussion.

7.2.2 Content of the Standard

Although reputation is the primary driving force for choosing a certification, **the content of the standard has to support the claims made**. Interviewees from the retail and importer sector emphasized on the standards credibility. In addition to that, Dutch retailers with well-formulated sustainability policy emphasized on the stringency of the standards. The stated stringency is the means to fulfill the sustainability commitments and show retailers aim for continuous improvement, which are clearly beneficent for the public image of the company and the relations with NGOs. A proof that subjugates the sustainability to the general reputation concerns is that compared to other characteristics of the product, **sustainability was little emphasized on the Dutch market**. What both retailers and importers mostly emphasized was the sufficient supply of quality shrimp and its price, which can overrule commitments to sustainability. Producer capacity to meet the requirements could also be an important factor for the importers in choosing a certification scheme. No importer opted to change a supplier because of adopting new certification scheme and instead importers and producers were reported to work together. This can be an indicator for relationship involving significant coordination (see Gereffi et al., 2005) between producers and importers in the shrimp value chain. Current evidence hints this relationship is stronger than the commitment to sustainability.

7.3 Multiplicity

7.3.1 The Problem of Multiplicity

The research confirmed that importers and retailers face multiple certification schemes. Observations on importer websites and importers own accounts for problem with managing various certifications support these findings. Importers and retailers have to combine (chain of custody of) certification schemes on sustainable shrimp with certification schemes on food safety such as HACCP, ISO 9001, BRC. At the moment of the interviews, combining different certification schemes on sustainable shrimp was not a major issue. As of July 2013 there is only one widely accepted certification scheme on sustainable shrimp: GGAP. The other three is still not operational (ASC), not required (BAP) or not accepted (for farmed

shrimp) by the Dutch supermarkets (FoS). However, BAP is penetrating the European market, for example in Germany (pers. comm. with GAA/BAP, 2014). Some importers already use BAP certification (interview #9 and observation, Wageningen, 2014). There is interest in the ASC standard, which is expected to become operational in 2014. The scenario of ASC Shrimp Standard becoming operational was discussed with some of the shrimp importers. In addition, significant number of importers was already certified under the ASC chain of custody, which is one for all ASC certifications. Some of these certifications cover species, for which ASC is established on the market (pangasius and tilapia). Therefore, discussions on multiplicity with importers and retailers were relevant and led to interesting results.

Dissatisfaction from the multiplicity came from the weaker parties such as the importers. Most of them openly favored harmonization in the form of merging all the schemes. Certification costs were found to be not only a problem for producers (Reinecke et al. 2012) but also to importers, which had to offer competitive price to their buyers. Retailers were unanimous that harmonization in the form of merging the certification schemes is not feasible and some even claimed it to be undesirable. While some retailers did not have well-formulated policy on sustainability, others had made steps towards shaping the standards in a way that convergence and a level-playing field is created between the standards. The idea behind this is to reduce the costs of certification as high price of shrimp also affects the retailers sales and profits.

7.3.2 Tactics for Coping with the Multiplicity

Table 2 *Tactics used by importers and retailers.*

Stakeholders / Tactics	Tactics for managing the existent standards			Tactics for influencing the standards development		
	Single Audits	Choosing one scheme	Standards Comparison (Gap Assessment)	Communication	Governance	Standards Comparison (Benchmark)
Importers	Yes	Yes	Yes	No	No	No
Big Importers	Yes	No	Yes	Yes	Yes	No
Retailers	N/A (not discussed)	No	Yes	Yes	Yes	Yes

Source: Own Research (2014)

The interviews found **two groups of tactics** to overcome the multiplicity of standards: tactics of combining existent certification schemes and tactics of standards development. Most of the importers mainly used tactics of combining existent certification schemes (combining chain of custody assessment and switching from one scheme to another) and have limited resources to influence standards development. Tactics of standards development (communication with standard owner organizations, participation in governance of schemes and comparison of standards) were used predominantly by the retailer sector and by the biggest importers. Retailers are sometimes used by their suppliers to communicate with the standard owner organization the desire for more convergence between the schemes. Comparison of standards (especially benchmarking) is initiative of those retailers that have well developed sustainability agenda. The Dutch retailers are one of the supporters of the Global Sustainable Seafood Initiative, which according to Bonnel (2012) tries to establish itself as a benchmarking organization for ecolabelling and certification schemes. The idea behind the

comparison is to use the content of the standard to secure their sustainability reputation and to have the ability to choose between several standards regardless the pressure of lobbying NGOs. In addition, comparison against one scientifically recognized benchmark may stimulate the schemes towards more convergence.

The current state of the schemes does not contradict the preferences of the big companies - retailers. As shown by the standards comparison, there have been **many similarities between three of the schemes**, which are most popular in the Netherlands. **There is clear convergence trend for one of the schemes (BAP).** The involvement of retailers results into steering the standards towards existent models. **Agreement for Mutual Understanding (AoMU) has also been signed between ASC, GAA and GGAP** (see Chapter 6.2). Further conclusions on convergence have to wait until revision of at least one of the other certification schemes is concluded. These similarities and possible convergence affects the content of the standards but also auditing and the organizational structure of the ASC, GAA and GGAP. This eliminates the problem of contradictory requirements between the schemes, which has been stated as one of the problems of multiplicity of Reinecke et al. (2012). Another observation is that FoS standard that has involved less retailers and third parties and stays outside the convergence trends. As a result, Dutch retailers do not recognize the standard. Interestingly enough, the relative isolation of FoS has led to poorer standard content compared to the three main standards. This has also led to the marginalization of the FoS from the Dutch market for farmed shrimp.

Using the terminology of Smith and Fischlein (2010), there is a convergence trend in the vertical partners (clients and consultants) of the certification schemes. This is most obvious with GGAP and ASC. GGAP is retailer and producer dominated organization but has involved NGOs in the setting of standards while ASC is founded and strongly supported by the same NGOs. ASC has involved some industry players into its governance and technical committees and aims to attract producer and retailers. GAA began as a producer- and importer-driven organization but has also moved towards including partners from the retailer and civil society sector. There is no data whether the partnering NGOs of GAA are active in Europe but some of the retailers supporting BAP operate in Europe. There is commitment of some American companies to the ASC (see Green Retail Decisions, 2013) and ASC participates in the Boston Seafood Show (ASC, 2014). In the Netherlands, two of the interviewed importers (#9 and #20) are using the consumer label of BAP. European farms (salmon and tilapia) producing for the EU market have also been BAP certified. Comparisons between ASC, GGAP and BAP have already been done by American organizations. BAP has also certified European salmon farm. While vertical partners, especially at retailer level, show trends of convergence, the governance boards of the three schemes (horizontal partnerships) do not converge.

7.4 Theoretical and Practical Implications of the Research

The study departed with the idea to contribute to the spread of certification schemes and to the theoretical discussions on multiplicity. In the coming section, the MSc thesis problematizes two issues in order to better cover the research objectives. In the first part, the study will analyze the drivers behind the certification schemes and how this might increase the importance of sustainability and certification on the Dutch market. The second issue is how

trends of convergence and differentiation between networks and standards content result into a multiplicity.

7.4.1 Drivers behind the Certification and Sustainability Agenda

Scientific literature points out two reasons for the rise of eco-labeling schemes. The first one -what Gulbrandsen (2006) is qualified as rational economic i.e. that market can healthily self-regulate on the ground of rational decision-making. The rational economic perspective defends the idea that it comes from the business own initiative to use “seals of approval” such as logos to distinguish its products (Klein, 1996). In this way, the companies aim to increase their profits: obtain price premium (Gullison, 2003), expand their market share (Gullison, 2003), protect their reputation (Klein, 1996) and demonstrate meeting commitments to local stakeholders (Gullison, 2003). Prevention of state intervention (and restrictions) through compliance with voluntary certification is mentioned as another major reason for companies to involve in a certification scheme (OECD, 2003).

The second perspective is the political consumerism. It expresses the idea that drivers of sustainability are ethically and politically motivated consumers who can force policy change in businesses (Gulbrandsen, 2006). NGO networks play a significant role in praising or shaming business practices and mobilizing consumers for boycotts (Haufler, 2003).

The findings of the current research did not support some of the traditional assumptions of the rational economic perspective as a driver to the certification. Certified product may demand a price premium only when it is required by the buyers (retailers) and it is new and in insufficient supply on the market. A retailer with less formulated sustainability agenda has occasionally sold non-certified seafood, which could be acquired at a lower price. The same incident has led to a conflict between the sales team and the sustainability team within the company, which shows that sustainability and price do not have harmonious relationship. Certification schemes such as ASC, GGAP, BAP and FoS do not mention anything about price premium. Price is an important motivation for the companies but where mentioned it was rather as a reason not to demand a certification scheme than a reason for its demand. The rational economic perspective is not completely rejected as businesses do aim to improve their reputation and to maximize their profits by involvement in sustainability initiatives on farmed seafood. Some retailers have sophisticated sustainability policies and develop their own ecobrands. However, the first push towards sustainability comes as a reaction to an external event (media broadcast or NGO campaign).

The research **findings were supportive of the political consumerism perspective, more specifically of the role of the media and NGO activism in pushing the businesses towards sustainability.** This affects not only schemes with consumer logo but also triggered the rise of business to business certification schemes such as GGAP. Some interviewees pointed out the reason why social and environmental sustainability is still not primary issue in seafood (compared to price and food quality) is the lack of NGO attention on these sectors. However, NGO activism in one range of products (poultry, pigs) seems to affect the general policy of the supermarkets, which also affects seafood. An influential NGO such as WWF did not limit only to criticizing but was also involved in entering partnership with businesses and the founding and promotion of one of the studied certification scheme (ASC). The Dutch government also tries to play a role in promoting sustainability internationally: for this purpose it leaves the domain of the traditional state powers and channels money non-governmental organizations such as IDH.

The theoretical conclusion of the importance of the NGOs for pushing the sustainability agenda and certification could serve as an advice to policy makers from the civil society and governmental sector. As already mentioned, sustainability is still not a major issue in shrimp and seafood in general. Therefore, **NGOs could put more efforts towards pushing the certification movement in shrimp and seafood sector**. There is already positive progress in that direction. At least in the Netherlands one of the big retailers has well formulated policy for sustainability and certification, which also covers seafood. Furthermore, this retailer has adopted more pro-active behavior by creating its ecobrands and is involved in various NGO networks. **This gives another proof that civil society pressure and cooperation with retailers is an effective strategy for spreading sustainability certification in seafood and other fields as well** (see also Resolve, 2012).

7.4.2 Discussion of the Multiplicity

In addition to analyzing the roles of businesses and civil society sector in pushing the sustainability agenda, the results of this study contribute to the discussion of the problem of multiplicity. Multiplicity is affected by the convergence and differentiation trends between the schemes, which occur on the level of the networks of supporters and the level of content of the standards. The study took the works of Smith and Fischlein (2010) and Reinecke et al. (2012) as a fundament. The first article emphasized on the competition between networks and the relations between certification scheme partners for the development of the certification scheme. The second discussed the dynamics between the certification schemes on the level of their content.

The study found evidence supporting the hypothesis for appearing and development of standards as a result of competition of networks. The difference between stakeholders in Europe and the USA is mentioned as the main reason for GGAP and BAP to exist and be developed as separate standards. Another reason is the differences between “consumer” and “producer” perspectives taken by the standards. One of the major differences between ASC and GGAP is the strong influence of the NGOs in ASC standard-setting and governance. In other words, the main standards were found and governed by different groups of influential stakeholders (industry, NGOs). The standards have been expanding their networks including participants of other sectors as downstream partners (producers, retailers and NGOs), though keeping them at an arm’s length from the governance structures. As a result networks of the organizations include similar sectors: retailers, NGOs and aquaculture industry as clients and consultants.

Despite the sectoral convergence, the study noticed partial convergence on the level of vertical partners, mainly at the level of businesses. The comparison of the members and supporters of the various organizations show significant overlap of the vertical partners of GGAP and ASC. However, the overlap between the European and American schemes concerns only several importers and big retailers and recently a European tilapia and salmon farms producing for the British market (GAA 2014). No information was found on the NGOS supporters of BAP and therefore, no conclusions could be drawn for convergence on NGO level. Big retailers are also seen to cooperate in global benchmarking initiatives such as the Global Food Safety Initiative (GSI) and Global Sustainability Seafood Initiative (GSSI). One of the reasons might be an effort to reduce the barriers between the USA and Europe: at the very least, these retailers operate on the both sides of the ocean. Sufficient volume is another possible explanation for these initiatives (see 5.2.2)

With regards to the findings of Reinecke et al. (2012), the current study found a convergence trend. It is most evident with one of the standards (BAP). In addition, there is Agreement for

Mutual Understanding (AoMU) between GGAP, ASC and BAP aiming at harmonization in certain areas. Further revisions of at least one of the other schemes may give more insight in how deep this convergence trend is. If evidence for the convergence is still pending, proofs for differentiation and specialization trends between the standards are entirely lacking. There could be several reasons for this lack of evidence. First, aquaculture and coffee industry, which was analyzed by Reinecke et al. (2012), have different production and consumption practices. Second, coffee certification appeared earlier than certification on aquaculture. Some of the most popular certification schemes came out in the end of the 80's or in the 90's. In the case of aquaculture, the first scheme was founded in 1997 but it took until the new millennium for the rest of the certifications to come into being. Some of the schemes (ASC) have undergone a long process of standard setting and are yet to be revised for a first time. At this moment, there is still not sufficient clarity if differentiation will be absent or it is only the case with only one certification. Despite this, the current state of aquaculture certification may lead to discussion on the future of the standards multiplicity. In spite of the significant similarities and possible convergence trend between the schemes with regards to content and downstream networks, full harmonization i.e. merging of the schemes is not feasible. The governing stakeholders of the certification schemes continue to support their certification schemes.

Maintaining alternatives and healthy competition between the certification schemes has been explicitly pointed out during the current research. My study is in agreement with the research of Cashore et al. (2007) in the field of sustainable forestry certification. On the one hand, the competition between certification schemes allows an escape in case some certifications impose too high (i.e. costly) requirements. On the other, founding own certification scheme with higher requirements encourages other certification scheme to follow suit and "raise the bar" as it was the case with the improvement of the social standards of BAP. The current research challenges the statement that producer-dominated certification schemes only aim to be "better than average" or better than non-labeled products" (Gulbrandsen, 2010, page 175). Although GAA has its origins as a producer organization, the level of stringency for the social requirements is not significantly lower than other certification schemes such as ASC and GGAP. The maintained healthy competition towards further improvement of the standards is completely different situation than what has been observed in other seafood sectors (tuna) where competition blocks innovation (see Miller and Bush, 2013). The most probable explanation is that none of the certification schemes on aquaculture is institutionalized and can not rely on its network resources to neutralize credibility flaws.

Despite the healthy competition towards stricter standards, **the current study indicates the need for possible specialization of the certification schemes in middle and long term.** At this moment the standards are different but if only a convergence trend is followed, it may create problems. If in the future standards become identical content-wise but continue to co-exist and multiple certifications increase the costs of producers and other businesses, this may potentially affect their credibility. The certification schemes on shrimp have already attracted criticism for lack of involvement of local stakeholders, costs that marginalize small producers (Vandergeest, 2007, Douma and van Wijk, 2012). Potential weakness in the credibility of the certification may affect the growth of the certification movement and may eventually lead to withdrawal of influential supporters (from the certification in general or towards creation of a new scheme). Therefore, a certain extent of differentiation between the standards while preserving the "rules of the game" may lead to a bigger recognition of the schemes and enhancement of their credibility.

8. Limitations of the MSc Thesis. Future Research

8.1 Limitations of the MSc Thesis

The study has several geographic and structural limitations. The research for this MSc thesis had to be conducted with limited financial and time resources. Therefore, mainly Dutch importers and retailers (with the exception of one in Spain and one in Belgium) were interviewed because of their geographic proximity to the author who is based in Wageningen, the Netherlands. As such, the results on the preferences of importers and retailers (i.e. the criteria for the choice) are valid mainly for the Netherlands and further research is needed to apply its results to other countries in Western Europe. While the used literature (Islam, 2007, Resolve, 2012) shows significant importance of the reputation and NGO networks for the supermarkets in other countries, in other markets it may relate differently to the content of the standards and sustainability. There might also be different preference for certification schemes. For other findings, there is no such geographic limitation. There is evidence that value chains are globally driven by the retailers (see Gereffi, 1994). The results of the comparison and convergence of the vertical and horizontal partnerships of the main certification schemes are also valid outside the Dutch context. Using the information from the websites, the MSc research has taken into account all the members of the organizations and not only those members that are based in the Netherlands.

The structural limitations relate to the topic of the MSc thesis: sustainable shrimp. Extrapolation of the results to other sectors (coffee, meat even wild-caught fish) will require additional research. Results of the current MSc thesis can be more easily transferred to other farmed species (salmon and pangasius), though additional research is recommended. During the interviews, general trends on seafood and several other species (salmon, pangasius) were discussed and there was no significant difference in the answers of the interviewees with regards to the power in the value chain and multiplicity. Additional research effort is however recommended as there was no purposeful effort to contact main importers of salmon and pangasius and the retailer employees were not explicitly asked to discuss these species.

In few cases, the author of this study has interviewed several importers, which import species different from shrimp. Reason for that it was not clear whether these companies sell shrimp from the sources for the selection of the interviewees. With regards to the results shown in the MSc thesis, even removing these importers do not change significantly the proportions of the answers in any of the categories.

Lastly, the author of the current MSc thesis faced a problem that at the time of the interviews (until end of June-July, 2013), the ASC shrimp standard was still not released. In order to learn more about the experiences of the importers with the ASC demand and logo, the study researched why they use the ASC logo in general, with species such as salmon, tilapia and pangasius. At one particular occasion a comment on MSC was also accepted because it reflected overall criticism against all the ecolabelling schemes, including ASC. However, in most of the cases, a scenario of the release of the ASC shrimp standard was also presented to the interviewees for comment.

8.2 Future Research

The study gave an insight in how Dutch importers and retailers cope with the existence of multiple certification schemes on sustainable shrimp and how this multiplicity evolves. While performing the research, the author of the current study was intrigued by additional questions that might be interesting for further research.

- Role of the importers in the value chain. The study covered only the Western (Dutch) part of the value chain. An observation of the current study was the unwillingness of importers to switch their partners in developing countries. In a number of cases, the importers decided to become involved in a certification after their suppliers have adopted a scheme. It would be interesting to study the power relations between exporters and producers in developing countries and importers from developed countries. Such a study could trace practices of switching partners and whether importers are the main channel of information what the end buyer (retailer) requirements are.
- The content of the standards and the certification bodies. The current MSc thesis studied only the content of the standards and not how effective is the control of the certification bodies is on their application. Such a study might cast a light on the challenges that certifiers face when they have to control against a one or more schemes. Thus, this might contribute to better understand how standards work in practice and how they could be further improved.
- Evolution of certification schemes. Contrary to what Reinecke et al. (2012) noticed in the coffee industry, there is no evidence for trade of differentiation between the three main standards on aquaculture. If the trend for imitation noticed in the research is preserved when the revised GGAP standard is released, it might be interesting to compare the coffee and the shrimp industry to explain these differences.

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Appendices

Appendix A Comparison of the Standards Content

Legend for the tables

M Management plan requirements (risks is defined by the applicant; standard requires a written management plan)

D Descriptive (risks are defined by the standards owner; they are instructive or could be answered yes/no)

V Value-based; scoring or parameter measurement value (based on DNV, 2010)

/ The standard does not have a requirement on this issue

- If a standard has additional requirements compared to the other standards for the same topic, a plus (+) has been added. The use of pluses is only for comparison within the given topic. Different topics can not be compared against each other on the basis of the number of pluses.
- The **marked text** signifies that the requirement is only a recommendation
- In the tables no distinction will be made between major and minor musts for the GGAP standard. However, further below the minor musts of GGAP will be listed for information of the reader.

Environment

Environment-Feed

Table A1 Environment-Feed

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (older version)	Comments
feed traceability	M +	D +	D	\	\	BAP forbids cannibalistic practices but covers only terrestrial ingredients;
feed disposal	\	M	\	\	\	
amount of feed used	D	M ++	M +	M +	\	ASC requires only record keeping; only GGAP has requirements on excess feed
"fish-in fish-out"	V	\	V	\	D (record keeping only)	
certified marine ingredients	D +	D +	D	D	\	BAP allows for use of non-certified; ASC does too but only within 5 years
no IUCN/threatened species	\	D	D	\	\	
terrestrial feed ingredients	D	D	\	\	\	
GM Feed Record Keeping & communication to buyers and consumers	D	\	\	\	\	

Environment-Biodiversity

Table A2 Biodiversity

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (older version)	Comments
siting in protected areas	D +	D, M	/	/	/	GGAP requires risk assessment; ASC have requirement on the total area with shrimp farms
siting in mangroves	D +	D	D	/	D	
mangrove restoration	D*	M	D	D	D	*ASC standards require restoration but this issue needs further elaboration from the ASC team
environmental impact assessment	M ++	M +	/	M	/	*impact assessment of ASC is done by independent parties; *FoS does not specify components of the assessment
conversion of unproductive sites	/	D	/	/	D	
barriers, buffers and corridors	D +	M	/	/	/	*GGAP has minor must only; plan for creation of buffers is sufficient
predator control	D +	M +++	D++	D	D	*ASC and BAP forbids lethal predator control of endangered species *BAP requires humane methods and favors non-lethal for all species *GGAP risk assessment for all species (not only endangered) + legislation *FoS only describes facilities
ban on genetically modified shrimp	D	D	/	D	/	
origin of postlarvae & broodstock	D	D +	D +	/	D +	* ASC allows sourcing of broodstock but only it comes from responsible sources; ASC has a transitional period for black tiger shrimp; *GGAP and BAP forbid use of wild broodstock and collection of wild juveniles
introduction of non-indigenous shrimp species	D	M	D +	/	D	*GGAP includes this requirement in the EIA *BAP requires permit from ICES and import permits
escapes of farmed shrimp in environment	M, D +	M +	M +	M, D	D	*ASC requires management of facilities and plan in case of escapes; descriptive criteria as well (height of dykes) *BAP and GGAP plans for preventing and mitigating escapes (including structure maintenance) *FoS controls only for barriers and screens

Environment-Waste, Water Quality and Energy

Table A3 Waste, Water Quality and Energy

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (older version)	Comments
“all in all out” policy	/	M	/	/	/	
effluents	V ++	M +	V ++	M	V+	*FoS does not specify what is "significantly deteriorated" *GGAP only requires compliance with legislation on effluents; BAP & ASC thresholds
dissolved oxygen	V +	/	V +	M	V+	FoS does not specify what is "significantly deteriorated"
salinization	D, V +	D	D, V	V	D, V	ASC does not allow any use of fresh groundwater for shrimp farming
storage and disposal of chemicals	M,D	M, D ++	M, D +	/	D	ASC has only two indicators but it requires risk assessment of both handling and storage; GGAP requires risk assessment for transport *GGAP and BAP have procedures and descriptive requirements against spills
sediment	D,M, V +	D or M	D	/	/	*ASC requires management plans for water treatment and sediment disposal, describes structures and has thresholds on settleable solids *GGAP requires compliance with legislation; only when such is not in place sedimentation is to be included in the EMP
organic waste	/	M	D	/	D	

Social

Table A4 Social

Topic/Cert scheme	ASC*	GGAP	BAP*	FoS (SA 8000)*	BAP (old standards)	Comments
child labor	D	D	D	M, D	D	
“young workers”	/	I	D	D	/	
schooling of children of employees living near the farm	D	D	D	I	/	
association and collective bargaining.	D +	D	D	D ++	/	
forced and bonded labor.	D	I	D	D	/	
discrimination	D, M +	I	M	D	/	only ASC requires both policy for handling discrimination (like BAP) and zero accidents of discrimination (SA 8000)
Maternity	D	I	/	M	/	
workers' safety	M	M	M	M +	M	
require medical assistance to the workers	D +	I	D	D	D	*only ASC requires covering of all medical expenses related to a work accident (not only basic health care)
protective	D	D +	D ++	D	D	

equipment						
minimum salary	D +	D	D	D +	D +	
Convenient salary transfer	M D +	D	D	D	/	
forbid deduction of pay	D	I	D	D	/	
disciplinary practices	M D +	I	D	D	/	
working hours	D	M,D	D	D	/	
overtime	D	D	D	D	/	
workers' complaints	M	M	M	-	/	
subcontractors	D	D	/	D +	/	
contracts	D +	D +	D	D +	/	
living conditions for workers	D	D +	D +	D +	D	
interactions with communities	M ++	I	M +	M	D, M	ASC requires social impact assessment;
Self-Declaration on human rights	/	D	/	/	/	

Animal Welfare and Health

Table A5 Animal Welfare and Health

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (older version)	Comments
Animal health & mortality	D	M, D	M, V	/	/	
transfer of pathogens	M	M ++	M +	/	/	*unlike BAP and GGAP, ASC does not have a requirement for training of staff *GGAP requires notification of authority and WHO in certain situations
veterinary health plan	M	M +	M +	/	/	*ASC health plan covers only transfer and spread of pathogens *FoS is unclear claiming that prevention is the "guiding ethos"
disease free seedlings & traceability to the origin of the shrimp	D	D	D +	/	/	*GGAP and ASC have only one of the two requirements *BAP requires both disease free seedlings (like ASC) and traceability (like GGAP)
infrastructure for quarantine	/	D	/	/	/	
medicines are prescribed by veterinarian	/	M	D	not clear	D-	
ban on certain chemicals and antibiotics	D	D	D	D	D	
medicated feed	D +	D +	D	/	D +	*ASC discourage medicated feed *GGAP only when justified by the veterinary plan BAP (older v.) requires no antibiotics in non-medical. Feed
amount of antibiotic treatments & record keeping	D ++	M+	D+	D	/	*ASC discourages antibiotic use by not allowing the use of the logo *FoS does not require record keeping for antibiotics
no use of hormones and antibiotics as growth promoters	/	D	D	D	/	
use of chemicals	D	D	D	/		
animal stress	/	M	M, V	/	/	ASC feeding calculations may contribute to less animal stress

Food Safety and Hygiene

Table A6 Food Safety and Hygiene

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (older version)	Comments
inputs are from safe and secured sources & traceability	D	M +	M +	\	M +	ASC requires traceability only for feed and disease-free broodstock (see relevant sections)
hygiene plan	/	M	\	\	\	
Disinfection of equipment	\	M	\	\	\	
training of workers in hygiene	\	D +	D	\	\	GGAP also checks for the awareness of the visitors
pre-slaughter fasting	\	D	\	\	\	
transport & post-harvest	\	D, M	D	\	D	
residue levels	\	D	M	\	M	

Legal

Table A7 Legal

Topic/Cert scheme	ASC	GGAP	BAP	FoS	BAP (old version)	Comment
All laws	D	M +	D	\	D	the legal section of GGAP is included into the EIA
Labor laws	D	\	\	D	\	
Environmental laws	see line 1	see line 1	D	D	D	
Land and Water Use Laws & property rights	D	D	see line 1	\	D	
Transparency legal compliance	D	\	\	\	\	

Compliance with FAO Technical Guidelines on Aquaculture Certification

Table A9 Compliance with FAO Technical Guidelines on Aquaculture Certification (covers only the minimum substantive requirements)

Minimum substantive criteria for addressing aquatic animal health and welfare in aquaculture certification schemes:	Topics	ASC	GGAP	BAP	FoS
20. implementation of aquatic animal health management programmes set up in compliance with relevant national legislation, taking into account the FAO CCRF Technical Guidelines and relevant OIE standards.	*animal health *animal health plan	Yes (but the plan addresses only pathogens ; shrimp survival rate controlled)	Yes	Yes	Yes (It covers only the use of drugs)
21. Movement of aquatic animals, animal genetic material and animal products should take place in accordance with the relevant provisions in the OIE Aquatic Animal Health Code (<i>including disease management</i>)	*origin of postlarvae & broodstock *non-indigenous species *escapes *animal health plan	Yes	Yes	Yes	No (only escapes)
22. A culture environment should be maintained at all phases of the production cycle adapted to the species raised in particular by *Allowing for quarantining of stock where appropriate; * Routine monitoring of stock and environmental conditions for early detection of aquatic animal health problems; and * Implementation of management practices that reduce the likelihood of disease transmission within and between aquaculture facilities and natural aquatic fauna, reduce stress on animals for the purpose of optimizing health.	*animal health * quarantine infrastructure (food safety) *stress	Yes (no mentionin g of quarantine)	Yes (no mentionin g of quarantine)	Yes (no mentionin g of quarantine)	Yes (but formulated too general; "prevention is the guiding ethos")
23. Veterinary medicines should be used in responsible manner	*amount of antibiotics used *prescribed by veterinarian *health management plan	Yes (w/o veterinarian)	Yes	Yes	Yes (w/o veterinarian)
24. Use of species in polyculture or integrated multitrophic aquaculture should be carefully considered	not explicitly regulated by any standard	No	No	No	No
25. Aquaculture animals should be kept under farming conditions suitable for the species concerned, in particular taking into account water temperature and quality.	*stress	No	Yes	Yes	No (controls for the surrounding water)
26. Workers should be trained on good aquatic animal health and welfare management practices	*health management plan	No	Yes	Yes	No

Minimum substantive criteria for food safety	Topic	ASC	GGAP	BAP	FoS
28. Aquaculture facilities should be located in safe areas	*residues	No	Yes	Yes	No
29. procedures for avoiding feed contamination; no unsafe levels of pesticides, biological, chemical and physical contaminants and substances permitted by the national competent authorities.	*inputs are from safe and secured sources *residues				
30. *All veterinary drugs and chemicals for use in aquaculture shall comply with national regulations, as well as international guidelines. *should be applied with accurate diagnosis *In some classifications, only prescribed and distributed by authorized personnel; *should be used according to the instructions . * banned non-registered and/or non permitted drugs and/or chemicals must not be used *prophylactic use should not take place.	*amount of antibiotics used *banned antibiotics *veterinarian prescribed *animal health plan *chemical use	Yes	Yes	Yes	Yes
31. * good water quality should be in place * Waste water (and human waste) should not be used or if used follow WHO guidelines	*hygiene * organic waste	No	Yes	Yes	No
32. safe source of broodstock and seed should be ensured	*origin of postlarvae and broodstock	Yes	Yes	Yes	
33. Traceability and record-keeping of farming activities and inputs which impact food safety * record-keeping of chemical use and withdrawal periods	*traceability &safe inputs (food safety)	No (only chemical use)	Yes	Yes	No
34. * good hygiene practices (esp. waste & waste water) * good aquaculture practice for safety and quality produce *pest control esp. food storage *feed and food safety * appropriate techniques for harvesting, storing and transportation	*hygiene *organic waste *post-harvest & transport *residue	No	Yes	Yes	No
35. workers trained in good hygienic practices	*training of workers (food safety and hygiene)	No	Yes	Yes	No

Minimum substantive criteria for addressing environmental integrity	Topic	ASC	GGAP	BAP	FoS
44. Environmental impact assessments should be conducted, according to national legislation	*environmental impact assessment	Yes	Yes	Yes (only if required by national legislation)	Yes
45. Regular monitoring of on-farm and off-farm environmental quality	*predator control *see water, waste and energy section	Yes	Yes	Yes	Yes (water quality monitored only annually)
46. Evaluation and mitigation of the adverse impacts on surrounding natural ecosystems	*siting in protected areas *siting in mangroves *mangrove restoration *predator control	Yes	Yes	Yes	Yes
47. efficient water management and use as well as proper management of effluent	water and waste requirements	Yes	Yes	Yes	Yes
48. Where possible, hatchery produced seed should be used for culture. wild seeds sourced responsibly	*origin of postlarvae & broodstock	Yes	Yes	Yes	No
49. Exotic species are to be used only when they pose an acceptable level of risk	*non-indigenous species *escapes	Yes	Yes	Yes	Yes (only escapes)
50. science-based risk assessment where genetic material of an aquatic organism has been altered	* genetically modified shrimp	Yes	Yes	Yes	Yes
51. Responsible Infrastructure construction and waste disposal	*siting in protected areas *siting in mangroves * chemical waste storage and disposal *sediment *organic waste	Yes (but w/o organic waste)	Yes	Yes	Yes (only siting in mangroves)
52. Feeds, feed additives, chemicals, veterinary drugs including antimicrobials, manure and fertilizer should be used responsibly	* all feed section *antibiotic and chemical use	Yes	Yes	Yes	Yes

Minimum substantive criteria for addressing social-economic aspects	Topic	ASC	GGAP	BAP	FoS
55. Workers should be treated responsibly and in accordance with national labour and where appropriate ILO conventions	see social	No (GRASP is voluntary)	Yes	Yes	No (covers only issues of minimal payment, child labour, workers' safety; SA 8000 optional)
56. workers paid wages and provided benefits and working conditions	*minimum salary, convenient way of payment *health care, social benefits * workers' safety	Yes	Yes	Yes	Yes
57. Child labour should not be used in a manner inconsistent with ILO conventions and international standards.	*child labor *schooling *young workers	Yes	Yes	Yes	Yes

Annex B Interviews

Questions to the Importers

1. Which of the three certification schemes on farmed shrimp: GlobalGAP, Best Aquaculture Practices and Friend of the Sea do you use or contemplate using? Since how long do you use it?

Based on the answers and/or preliminary research

- 1.1 You are certified under the chain of custody scheme of Aquaculture GlobalGAP. Why did you choose GlobalGAP?

Is it because of:

- A. the robustness of the standards,
- B. the quality of ASC is guaranteed by influential retailers and suppliers
- C. other (...) ?

- 1.2 You are certified under the chain of custody scheme of Aquaculture Stewardship Council (ASC). Why did you choose ASC?

Is it because of:

- A. the robustness of the standards,
- B. the quality of ASC is guaranteed by strong organizations (WWF and IDH)
- C. the label of ASC can be seen by the consumer
- D. other (...) ? (*more than one option is possible; in this case please mention which of the chosen options is the most important one*)

- 1.3 You are certified under the BAP. Why did you choose BAP?

Is it because of:

- A. the robustness of the standards,
- B. the quality of BAP is guaranteed by strong retailer organizations

- C. the label of BAP can be seen by the consumer
- D. other (...) ? (*more than one option is possible; in this case please mention which of the chosen options is the most important one*)

1.4 You are certified under the FoS. Why did you choose BAP?

Is it because of:

- A. the robustness of the standards,
- B. the quality of FoS is guaranteed by strong retailer organizations
- C. the label of FoS can be seen by the consumer
- D. other (...) ? (*more than one option is possible; in this case please mention which of the chosen options is the most important one*)

1.5 Your company is one of the supporters of GGAP (ASC). Why did you need GlobalGAP in Europe as we already had the BAP in the USA? (*asked only to companies appearing in a scheme committees or schemes websites*)

2. Where did you get the idea to become certified first at GGAP/ASC/BAP

- A. Your company
- B. a client,
- C. auditor,
- D. another certification scheme
- E. one of your suppliers was already using it

3. Why do you think FoS (and/or BAP) are less popular in Europe?

4. Do you intend to join the Aquaculture Stewardship Council scheme on shrimp after the scheme is launched? Why?

If answer 4 is positive

4.1 When you move to ASC, will you abandon some of the other certification schemes you are a member of?

5. Who do you think drives these certification schemes and why?

6. Who do you sell your shrimp to?

A. Retailers

B. Wholesalers

C. Food Service

7. Which are the markets for your certified shrimp? For non-certified shrimp?

8. Do your clients demand a certain certification scheme or they can accept another but a similar certification?

9. Does it happen that a client asks for more than one certification scheme at the same time?

10. Do you expect to change business partners (suppliers or retailers) once you enter a new scheme on shrimp?

11. Where is the biggest challenge in the standards: the robustness of one standard or the existence of different certifications on one criterion? Which standards are most challenging?

12. Do you prefer all schemes to become one scheme or you prefer a differentiation between them?

13. Is the reputation or the content of the standard is leading in your choice of a certification?

14. Do you communicate with certification not-for-profit organizations that manage the schemes (such as GlobalGAP, Aquaculture Stewardship Council or Friends of the Sea)? Do you discuss issues of harmonization or maybe, on the opposite, more differentiation between the schemes?

15. Could you mention the names of the other major shrimp importer companies in the Netherlands?

Questions to the Big Dutch Retailer

1. Why did you need GGAP as there is also a BAP in the USA?
2. Why did you need ASC as you already had GGAP?
3. How actually did you become involved in GGAP and ASC?
4. Who do you think is the driving force behind the certification?
5. As of 2015 you move to the ASC, would you continue to also demand GGAP for shrimp?
6. Would you change some of your suppliers if they do not accomplish the commitment to the ASC?
7. Do you also offer premium price for some certification?
8. Currently the shrimp trade in the Netherlands is dominated by two big companies, which control about 80 per cent of trade. Do you easily switch from one supplier/importer to another in regard to the shrimp? Is it easy to maneuver for the best quality for the best price?
9. We almost did not mention the last scheme for farmed shrimp: Friend of the Sea? Why?
10. Do you think businesses choose a certification schemes because of the content of the scheme or the reputation of the standards?
11. Do you find the big number of certifications as a problem and how do you deal with it? We have now 4 certification schemes on sustainability?
12. Is benchmarking a way to cope with the multiplicity of certifications? On the one hand you have the goal to achieve full certification under the ASC and on the other, you support GSSI. And some organizations are opposed to it such as the MSC. How do you plan to deal with benchmarking in such a context?

13. Do you have other channels of communication with different certification schemes other than the workgroups?
14. Is shrimp important for you as a retailer?

Questions to the Sustainability Consultant and Ex-Retailer Employee of Dutch supermarkets “A” and “B”

1. You have worked as a sustainability manager at supermarket A and B? Do you think there is a significant difference in the policies of the two supermarkets?
2. Under which of the three certifications schemes BAP, GGAP, FoS supermarkets A and B have a chain of custody/ require their suppliers to be certified?
3. Most of the importance of shrimp were more ready to switch a client than to change their suppliers? How would you comment this?
4. What is the reason for supermarkets A and B to engage in sustainability?
5. Do you think the commitments to the ASC of the two supermarkets are achievable?
6. Do you know if any schemes for sustainability for shrimp is used by supermarkets A and B (GGAP, BAP, FoS)?
7. Do you think a label, the fact there is a logo on the shelves is important for the choice of the scheme?
8. Two big importers control like 80 per cent of the shrimp trade? How can retailers switch between suppliers?
9. Do retailers communicate with standard owner organizations?
10. Do retailers find the big numbers of certifications as a problem?
11. Do retailers favor convergence or differentiation between the schemes?
12. Do you think various schemes of sustainability can be benchmarked such as GSSI (Global Sustainability Seafood Initiative)?
13. Who do you think is the driving source behind the certification schemes?

List of the Interviewed Importers and Retailers

Table B1 Interviewed Importers and Retailers. As part of the interviewees requested staying anonymous, the study will not reveal the identity of the interviewees and the companies.

Importer	Discussed Species	Size of Company	Interviewed Person	Country	Date
#1	Shrimp	S/M	Trader	Netherlands	11.6.2013
#2	Salmon, Trout, Shrimp	Medium to Big	Trader	Netherlands	13.6.2013
#3	Seabas, Pangasius	S/M	Trader	Netherlands	13.6.2013
#4	Tilapia	S/M	Trader	Netherlands	13.6.2013
#5	Salmon, Tilapia and Pangasius	S/M	Trader	Netherlands	13.6.2013
#6	Shrimp	S/M	Trader	Netherlands	13.6.2013
#7	Shrimp	S/M	Trader	Netherlands	14.6.2013
#8	Salmon, Trout	S/M	Trader	Netherlands	14.6.2013
#9	Shrimp	S/M	Trader	Netherlands	18.6.2013
#10	Shrimp	S/M	Trader	Netherlands	20.6.2013
#11	Shrimp	S/M	Quality manager	Belgium, also sells to the Netherlands	19.6.2013
#12	N/A	S/M	Trader	Netherlands	June 2013
#13 and #19	Shrimp	Big Integrated Exporter/Importer	Branch Director and Trader	Spain, Belgium, France, Netherlands	June 2013
#14	Shrimp	Big	Quality manager	Netherlands	05.7.2013
#15	Shrimp, Tilapia, Pangasius	S/M	Trader	Netherlands	July 2013
#16 and #18	also Shrimp	Big Retailer	Quality Manager and Sustainability Manager	Netherlands	12.7.2013 22.7.2013
#17	Seafood & Fish as a whole	Retailer	Sustainability Manager (former employee in three of the biggest Dutch supermarkets)	Netherlands	21.7.2013
#20	Shrimp	Big	Quality Manager	Netherlands	20.6.2013

List of people contacted for personal communication

Table B2 Personal communication on specific issues

Organization	Topic	Date
development NGO	use of logos	November 2013
employees of Standards & Certification Department of ASC	ASC standards	October-December 2013
certification body Control Union	auditing, esp. measurement of water quality indicators	January 2014
Market developer at GAA	BAP geographical reach	April 2014