

# Market-based governance in aquaculture

EXPLORING THE VIABILITY OF ECO-CERTIFICATION SCHEMES IN  
THE CASE OF SMALL-SCALE BLACK TIGER SHRIMP FARMERS IN  
BANGLADESH

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## Summary

Aquaculture production is one of the fastest growing food sector on a global scale and is been done mainly of small-scale producers. However, the production of aquaculture causes several environmental and social problems such as mangrove destruction and slavery. Eco-certification schemes have been set up in order to provide a market-based governance tool to deal with those sustainability problems. However, literature suggest that small-scale farmers do often face difficulties to become involved in eco-certification schemes. This has mainly to do with high administrative requirements in eco-certification schemes and high financial costs for the audits. Retailers in the EU are increasingly demanding eco-certified seafood products, what can lead to difficulties for small-scale farmers to maintain market access to retailers in the EU.

Black Tiger shrimps from Bangladesh are a main commodity in the EU. However, the production of those shrimps is mainly done by small-scale farmers in Bangladesh. This case study focused on the power relations behind the demand for eco-certified seafood products in the EU and pointed out to what extent different eco-certification schemes (ASC and Naturland) are viable for small-scale Black Tiger shrimp farmers in Bangladesh. Next to that, some alternative options such as cooperatives and government regulation are explored in order to obtain insights in the possibilities of these alternative options for small-scale farmers to regulate sustainability and maintain market access to large retailers in the EU. This case study is carried out trough qualitative research, mainly in the form of semi-structured interviews with respondents. These interviews are complemented with questionnaires among small-scale Black Tiger shrimp farmers in Bangladesh.

The results of this research show that NGOs such as WWF are pushing retailers in the EU to buy eco-certified seafood products labeled with ASC. However, this one-sided vision ensures that small-scale farmers face difficulties to maintain market access to retailers in the EU. This has mainly to do with the heavy methodology of ASC and the financial costs for the audits which has to be paid by the farmer himself. Furthermore, the lack of a price premium does not make it attractive for small-scale farmers to become involved in ASC. At the other side, Naturland provides a price premium and distributes the costs of the audits among actors in the value chain. This seems to be attractive for small-scale Black Tiger shrimp farmers in Bangladesh, as most of the eco-certified farmers in Bangladesh are labeled with Naturland. Next to that, ASC is aimed at labeling intensive production systems, while the production of Black Tiger shrimp in Bangladesh is mainly extensive. Naturland focuses on extensive production systems, making the requirements of this scheme better applicable for small farmers in Bangladesh.

To maintain market access to retailers in the EU for small-scale Black Tiger shrimp farmers in Bangladesh, a few recommendations can be made:

- (1) Retailers in the EU need to be more aware of different forms of production that could be sustainable. Extensive Black Tiger shrimp farming in Bangladesh can be considered environmental friendly due to low inputs of feed and fertilizers.
- (2) Retailers, certification organizations and NGOs have to be aware of the pressure that small-scale farmers face in order to maintain market access to retailers in the EU. As eco-certification schemes have become almost indispensable to maintain market access to retailers in the EU, this can exclude small-scale farmers as they are not able to meet the administrative requirements and pay for the financial costs of the audits.
- (3) Certification organizations, business and governments should explore alternative options in order to maintain market access for small-scale Black Tiger shrimp farmers in Bangladesh such as the setup of cooperatives, the use of area—based management and the use of blockchain technology

**Keywords:** small-scale shrimp farmers, Bangladesh, eco-certification schemes, power, alternative options

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## List of acronyms

ASC	Aquaculture Stewardship Council
CBI	Centre for the Promotion of Imports from developing countries
EU	European Union
FAO	Food and Agriculture Organisation
GlobalGAP	Global Good Agricultural Practices
NGO	Non-Governmental Organisation
STIP	Seafood Trade Intelligence Portal
WWF	World Wide Fund



## Chapter 1 Introduction

*‘We have eco-friendly shrimp. We can make them; we have that technology. But we can never have an eco-friendly all-you-can-eat shrimp buffet. It doesn't work’.*  
(Barton Seaver)

The demand for sustainable seafood has increased in the last decades due to concerns about environmental and social implications of production and consumption of seafood worldwide (Bush et al., 2013). However, as the quote above already suggested, sustainability is a very disputed subject, leading to discussions about what sustainability is and how to govern sustainability in society. Eco-certification has emerged as a market tool to govern sustainability, mostly run by private organizations (Boiral and Gendron, 2011; Marschke and Wilkings, 2014). Although buying eco-certified products gives most consumers “good feelings” about contributing to sustainability, the fairness of eco-certification schemes with respect to small-scale farmers<sup>1</sup> is highly contested. Involving farmers into certification programs, who most of the time are small-scale farmers, seems to be a difficult but necessary step towards sustainable aquaculture production. This master’s thesis treats the viability of eco-certification schemes in the case of small-scale Black Tiger shrimp farmers in Bangladesh and explores some alternative options next to these eco-certification schemes. In this chapter the background, problem statement, research objective, research framework and research questions are pointed out.

### 1.1 Aquaculture

Aquaculture is the fastest growing sector in the world wide food production and consumption nowadays (Subasinghe et al., 2009), and is also called “the blue revolution” (Bush et al., 2013). It is seen as an alternative to wild catch, because natural fish stocks are depleting to a large extent worldwide. The Asia-Pacific Fishery Commission [APFC] (2014) indicates that 89% of the global aquaculture production is taking place in the Asia-Pacific region (FAO, 2014). The aquaculture sector depends to a large amount on the input of small-scale farmers and it expands and intensifies in most regions of the world (Subansinghe et al., 2009). However, this blue revolution causes also a wide range of sustainability problems on both environmental and social aspects (Bush et al., 2013; Vandergeest et al., 2015). This includes institutional incapacity, degradation of ecosystems, water pollution and bad labor standards (Hoq, 2007; Hossain et al, 2013).

### 1.2 Eco-certification

One way to address these sustainability problems are eco-certification standards (Bush et al., 2013). Eco-certification standards for aquaculture are widely used nowadays in the global demand for sustainable food and are a market-based, voluntary method of governance mostly run by private organizations (Boiral and Gendron, 2011; Bush et al., 2013; Marschke and Wilkings, 2014). These arrangements have emerged as a response to frustration among the private sector and NGOs about the slow and inadequate way in which governments took responsibility for the deterioration of the environment (Bush et al., 2013; Vandergeest, 2007). Eco-certification schemes are therefore setting criteria for producers about what sustainable production is and what practices producers have to persist in order to be able to put a eco-label on their product (Havice and Iles, 2015). Those schemes have

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<sup>1</sup> In the literature, farmers are often also referred to as producers (see for example Klooster, 2006). In this thesis, “farmers” refers also to “producers”.

become very popular in creating transparency and traceability in commodities like seafood (Washington and Abacouch, 2011). The market is interested in certified aquaculture products due to the growing awareness about the state of the environment and social issues (Boyd et al., 2014) and therefore the number of certification schemes is growing for aquaculture (Washington and Ababouch, 2011).

The main actors in pushing market-based approaches like eco-certification schemes are NGOs, governments, retailers, supermarkets and consumers (Parkes et al, 2010; Washington and Ababouch, 2011). Eco-certification schemes are used to govern sustainability and involve (1) setting public standards on sustainability criteria, (2) making sure that these standards are fulfilled and controlled by a third-party auditor, (3) providing an eco-label on the products that meet the given sustainability criteria and (4) creating an institutionalized network to govern the standards, audits and the labels (Bush et al., 2013; Mutersbraugh et al., 2005). Although eco-certification schemes are mostly run by private organizations, the line between public and private governance of sustainability seems to be blurring because eco-certification organizations sometimes work together with public actors (Vandergeest, 2007). Three parties are mostly involved in private eco-certification standards: a first party (producer) who is controlled by a third party (auditor) on the standards set by a second party (mostly a certification organization). Therefore eco-certification is also known as third-party certification (TPC)<sup>2</sup> (Hatanaka et al., 2005). In aquaculture, three private eco-certification standards are used most frequently on a global scale: Global Good Agricultural Practices (GlobalGAP) (business-to-business label), Global Aquaculture Alliance Best Aquaculture Practices (GAA-BAP) and Aquaculture Stewardship Council (ASC) (both business-to-consumer labels). Next to these global eco-certification schemes, also national schemes (VietGAP, ThaiGAP) and schemes focused on niche markets (Naturland, Label Rouge) are involved in aquaculture certification (CBI, 2016).

### 1.3 Market demand for eco-certified aquaculture products

The primary demand for eco-certified aquaculture products comes nowadays from Northwest Europe and North America (Beukers and Harms, 2012; Bush et al., 2013). In these regions, large retailers such as Walmart, Royal Ahold N.V. and Carrefour have committed themselves to sell only eco-certified seafood products by 2015 (Bush et al., 2013) and are demanding GlobalGAP or ASC certified products as a minimum requisite (CBI, 2016). It seems therefore that eco-certification schemes have become almost indispensable to maintain access to important market segments in these regions (Van der Pijl and Van Duijn, 2012). At the one side, this commitment offers the opportunity to develop sustainable production methods, but at the other side, farmers who cannot meet the requirements for certification will lose market access (Islam, 2010). Furthermore, only 4.6% of aquaculture is certified at the moment, leading to discussions about the effectiveness of eco-certification in aquaculture (Bush et al., 2013). With this commitment from major buyers a significant part of the aquaculture production have to deal with the 'certification umbrella', leading to resistance by NGO's about the limited ability of participation among small-scale farmers (Vandergeest, 2007).

Tropical shrimps are one of the most important products of aquaculture and is the second consumed aquaculture specie in the EU (European Market Observatory for Fisheries and Aquaculture Products [EUMOFA], 2016). Especially the Black Tiger shrimp (*Penaeus Monodon*) is very popular and is mainly produced by small-scale farmers in Bangladesh (CBI, 2017; Van der Pijl and Van Duijn, 2012). Eighty

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<sup>2</sup> In this research third-party certification is referred also to as eco-certification schemes. Both terms mean private certification in this case. Products that have been certified by an eco-certifying organization may carry a so-called eco-label (Bush et al., 2013).

percent of the total production of shrimp in Bangladesh is being exported to the EU (STIP, personal communication, 20 February 2018). In the EU (uncertified) shrimp from Bangladesh is mainly used in the food service sector and non-Dutch supermarkets. In European supermarkets the supply is low, due to the growing demand for eco-certified seafood (STIP, 2016). The orientation of Bangladesh on the market in the EU could be explained by the low price of the shrimp and the limited supply of Black Tiger shrimp by other countries (Van der Pijl and Van Duijn, 2012). Global eco-certification schemes seems to be only limited available in Bangladesh: For example one farm is in assessment for ASC and two farmers are certified with BAP. Naturland is however involved to a large extent in Bangladesh: 900 farms are certified with Naturland, although this certification scheme is focused on a niche market (organic) (STIP, 2016; CBI, 2016). Explanations for this could be the fragmented supply chain of shrimp in Bangladesh as well as the high amount of extensive farms. Furthermore, whereas Naturland offers a price premium to their farmers, ASC or GlobalGAP are not providing price premiums to their farmers (Van der Pijl, 2014).

#### 1.4 Problem statement

The production of Black Tiger shrimp in the coastal areas of Bangladesh faces many challenges that hinder the sustainability perspectives of the sector. Mangrove destruction (Hossain et al., 2013), rapidly but unplanned and uncontrolled growth in the last four decades (Deb, 1998), pollution and disease outbreaks (Paul and Vogl, 2011), increased salinity and soil degradation (Ali, 2006), social conflicts, market fluctuations, institutional weaknesses and inappropriate management (Paul and Vogl, 2011) are all mentioned in the literature as issues that challenge the sustainability of the shrimp sector in Bangladesh. Most of the shrimp production (around 70%) is done by small-scale farmers in Bangladesh in extensive ponds (Paul and Vogl, 2011). Although eco-certification schemes have emerged as a market response to govern sustainable production, several studies have shown that small-scale farmers are often excluded from markets that require eco-certification schemes (Bush et al., 2013). Small-scale farmers could encounter difficulties in meeting the requirements of eco-certification schemes, and therefore access to international markets could be decreased (Nebel et al., 2005; Bush et al., 2013). Important causes for this exclusion are the lack of technical and financial resources for small-scale farmers that are needed to obtain an eco-certification scheme (Marschke and Wilkings, 2014). Small-scale farmers could for example face difficulties in paying for improvements in production systems (Bush and Belton, 2011). In the context of the EU, large retailers and restaurant chains have committed themselves to only eco-certified seafood products by 2015 (Vandergeest, 2007; Bush et al., 2013). This commitment seems to be challenging for small-scale shrimp farmers in Bangladesh to maintain market access to large retailers and restaurant chains, because of the requirements on traceability, certification and quality (Van der Pijl, 2014).

This research will therefore look at the viability of eco-certification schemes for small-scale shrimp farmers in Bangladesh, especially the ASC and Naturland. ASC will be targeted because this eco-certification standard is one of the main eco-certification standards in the EU (next to GlobalGAP, which is not available in Bangladesh) and is highly demanded by retailers in Europe. Next to that, Naturland is focused on a niche market (organic) but seems to be important in the context of Bangladesh as the highest share of eco-certification in Bangladesh is provided by Naturland. In addition, some alternative options will be explored next to eco-certification schemes as a way to increase market-access to large retailers in the EU for small-scale farmers in Bangladesh.

## 1.5 Research objective

This thesis tries to analyze what the viability of eco-certification schemes is for small-scale farmers in Bangladesh and explores some alternative options next to these eco-certification schemes by doing literature review and gathering views of respondents.

The research objective of this thesis is threefold: (1) the power of Northern retailers and NGO's to Southern producers in setting eco-certification standards will be examined, (2) the viability of eco-certification schemes, especially the ASC and Naturland, to small-scale Black Tiger shrimp farmers will be assessed and (3) some alternative options to increase market access to large retailers for small-scale farmers next to eco-certification schemes will be analyzed. Figure 1 shows a graphical design of the boundaries of this research.

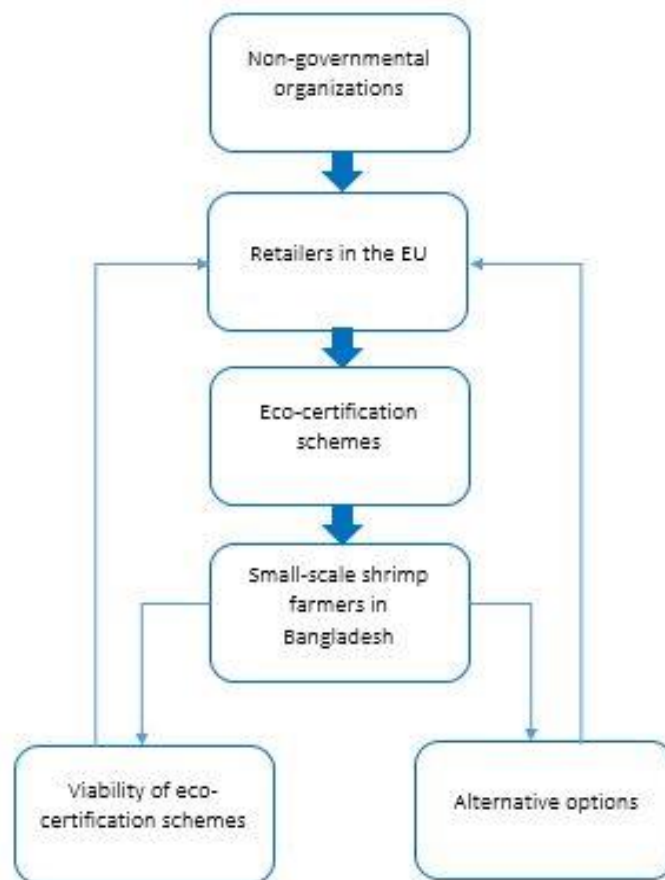


Figure 1 Boundaries of the research

## 1.6 Research questions

The main research question for this thesis is:

*To what extent are eco-certification schemes for shrimp driven by large retailers and non-governmental organizations in the EU and to what extent are eco-certification schemes and alternative options viable for small-scale shrimp farmers in Bangladesh to maintain access to large retailers in the EU?*

This main research question could be divided in the following sub questions:

*(1) To what extent are eco-certification schemes driven by large retailers and non-governmental organizations in the EU?*

As eco-certification schemes seems to be driven by Northern actors to set standards for producers in the global South, this question wants to research to what extent this could be proven. Although the field of power behind eco-certification schemes is much broader than just those two actors, in this thesis it is chosen to focus on these two actors. This is done because the commitment of large retailers in the EU seems to be an important factor in the demand for eco-certified seafood (Bush et al., 2013). Next to that, literature shows that retailers are influenced by NGOs who target uncertified products as unsustainable (Bush et al., 2013). Especially the ASC is targeted, as this certification scheme is highly required among retailers in the EU. Naturland will be taken into account to a lower extent, as this certification scheme is focused on a niche market, namely organic products which seems to be less relevant to large retailers in the EU. The views of respondents will be analyzed to answer this sub question.

(2) *To what extent are eco-certification schemes viable for small-scale shrimp farmers in Bangladesh in eco-certification schemes?*

As eco-certification schemes seems to be almost indispensable for producers to get access to large retailers in the EU, this question wants to address to what extent eco-certification schemes are viable for small-scale farmers in Bangladesh. Especially the ASC standard and Naturland are addressed, and advantages and disadvantages of eco-certification schemes will be reviewed. This sub question could be linked to the last sub question in which alternative options will be reviewed in addition to the viability of eco-certification schemes for small-scale farmers. Views of the respondents on this issue will be used to answer this sub question.

(3) *What are alternative options for small-scale farmers in Bangladesh to get increased market access to large retailers in the EU?*

This question wants to examine to what extent alternative options are possibly available for small-scale farmers in Bangladesh to maintain access to retailers in the EU, next to the current certification schemes. A first step will be given in order to think about alternative options instead of focusing only on eco-certification schemes. Literature review and stakeholder views will be used to answer this question. Next to that, some concrete examples will be outlined.

## 1.7 Research framework

The research framework (figure 2) shows the schematic presentation of the research and the steps that will be followed to target the research objective. It shows how the different stages of the research are connected with each other (Verschuren and Doorewaard, 2010). First, relevant scientific literature will be gathered on (the power behind) eco-certification schemes, eco-certification schemes in relation to small-scale farmers and alternatives for eco-certification schemes (A). Secondly, a framework will be derived from the theory to assess the power behind eco-certification for small-scale farmers in particular and to explore a number of alternative options (B). Thirdly, different respondents will be asked to give their opinion on questions that are distracted from the theory and are applied to the situation of small-scale shrimp farmers in Bangladesh. Fourthly, the results of the analysis (D) will be used to show a diagnosis about the power behind eco-certification schemes and the viability of those schemes and some alternative options for small-scale shrimp farmers in Bangladesh (E).

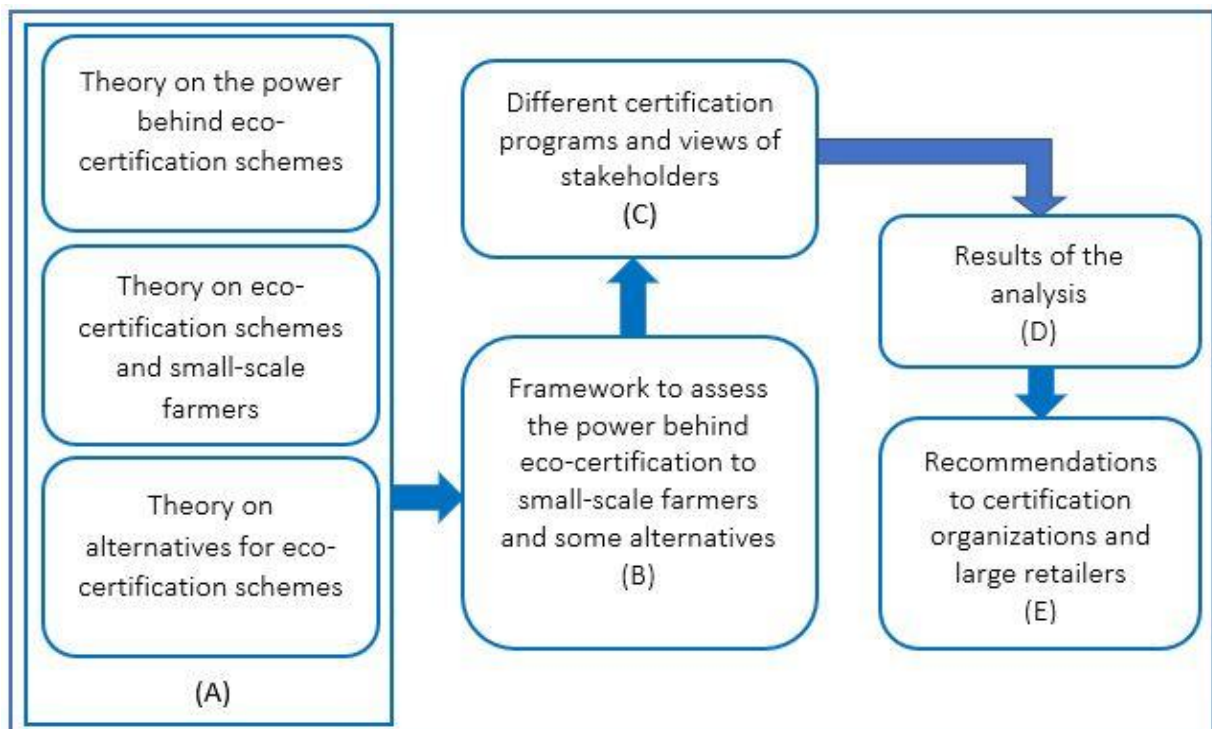


Figure 2 Research framework

## 1.8 Scientific and societal relevance

### Scientific

The scientific relevance of this thesis is to make clear to what extent actors in the global North (retailers, NGOs) exercise power on Southern actors (small-scale farmers). Although this is researched to a certain extent, this thesis could give deeper insights in power relations between the global North and the global South as especially retailers and NGO's are targeted in this research (Hatanaka et al., 2005). Next to that, this thesis want to contribute to knowledge about the bottlenecks of current eco-certification schemes for small-scale farmers. In addition to this, the exploration of some alternative options could give new insights into solutions for these bottlenecks (Bush et al., 2013).

### Societal

The societal relevance of this thesis lies in the fact that it is important to empower small-scale farmers to become competitive in the global aquaculture market (Subasinghe et al., 2009), especially because Bangladesh still needs strategies to overcome its poverty rates (The World Bank, 2016). Next to that, the outcomes of the research could be relevant for the retail sector and certification organizations in the EU. Showing insights in the advantages and disadvantages of current eco-certification schemes for small-scale shrimp farmers in Bangladesh and exploring some alternative options could give them incentives for improvements in eco-certification schemes. Furthermore, the exploration of alternative options can provide them with stepping stones to think beyond eco-certification as a way to improve sustainability.

## 1.9 Reading guide

The structure of this thesis is as follows: chapter 2 describes the background of the thesis more thoroughly while chapter 3 outlines the theoretical framework. These chapters are followed by a

chapter in which the methodology is described (chapter 4), the results of the analysis are presented (chapter 5) and at the end the conclusion and recommendations are drawn (chapter 6).

## Chapter 2 Shrimp farming in Bangladesh

This chapter is intended to provide more extended context surrounding the problems related to shrimp farming in Bangladesh. Because shrimp farming in this country is complex, it is helpful to clearly understand the background of this research, including why eco-certification is difficult in Bangladesh. Although the literature on sustainability problems related to this topic is very extensive, this chapter only focuses on the most important environmental and social issues, as well as institutional capacities to govern shrimp farming in Bangladesh. In the final section, EU regulations for shrimp imports from Bangladesh are mentioned.

### 2.1 Bangladesh

Bangladesh is one of the most densely populated countries in the world: 130 million people are living on 147,570 square kilometres (FAO, National Aquaculture Sector Overview). It is also one of the major shrimp farming countries on earth (Islam and Bhuiyan, 2016). Currently, the country produces more farmed fish than wild-caught, growing from 317 tonnes in 1995 to 1956 tonnes in 2014 (FAO, 2016). Aquaculture is one of the most important industries of the country for export and provides employment to millions of people (Azad et al., 2009; Islam and Bhuiyan, 2016). In addition, shrimp from Bangladesh are known as “white gold” due to its high market price (Islam, 2008) and reached an export value of \$403.5 million dollars in 2006 (Azad et al., 2009). Due to its natural resources and sub-tropical climatic conditions, Bangladesh is one of the most suitable countries for shrimp farming (Ahmed, 2013). During almost all seasons, fresh and saline shallow water and wild post-larvae are readily available in the country to farm shrimp (Ahmed, 2013). However, research shows that Bangladesh is also extremely vulnerable to the effects of climate change, including food insecurity problems and sea level rise (FAO, 2016).

In the late 1970s the development of shrimp farming began to rise mainly for economic purposes, due to the increasing global demand for shrimp (Akber et al., 2017; Swapan and Gavin, 2011). In 1980, shrimp ponds comprised 20,000 ha of the country; by 1995, this area had grown to 140,000 ha (FAO, 2010). In 2011, 276,492 ha was cultivated into shrimp ponds (Ahmed, 2013). The two most cultured species are *Penaeus Monodon* (Black Tiger shrimp) and the *Macrobrachium rosenbergii* (Giant River prawn) (Figure 3). The Black Tiger shrimp accounts for 75% of the country’s total shrimp export, and the other 25% is Giant River prawn (Van der Pijl and Van Duin, 2012). Shrimp farms are mostly located in southwest Bangladesh (Ahmed, 2013), centred in Khulna and Chittagong (Van der Pijl and Van Duin, 2012) (Figure 4).

Figure 3 Different production systems of shrimp in Bangladesh (STIP, 2016).





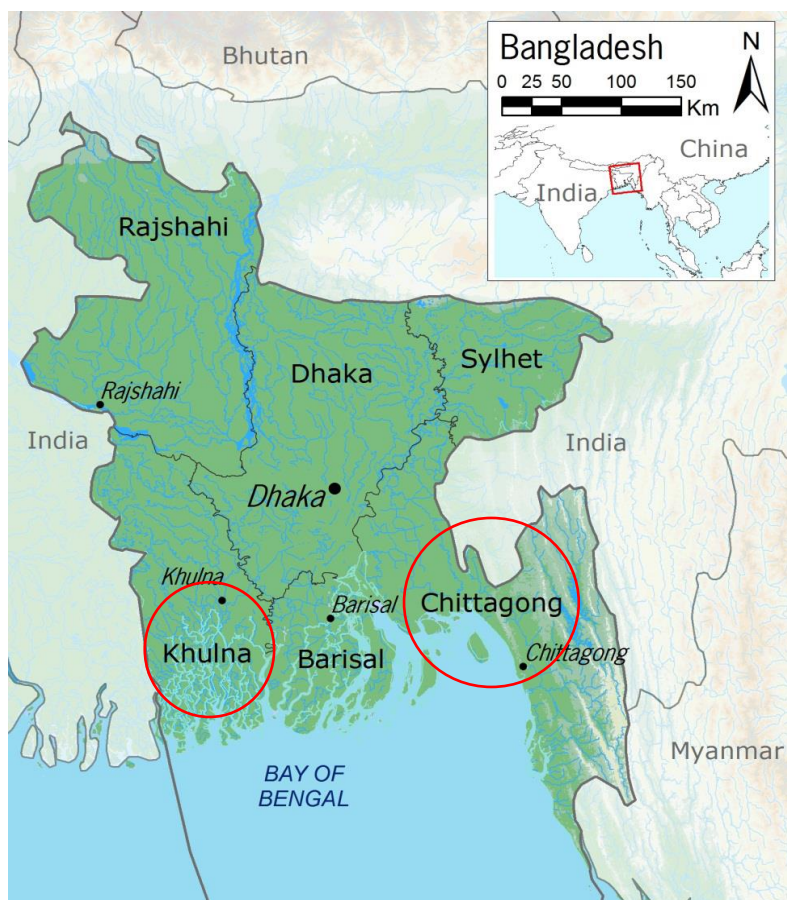


Figure 4 Concentration of Black Tiger shrimp production in Bangladesh (Van der Pijl and Van Duin, 2012, p. 10).

## 2.2 Production systems

Usually, shrimp farms are divided in intensive, semi-intensive, and extensive/traditional systems (Figure 6). Intensive shrimp systems use high capital investments, technology, highly skilled labour, treated water, and high inputs of feed and fertiliser. As a result, these systems have greater stocking density with less land use than the other two systems. Semi-intensive systems are often polyculture systems where shrimp farming is mixed with rice or other freshwater fish. Extensive shrimp systems (often also thought to be organic) do not have inputs of feed and fertiliser, and the effluent is untreated. The stocking density of the larvae is low in this system, what effects shrimp yield (Béné, 2005).

However, it is difficult to assess which production system is the most sustainable (Béné, 2005). On the one hand, although extensive or semi-intensive systems use less commercial feed, fertilisers, and energy, land use is usually higher than intensive systems. Furthermore, extensive and semi-intensive systems are often located near vulnerable ecosystems, such as mangroves, and could cause degradation of ecosystem services and decreased economic value of the converted land (Millenium Ecosystem Assessment, 2005). On the other hand, NGOs like the WWF promote intensive farming systems. They argue that intensive farming systems provide a higher production per unit per area and use less land and water than extensive production systems (WWF, 2017). Figure 5 shows some of the differences in natural resources used for both production systems.

	Extensive/organic	Intensive
Land (ha)	1.0	0.44
Water (m3)	10,075	2,173
Energy (GJ)	62	30
Wild fish (tons) (for meal)	1.14	3.39

Figure 5 Natural resources used to produce 1.6 tonne of shrimp (WWF, 2017).

More than 75% of the shrimp farms in Bangladesh are extensive/traditional systems, also known as “ghers”. Ghers are former rice fields changed into shrimp ponds (Islam and Bhuiyan, 2015). Figure 6 shows a classification of shrimp aquaculture in Bangladesh. Semi-intensive systems accounts for 20% of the country’s shrimp farms (Paul and Vogl, 2011). Most of the shrimp in Bangladesh are produced by small-scale farmers. Small-scale farming can be defined as: “Typically family-owned, rather vulnerable, not formalized into business operations and have a small economic turn-over” (Shrestha and Pant, 2012, p. 33). Small-scale aquaculture is also characterized by the use of a small piece of land and water, while most of the time one or a few production units such as ponds are used (Shrestha and Pant, 2012).

Criteria	Intensity of farming systems			
	Traditional	Extensive	Semi-intensive	Intensive
Pond ( gher) size (ha)	5–10 or >	5–10 or >	1–10	<1
Stocking	Natural	Natural + artificial	Artificial	Artificial
Stocking density (seed/m <sup>2</sup> )	1–1.5	2–10	20–40	40–60
Seed source	Wild	Wild	Wild hatchery	Hatchery
Survival rate (%)	50–60	60–80	70–80	70–90
Feed used	Natural	Natural, little low-cost feed	Natural and pelleted feed	Formulated complete feed
Water exchange	Tidal	Tidal, minimal pumping	Tidal, pumping	Pumping, reservoir, filter
Aeration	No	Little or no	Yes	Yes
Yield (t/ha/yr)	0.1–0.5	0.6–1.5	2–6	7–15
Production cost (US \$/kg)	No data	1–3	2–6	4–8
No. of crops/year	1–2	1–2	2–3	2–3
Diversity of species	Polyculture	Polyculture	Monoculture	Monoculture
Lime used (kg/ha/yr)	Little or no	<100	250–400	500+
Fertilizers used (kg/ha/yr)	Little or no	Cowdung-500, little or no urea/TSP	Cowdung-2000+, Urea-300+, TSP-100+	Cowdung-4000+, Urea-500+, TSP-200+
Chemicals used	No	No or little	Used	Widely used
Employment (Persons/ha)	No data	<7	1–3	1
Disease problems	Rare	Rare	Moderate to frequent	Frequent
Operational costs	Little or no	Low	Moderate to high	Extremely high
Development costs	Little or no	Low	Moderate to high	Extremely high
Environmental impact	Little or no	Relatively little	Moderate to high	Extremely high
Social implications	Little or no	Relatively little	Moderate to high	Extremely high
Economic proliferation	Subsistence	Subsistence	Commercial	Entrepreneurial
Sustainability concerns	High	Moderate to high	Moderate to low	Relatively low

Figure 6 Classification of shrimp aquaculture in Bangladesh, mainly based on the indicators management, stocking density and the input of feed and fertilizers (Paul and Vogl, 2011, p. 204)

## 2.3 Sustainability problems

Over the last three decades, the shrimp farming sector in the coastal zones of Bangladesh has undergone transformations concerning social, economic, and environmental issues (Ahmed, 2013). The production of shrimp causes environmental, economic, and equality problems, such as mangrove losses, saltwater intrusion, pollution, incorrect management practices, and institutional weaknesses (Alam and Ahammad, 2017; Paul and Vogl, 2011). For several decades, these problems have raised questions among scholars about the sustainability of the shrimp sector in Bangladesh (Béné, 2005).

### 2.3.1 Environmental problems

In the past, shrimp farming was restricted to the coastline of Bangladesh due to the requirement of shrimps for salt water. However, recent developments show that former rice farmers in Bangladesh have set up low-salinity systems to shift towards shrimp farming. The high export volume of shrimp

compared to rice is one of the main reasons for this shift. The global demand for shrimp has changed the landscape of Bangladesh to a large extent (Paul and Vogl, 2011), especially the loss of mangroves due to shrimp farming (Azad et al, 2013; Alam and Ahammad, 2017; Shahid and Islam, 2002). The destruction of mangroves causes erosion of the coast (Ahmed et al., 2008) and a reduction in habitat for juvenile fish and shrimp (Chowdhury et al., 2006). The exact amount of mangrove destruction in Bangladesh due to shrimp farming is not known (Hossain et al., 2013; Sohel and Ullah, 2006).

Different studies have evaluated the change of land use due to shrimp farming. For example, Akhtaruzzaman (2000) indicated that 18,200 hectare in the Sundarbans has changed into shrimp ponds. Ali (2006) mentioned a small village in the southwestern part of Bangladesh where 274 ha (79%) rice field was changed into shrimp ponds between 1985 and 2003. Swapan and Gavin (2011) estimated that 90% of the land has been changed into shrimp ponds in the southwestern part of Bangladesh. In addition, soil acidity due to air exposure pollutes the soil around the ponds (Azad et al., 2013). This soil acidity has caused shrimp diseases and loss of production for several decades (Deb, 1998). Furthermore, soil and water have been salinised due to the use of a huge amount of freshwater to create brackish water for the farming of shrimp. This has led to the decrease of groundwater levels, subsidence of land, and salinisation of land (Primavera, 2006). These environmental problems have caused ecological imbalances in the coastal zones of the country (Sohel and Ullah, 2012).

### 2.3.2 Social problems

Shrimp farming in Bangladesh can enhance the income of small-scale farmers (Islam and Bhuiyan, 2016), not in the last place because shrimp is the third largest export commodity of Bangladesh (Mitro et al., 2015). However, shrimp farming can also cause conflicts and reduce social security. This is partly due to the fact that large-scale farmers exploit small-scale farmers. Large-scale farmers are putting pressure on small-scale farmers to sell their land to them for a low price (Islam and Bhuiyan, 2016). Furthermore, the involvement of multinational organisations, which favour intensive farms, can drive small-scale farmers away from their land (Hossain et al., 2013). In addition, research shows that only large-scale farmers and lease holders benefit from increased shrimp cultivation: costs for upgrading production systems are high and small-scale farmers gain only limited profits due to the small scope of their land (Swapan and Gavin, 2011).

Before the rise of shrimp farming, rice was the most important agricultural product in Bangladesh. Eighty percent of the total cultivable land was used for rice production, complemented by other vegetables and fruits. However, increased salinity due to shrimp farming hindered the cultivation of other agricultural products and destroyed the habitat of freshwater species (Swapan and Gavin, 2011). The degradation of natural resources due to shrimp farming caused traditional farmers to change their methods of production and livelihood (Islam and Bhuiyan, 2016). The change to shrimp farming from rice farming provided jobs for approximately 10% of unemployed people in Bangladesh who had lost their jobs in rice farming. Research in one southwestern Bangladeshi district showed that 20% of the families have migrated out of their villages to search for jobs because of unemployment, food scarcity, and poverty (Swapan and Gavin, 2011).

Shrimp farming has caused changes in daily routine and mobility patterns of local people, because 40% of the mobility movements are related to shrimp farming, such as preparing shrimp ponds, buying feed for the shrimp, and selling the shrimp at local markets (Swapan and Gavin, 2011). Women are involved to a large extent in the shrimp sector, facing poor salaries and insecure working conditions (Ahmed et al., 2008). After the introduction of shrimp farming, the daily activities of women changed: instead of

taking care of the children, cultivating vegetables, and selling homemade products, their focus is now on working in the shrimp ponds (Swapan and Gavin, 2011). This changes their role in the community but also increases their economic productivity (Akber et al., 2017). Because informal employment in the shrimp sector is high, a gap exists between the regulation for formal labourers and the actual practices among informal labourers. The question remains how to maintain low labour costs and flexibility on the one hand, but improve labour conditions on the other hand (Islam, 2008).

## 2.4 Governing shrimp farming

It is mentioned that institutional weaknesses and inappropriate management plans are part of the sustainability problems in Bangladesh. In this part it will be outlined who the most important players in the governance of shrimp farming in Bangladesh are and what the bottlenecks are for an appropriate management of the sector.

### 2.4.1 Institutional framework

Different institutions are involved in the governance of the shrimp sector in Bangladesh. First, different ministries and departments of the country's government play a primary role, such as the Ministry of Fisheries and Livestock and the Department of Fisheries (DoF). Second, organisations such as NGOs and cooperatives are involved in the governance of the sector (Paul and Vogl, 2011). These institutions develop policy that governs the shrimp sector, such as the FAO Code of Conduct for Responsible Fisheries, the National Land Use Policy, and the National Fisheries Policy (DoF, 2006; Islam and Bhuiyan, 2016). The DoF is the most important agency for the implementation of the policies and laws (Paul and Vogl, 2011). Although researchers believe that a sustainable future for Bangladeshi shrimp farming is possible, the country needs technological improvements, institutional capacity, and compliance to social and environmental requirements (Alam et al., 2005; Hossain et al., 2013). To achieve this future, the government must play a primary role in restructuring the fragmentation of the different institutions, departments, and organisations involved. To date, the Bangladeshi shrimp sector concerns 17 ministries, 28 departments, and 23 enacted laws (Hossain et al., 2013).

### 2.4.2 Traceability

Research show that the value chain of aquaculture products in Bangladesh is difficult to coordinate for regulatory authorities (Jespersen et al., 2014). The value chain of shrimp from Bangladesh is very fragmented, what causes difficulties in tracing the shrimp (STIP, 2018). The lack of monitoring and the amount of corruption are also mentioned as causes of poor traceability in the value chain (Nupur, 2010). An appropriate traceability system is necessary to maintain access to the EU market, despite the complex value chain of many suppliers and middlemen in Bangladesh (Kabir, 2013). The lack of controlment in the supply chain of shrimp is one of the main reasons why eco-certification is difficult in this country (Van der Pijl, 2014).

### 2.4.3 Initiatives for improvement by the government of Bangladesh

To improve the sustainability of the shrimp sector, the government of Bangladesh has set up regulations for the use of chemicals and drugs (Alam et al., 2005). Furthermore, certain initiatives have been established by the government. First, controlled zones for shrimp farming have been created. Second, trainings for farmers have been developed to expand technical knowledge, prevent diseases, and improve the management of shrimp farms. Third, a regional network has been created together with the FAO to address fish health issues and information systems on diseases to create sustainable shrimp aquaculture (Hossain et al., 2013).

In addition, the government of Bangladesh is conducting research to create viable options for sustaining shrimp farming, such as salinity-resistant species, the integration of fish with other forms of agriculture, and the deepening of ponds for aquaculture (FAO, 2016). The establishment of eco-certification schemes can be an appropriate instrument to push shrimp farmers to improve their production systems in a sustainable way (Roderburg, 2011). Government regulation that rejects unsustainable practices in shrimp farming (such as uncontrolled growth) by oblige eco-certification schemes will push farmers to adjust their unsustainable shrimp production systems. Improvements in sustainable production practices will help to protect the vulnerable coast of Bangladesh from degradation (Alam and Ahammad, 2017).

#### 2.4.4 Implementation

Although the government of Bangladesh has planned several initiatives to reduce sustainability problems around shrimp farming, sufficient implementation of its plans has historically been lacking (Islam, 2010; Alam et al., 2005). A lack of coordination between the different departments in the national government is mentioned in the literature as the main cause of insufficient implementation in Bangladesh (Alam et al., 2005; Hossain et al., 2013). In addition, poor regulation enforcement and management practices as well as inappropriate enforcement of the existing laws on shrimp farming are mentioned in the literature as the primary causes of uncontrolled shrimp farming in Bangladesh (Alam et al., 2005; Sohel and Ullah, 2012; Alam and Ahammad, 2017). Sustainable shrimp farming in Bangladesh seems to be challenging due to inadequate and outdated policies regarding the sustainability of this sector (Alam and Ahammad, 2017). Alam and Ahammad (2017) pointed out that the government of Bangladesh does lack the technical expertise to sufficiently monitor sustainable development of the shrimp sector. Therefore, ministries and departments of the government of Bangladesh should be trained in modern technical expertise in order to properly manage sustainable shrimp farming systems. Better enforcement and coordination between the different departments is essential for an effective governance of the shrimp sector in Bangladesh (Alam et al., 2005).

#### 2.4.5 Regulations in the EU for import of shrimp from Bangladesh

Because the country has frequently failed food safety regulations, Bangladesh has gained a poor reputation in exports (Jespersen et al., 2014). In 1997, the EU initiated a 5-month ban on the imports of Bangladeshi shrimp due to issues in food safety, hygiene, and lack of trust in the control measures in the country (Nupur, 2010; Jespersen et al., 2014). The EU imposed regulations for the import of shrimp from Bangladesh on quality and safety of the products, combined with requirements on shrimp production. Although authorities in Bangladesh responded to these regulations by improving the management of shrimp processing factories, shrimp farms still face problems with the management of quality and food safety (Alam, 2010).

Products imported in the EU must be in line with specific regulatory requirements, especially the Hazard Analysis Critical Control Points (HACCP) (Barret et al., 2001). This system tries to control the production process of food commodities to assure safe products (Voedingscentrum, n.d.). Even though challenges emerged for the country's shrimp exporters, the 1997 EU ban pushed the government and shrimp industry in Bangladesh to meet the HACCP standards (Raman, 2001). Research shows that this pressure from the EU caused an upgrade in organisation and technology of shrimp farming in Bangladesh, even led to a subsequent increase of export to the EU (Alam, 2010). In addition to the HACCP, the EU imposed other requirements for these imports, including those related to hygiene, traceability, labelling, and

contaminants<sup>3</sup> (CBI, 2017). However, between 2000 and 2012, the EU's Rapid Alert System for Food and Feed reported higher food safety risks in shrimp imported from Bangladesh. These reports led to a self-imposed ban by Bangladesh on the export of freshwater shrimp to the EU in 2009 (Alam, 2013). This ban reduced shrimp exports from Bangladesh to the EU; the total shrimp exports (34.2 mT) in 2014 were less than those in 2010. By 2015, still no increase in exports was reported (Taslim et al., 2016). Both bans show that compliance to standards on traceability and sustainability are increasingly important for Bangladesh to achieve market access in the EU (Rahman, 2001).

## 2.5 Summary

Bangladesh is a unique country for the production of shrimp due to the high number of small-scale farmers and suitable climatic conditions. Over the last three decades, the shrimp farming sector in the coastal zones of Bangladesh has undergone several social, economic, and environmental transformations. Some sustainability issues of this sector include mangrove destruction, land-use change, soil acidity, biodiversity decrease, reduced social security, and poor labour conditions. Although a sustainable future for Bangladeshi shrimp farming is possible, the sector needs technological improvements, institutional capacity, and compliance to social and environmental requirements. Although Bangladesh has made significant progress in reducing the most devastating social and environmental issues around shrimp farming, implementation of this progress is still low. The EU has imposed regulations on the quality and safety of Bangladeshi shrimp imports, as well as requirements on shrimp production. Research shows that the authorities in Bangladesh responded to these regulations by improving the management of shrimp processing factories; however, the shrimp farms still face problems in managing quality and food safety. In addition, requirements on sustainability certification in the EU are increasing and posing pressure on Bangladeshi farmers to comply with these certification schemes. On the one hand, this trend can push farmers to improve their production systems to meet the requirements set in eco-certification schemes. On the other hand, farmers can lose market access in the EU if they are unable to meet the requirements due to various external factors, such as the lack of controlment in the fragmented value chain of Bangladeshi shrimp.

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<sup>3</sup>See <https://www.cbi.eu/market-information/fish-seafood/buyer-requirements/> for an overview of the requirements that fish and seafood products must comply with to be imported to the EU.

## Chapter 3 Theoretical framework

This research focuses on the power behind eco-certification schemes in relation to small-scale farmers and explores some alternative options. The literature uses a variety of theoretical positions to evaluate the power of eco-certification schemes on small-scale farmers. A theory that applies well to this topic is the theory of political ecology. In particular, this theory focuses on the unequal distribution of limited natural resources and how power is exercised to gain access and control over these resources. With this theory, the unequal access of small-scale farmers to eco-certification schemes can be critically analysed, as well as the power of NGOs and retailers in the global North to govern production sites in the global South. The theoretical position of political ecology will be the leading guide in this thesis's theoretical framework to analyse the power relations behind eco-certification schemes and their impacts on small-scale farmers.

This chapter reviews the literature about the power behind eco-certification schemes; outlines the advantages and disadvantages of eco-certification schemes, especially for small-scale farmer; and explores some alternative options to current eco-certification schemes that can function as a governance tool to manage sustainability, improve transparency and traceability, and increase market access to large retailers in the EU. Figure 7 shows a conceptual model with the key concepts of this theoretical framework.



Figure 7 Conceptual model with key concepts

### 3.1 The power behind eco-certification schemes

With the rising use of eco-certification as a market-based tool to govern sustainability, environmental actions have shifted from state-based regulation towards private-based governance. This shift has also changed the landscape of sustainability governance (Bush et al., 2013), and nowadays eco-certification has become an issue of power struggles (Foley and Havice, 2015). Political ecology is concerned with the unequal access to eco-certification schemes by small-scale farmers and is therefore used in this thesis to analyse the power behind eco-certification schemes. In this section, first the theory of political ecology (3.1.1) is outlined, and consequently the power behind eco-certification schemes is addressed (3.1.2). After this, the power of retailers and NGOs and competition between eco-certification schemes is outlined (3.1.3). Finally, a summary is given about this section (3.1.4).

#### 3.1.1 Political Ecology

Political ecology is a theory that aims to analyse the power relations between the state, the markets, and civil society in relation to environmental problems (Vandergeest et al., 1999). Although the exact definition varies over time and shows differences in emphasis, the core approach of the theory is “concerned with inequality and how this relates to material struggles over access to and control over natural resources and socio-ecological environments” (Wageningen University & Research Centre, n.d.). Special attention is given to the manner in which power is distributed in conflicts over access to

environmental resources (Béné, 2005; Martinez-Allier, 1995). The uneven distribution of power is the core element of this discourse (Bailey, 1998), and the degradation of nature is considered to be caused by rampant capitalism (O'Connor, 1996). According to Michael Foucault, power can be seen "as a way in which certain actions may structure the field of other possible actions" (Foucault, 1982, p. 790) and is "rooted deep in the social nexus" (Foucault, 1982, p. 790). The theory of political ecology can also be understood as "a forum for discussion among an interdisciplinary community of scholars concerning ways that the environment is politicised, rather than a set of coherent propositions" (Vandergeest et al., 1999, p. 574). Political ecology theory is closely linked to the world systems theory generated by Immanuel Wallerstein. The core of this theory is the uneven global division of labour where high-end production occurs in "core countries" that exploit resources of "peripheral countries" for this production. In the case of shrimp, cheap mass production occurs in the global South, and the consumption of these goods takes place in the global North (Wallerstein, 2004).

### 3.1.2 The power behind eco-certification schemes

The theory of political ecology criticises the distribution of power in eco-certification schemes. In the case of eco-certification schemes, unfair distribution of power is created when Northern standard setters develop requirements of production that must be met by Southern standard takers (Hatanaka et al., 2005). The position of producers in global value chains and eco-certification is highlighted by different authors (Belton et al., 2011; Bush et al., 2013; Nebel et al., 2005). Bush et al. (2013, p. 1068) mentioned that eco-certification most of the time "reflects interests and values of the most powerful actors to the exclusion of others". In line with this argument, Klooster (2006, p. 403) states that certification schemes are mostly compromised by the more powerful agents, which leads to questions about the fairness of such schemes because there is a "imbalance of power between the big retailers demanding certification and the small (...) managers must absorb increased costs".

Certification is by some scholars seen as a rising and powerful form of market governance whereby mostly northern retailers and NGOs are getting control over producers (Belton et al., 2011). Eco-certification schemes do have influence on the international market and it is stated that those certification schemes will have significant impact on market access in the US and the EU. Small-scale farmers will face difficulties in this shift, due to the fragmented production of shrimp (Tran et al., 2013). Such certification schemes could also impose trade barriers for small-scale farmers, causing inequality both domestically and on the international market (Gómez et al., 2011; Maertens and Swinnen, 2009). For example, small-scale farmers in Indonesia regard ASC certification as a European standard with difficult requirements (Vellema and van Wijk, 2015). It seems that certification schemes are used first to govern value chains "to the advantage of buyers and second to extend the institutional interests of certifiers" (Belton et al., 2011, p. 297).

### 3.1.3 The power of retailers and NGO's

Although the field of power behind eco-certification schemes is much broader than retailers and NGOs, this thesis focuses on these two actors. As previously outlined in Chapter 1, this focus was selected because the commitment of large retailers and restaurant chains in the EU is an important factor in the demand for eco-certified seafood (Vagneron et al., 2009; Vandergeest, 2007). Moreover, the literature shows that retailers are influenced by NGOs who target uncertified products as unsustainable (Bush et al., 2013).

It can be wondered to what extent eco-certification contributes to the maintenance of dependency between the global North and global South, because the demand for certified food comes mainly from



the global North and production takes mainly in the global South (Bailey et al., 2016) Some scholars wonder if certification is intended by producers themselves or is pushed by market actors and environmental organizations (Vandergeest and Unno, 2012). The demand for eco-certified seafood is sometimes seen as driven by environmental NGOs who mark products as unsustainable without an eco-label (Bush et al., 2013). Furthermore, the theory of political ecology criticizes the role of international NGOs as they use their values in order to govern production sites of aquaculture (Vandergeest et al., 1999). As NGOs are deciding what can be regarded as sustainable seafood production, concern has raised among producers that this determines whether producers will gain market access (Foley and Havice, 2016).

The power of NGOs and retailers in certain commodity chains and over producer sites is highlighted by different authors (Bush et al., 2013; Belton et al., 2011; Foley and Havice, 2015). Research shows that supermarkets and large retail chains are powerful actors in the demand and supply of food (Vagneron et al., 2009; Vandergeest, 2007). They have the ability to choose suppliers who meet certain conditions such as certification schemes (Vagneron et al., 2009). Although private certification schemes are based on voluntary participation, requirements from large supermarkets in many countries to sell only certified products have made such schemes almost mandatory (Handschuch et al., 2013). Vandergeest (2007) mentioned that Northern food retailers are becoming increasingly powerful in the regulation of suppliers, because they are competing with each other based on the quality of their products. Therefore they are interfering in the practices of producers to maintain control over quality.

This retailer-driven regulation is seen by Busch and Bain (2004) as the emergence of a private regulatory system driven by large supermarkets to control sustainable production processes. One explanation for the increase in eco-certified products is the demand for high-quality products, enforcing retailers to exert control over production sites (Friedman, 2005 in: Vandergeest, 2007). Furthermore, the high demand for eco-certified products in northwestern Europe and the US is due to three primary factors: (1) the high levels of prosperity that consumers in these regions hold; (2) these consumer's high level of awareness about environmental concerns; and (3) their demand for products with high added values (FAO, 2010; Van der Pijl and Van Duijn, 2012). Furthermore, the use of certification schemes is an easy way for supermarkets to ensure quality products and outsource controlment to auditing organisations (Belton et al., 2011).

Retailers seems to be sensitive to critics on sustainability issues and are therefore collaborating with NGOs to develop certification schemes in order to silence criticisms (Bush et al., 2013; Hatanaka et al., 2005). Eco-certification schemes are expected to become dominant actors in creating access to in the EU and the US (Tran et al., 2013). The commitment of major buyers in the North to sell mostly certified seafood could change the landscape of aquaculture production as producers who are able to meet the criteria set by the most important schemes arrange prerogative market access. Therefore, an increase in the demand for eco-certified products by other large buyers like Walmart could exclude small-scale farmers from major markets in Europe and North America due to a lack of financial resources and a lack of ability to meet complex requirements (Vandergeest, 2007). Importantly, according to Hatanaka et al. (2005, p. 366), certification could push "non-certified growers into less profitable internal markets".

### 3.1.4 Competition between eco-certification schemes

As many eco-certification schemes have been set up, they sometimes even compete for producers, who have to comply sometimes with different standards to access specific markets (Bush et al., 2013; Ponte and Gibbon, 2015). Producers have to choose the appropriate certifier to enter a certain market and they have to choose trustworthy marketing linkages, what could also cause challenges for small-scale farmers (Barret et al., 2001). Klooster (2006) mentioned that the use of eco-certification schemes causes competition of producers on the export market. Tran et al. (2013, p. 326) pointed out that the Global Aquaculture Alliance (GAA, the leading international NGO representing producers, traders and restaurant chains in the seafood sector by setting standards in aquaculture) “has developed its own competing set of standards to win buyers’ acceptance”. Bush et al. (2013) indicated that certification schemes are competing with each other for buyers. They try to convince retailers to buy and sell eco-certified seafood products that carries their own label. Furthermore, they compete for the approval of NGOs about their practices.

### 3.1.5 Summary

Political ecology is a theory that is concerned with inequality and how this relates to material struggles over access to and control over natural resources and socio-ecological environments. From this perspective, shrimp farming can be structured by the demand of high-end core countries fulfilled by the production of peripheral countries. Power relations are shaping the production of shrimp farming as actors like NGOs and retailers in the global North set standards that shrimp farmers in the global South must comply with. Furthermore, competition between different certification schemes has grown as they target certain market segments, thereby competing for producers and buyers.

## 3.2 Eco-certification schemes and small-scale farmers

Based on these power imbalances, eco-certification schemes contain certain benefits and risks. In particular, their effects on small-scale farmers must be considered. First, the advantages and disadvantages of eco-certification schemes will be explored (3.2.1), followed by a section in which empirical evidence for the theory of political ecology about the exclusion of small-scale farmers to eco-certification schemes will be outlined (3.2.2). In the last part (3.2.3) it will be examined to what extent global certification schemes are matching with local practices of small-scale farmers.

### 3.2.1 Advantages and disadvantages

#### 3.2.1.1 Advantages

Klooster (2006) states that the push for making improvements in environmental management by producers is the most important benefit of eco-certification. Several authors refer to the environmental benefits that eco-certification provide, such as watershed protection and wastewater management (Blackman and Rivera, 2010; Blackman and Naranjo, 2012; Rueda and Lambin, 2013). Ethical motivations are important to become certified, not the least of which producers can obtain competitive advantage if they show their environmental concern (González-Benito and González-Benito, 2005). In the market, consumers can choose products produced in a sustainable way, eventually paying a price premium for these products (Nebel et al., 2005). Using efficient production systems, producers gain price premiums and market access, thus obtaining the economic advantage (González-Benito and González-Benito, 2005; Nebel et al., 2005).

Certification also has an impact on the well-being of farmers: higher education levels, price premiums, higher productivity, greater access to markets, and better organisation of the household were

mentioned as important benefits of certification (Rueda and Lambin, 2013). Positive aspects of eco-certification are also mentioned by Jaffee and Henson (2005), who argue that the demand for eco-certified food could push developing countries to adjust their supply chains and upgrade export sectors. These upgrades could lead to improved market access and stronger competitiveness for these countries on the international market. Although certification standards are often seen as barriers for developing countries to enter the international market, research by Maertens and Swinnen (2009) shows that exports from developing countries are growing despite the increasing standards, leading to higher rural incomes.

### 3.2.1.2 Disadvantages

However, the market-based approach of eco-certification is also criticised because it stimulates consumption without limits (Konefal, 2013). Klooster (2006) raised the issue of fairness in certification because producers must pay for certification and do not always receive a price premium. Furthermore, certification is most of the time only possible for the best-performing organisations, leaving behind a wide range of other organisations. This happens because the best-performing organisations are better able to meet the requirements of eco-certification schemes, not only administratively but also financially (Jonell et al., 2012). The costs of implementing certification schemes are high, and the costs are primarily paid by the supplier instead of the retailer (Klooster, 2006). Furthermore, the implementation costs often do not outweigh the revenues (Cañón-de-Francia & Garcés-Ayerbe, 2009). In addition, research shows that the environmental benefits of eco-certification schemes are limited because most of the time those producers who gain certification already meet certain environmental requirements (Blackman and Naranjo, 2010; Jonell et al., 2012). Furthermore, because only 4,5% of aquaculture products are certified, the use of eco-certification schemes to steer sustainable aquaculture production can be highly contested (Bush et al., 2013).

### 3.2.2 Eco-certification schemes and small-scale farmers

As previously mentioned (Belton et al., 2011; Bush et al., 2013; Jonell et al., 2012), small-scale farmers encounter many problems in obtaining certification schemes. However, sustainable development of the aquaculture sector cannot be reached without good governance and sector-wide participation of farmers in the regulation process (Subasinghe et al., 2009). According to research on eco-certification schemes of organic agriculture in Mexico, the administrative requirements for organic certification provide advantages for large producers but also create growing social inequalities between large-scale and small-scale farmers. In this case, eco-certification did not provide economic benefits for small-scale farmers and only enabled large producers to become more powerful (Tovar et al., 2005).

By investigating the certification of catfish in Bangladesh and Vietnam, Belton et al. (2011) found that certification leads to greater polarisation between large- and small-scale farms. Moreover, these schemes exclude small-scale farms from access to markets in Western Europe and North America. Research from Marschke and Wilkings (2014) on small-scale fish farmers in Vietnam showed that certification standards are not feasible for small-scale farmers due to financial and technical requirements. Because they are not able to reach the basic requirements, small-scale farmers are unlikely to change their production methods to meet the criteria for certification. The demand for eco-certified products could cause trade barriers for small-scale farmers (Maertens and Swinnen, 2009). Large producers profit from economies of scale in the costs for certification and obtain competitive advantage over small-scale farmers (Nebel et al., 2005). However, findings show that notwithstanding the complexity of certification, access to eco-certification schemes could increase the livelihood

(improved public facilities and infrastructure) of farmers if they can sell certified products on the market (Barret et al., 2001).

### 3.2.3 Global standards and local practices

Ponte et al. (2014) reasoned that most of the time farmers are excluded from multi-stakeholder dialogues. When they are included, it is often late in the process of setting standards or even after the standards have already been set. Therefore, it can be argued that their values and practices are not well reflected in certification schemes (Belton et al., 2011). To expand accessibility of eco-certification schemes for small-scale farmers, respondents should seek a greater understanding of local practices because they are neglected to a large extent in the present eco-certification schemes (Belton and Bush, 2013; Vandergeest, 2007; Vellema and Van Wijk, 2015). A lack of understanding of local practices make eco-certification schemes almost impossible for small-scale farmers. Locally produced species and local social and environmental impacts of aquaculture production should be considered in eco-certification schemes for small-scale farmers (Marschke and Wilkings, 2014). Vellema and Van Wijk (2015, p. 106) argue in line with this for the “co-creation between global and local actors” in establishing local public-private partnerships to provide a counterweight to the global forces of multinationals and NGOs. In addition, the credibility of eco-certification schemes can be limited because producers oppose excessive control from eco-certification organisations in the global North. Vellema and Van Wijk (2015, p. 106) argue that therefore that “local partnerships can reduce such global–local frictions by advancing certain levels of divergence in standard-setting and implementation so as to attach more value to local norms and practices”. A good understanding of daily local practices should be an important condition for involving small-scale farmers in eco-certification schemes (Marsche and Wilkings, 2014).

### 3.2.4 Summary

Although eco-certification schemes can stimulate sustainable production methods, eco-certification schemes are criticized because of the limitedness of this market-based governance tool as only 4,5% of aquaculture is currently certified. The environmental benefits of eco-certification schemes are therefore limited, as most of the time only those producers are targeted who already met certain environmental requirements. Furthermore, small-scale farmers are not the ones who benefit most of the use of eco-certification schemes. They even have to adjust their production systems to meet the needs of organizations in the global North. Small-scale farmers seems to be excluded from participating in eco-certification schemes and they are often not able to comply with the high requirements on administration and production systems, together with high financial costs to become certified.

## 3.3 Strategies to provide increased market-access for small-scale farmers

Due to the limitations of eco-certification schemes, additional strategies are required to improve market access for small-scale farmers. Bush et al. (2013) mentioned that certification as governance-instrument has its limitations for increasing sustainable production and consumption. Further research is needed to determine which hybrid forms of environmental policy can be developed that go beyond certification only, thereby making use of the specific competencies of countries, the private sector and certification organizations. Eco-certification schemes should therefore be seen as only one method to increase sustainability in the aquaculture sector and both regulatory and nonregularity provisions are needed to improve this industry (Jonell et al., 2012). In this section some strategies next to eco-certification schemes are pointed out to increase governance of a sustainable aquaculture sector such as group certification, cooperatives, government regulation, area-based management and technology. With the use of these strategies, small-scale farmers could achieve sustainability and gain access to international

markets without eco-certification schemes. The alternative options sometimes overlap, due to the not always visible boundaries between public and private actors. Cooperatives could for example be seen as a private actor, but governments could play a role in supporting cooperatives (Ma and Abdulai, 2016). Group certification and cooperatives seems to be similar to each other in the sense of bringing together farmers, but differ to the point that cooperatives do not necessarily have to lead to group certification. Area-based management involves both government regulation as well as private actors such as farmers (Immink and Clausen, 2017). Although area-based management could involve the certification of a whole area, it is not the same as group certification. This is due to the fact that within area-based management not only certain farmers are certified, but a whole production area of producers, processors and traders (Morales et al., 2017).

### 3.3.1 Group certification

As an alternative to certifying single farms, group certification may alleviate the financial and administrative burdens that farmers are faced with to obtain certification (Bush et al., 2013). However, Bush et al. (2013) warns that price premiums are a decisive factor in the effectiveness of group certification. Although certain certification organisations targeting niche markets, such as organic shrimp farming, provide price premiums, larger certification schemes like ASC do not supply such price premiums<sup>4</sup>. Without price premiums, group certification is still not an effective solution for small-scale farmers. According to a literature review on group certification for medium- and small-scale farmers, lower costs for audits can increase access to eco-certification schemes for these farmers, even when the audit process remains the same. However, because only small-scale farmers with a high productivity can be involved in group certification, this strategy still excludes marginalised producers (Pinto et al., 2014). Group certification focused on small-scale farmers may increase the likelihood of small-scale farmers participating in certification schemes (Kassam et al., 2011).

### 3.3.2 Cooperatives

Producer organisations can be a catalyst for small-scale farmers to obtain access to international markets (see Markelova et al. 2008)<sup>5</sup>. Barret (2008) suggests that organising small-scale farmers in groups and arranging for poorer households to obtain better access to technologies are crucial to increasing market participation. Fischer and Oaim (2012) researched the effects of cooperative organisations on small-scale farmers. Although the price benefit of collective marketing strategies was limited, they found that active membership of cooperative organisations led to higher incomes. Cooperative organisations also improved innovation by using information more efficiently.

Barret et al. (2001) suggests that certification costs for small-scale farmers can be surmount by setting up cooperatives while attracting external financing. Cooperatives could be helpful in reducing costs, acquiring market information and technology and obtaining access into high value markets (Markelova et al., 2009 Stockbridge et al., 2003). This is a form of collective action, a '*voluntary action by a group to pursue shared objectives*' (Markelova et al., 2009, p. 2). Collective action can help to decrease market barriers for small-scale holders and to make efficient use of resources. Moreover, collective action could act as a critical factor to get better prices (Markelova et al., 2009). Hellin et al. (2009) mentioned different services that could be provided by cooperatives. In addition to increasing financial resources

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<sup>4</sup>See also <http://www.standardsmap.org/review.aspx?standards=206,204,203> to review a QuickScan of the ASC

<sup>5</sup>In terms of legal designation, producer organizations are often the same as cooperatives, although producer organizations can have different legal forms (association, foundation) (Smith et al., 2015). For the sake of clarity, this thesis makes use of the term 'cooperatives'.

and accelerating access to technology, cooperatives may also provide farmers with educational skills, health services, and collective management of water and natural resources. Ma and Abdulai (2016) conducted research about the effects of cooperatives on farmer welfare. Their findings show that small-scale farmers especially benefited from being member of a cooperative: yields, net returns, and incomes were significantly higher for those involved in a cooperative. To provide higher prices and meet the food safety and quality requirements on international markets, governments may support cooperatives, especially in managing better marketing strategies (Ma and Abdulai, 2016).

### 3.3.3 Government regulation

Certification programmes are primarily ruled by private organisations (Bush et al., 2013). The rise of these certification schemes is partly due to the lack of state regulation to manage social and environmental problems (Béné, 2005; Bush et al., 2013). However, the emergence of private governance organisations has not led to a complete absence of state regulation (Vandergeest, 2007). Collaboration between private governance organisations and public actors to manage sustainability has blurred the lines between private and public regulation (Ha et al., 2012). The success of certification schemes is mainly dependent on the effectiveness of state regulation: countries that must comply with national legislation on food safety show an increased capacity to govern sustainability. Northern eco-certification organizations should therefore work more with governments, companies local standards in the global South to regulate sustainability in the aquaculture sector (Bush et al., 2013). The latter is important, because creating conformity between standards in eco-certification schemes and local practices is not always done (Vellema and Van Wijk, 2015).

On a more practical level, governments can play a role in accelerating access to computers and the internet mainly in rural areas, which improves farmer participation in cooperatives and increases market prices (Ma and Abdulai, 2016). State regulation can further stimulate the market participation of small-scale farmers could by increasing market information, improving infrastructure in rural and peri-urban regions, and set up more retail chains with good market access in rural areas. The latter could be especially helpful because distance between sites of production and sites of sale can limit market access (Omiti et al., 2009). Furthermore, institutional strength in rules for food safety and traceability is an important condition for small-scale farmers to meet the requirements for certification. Research shows that small-scale farmers who must comply with national legislation rules on food safety and traceability demonstrate a higher ability to meet eco-certification standards than those from countries with low state regulation (Bush et al., 2013).

According to Phillips et al. (2012), high environmental impacts induced by certain production systems should be counteracted with other measures like national legislation. Belton et al. (2011) states that national governments are concerned with increased pressure to provide qualitative products and may be incentivised to create national standards to comply with market requirements for sustainability Marschke and Wilkings (2014) pointed out the ability of governments to establish a national standard specifically for small-scale farmers. Such a national standard could act as a condition for farmers to meet international certification schemes such as ASC and GlobalGAP. To reduce the gap between the standards of global certification schemes and local practices, a national standard could involve local practices, especially for small-scale farmers (Anh et al., 2011; Belton and Bush, 2014; Vellema and Van Wijk, 2015). Bush et al. (2013) pointed out that the emergence of national standards demonstrates an increased interest in sustainability. Certification organisations should therefore be aware of this rise and

explore these national standards to gain insights into market developments and opportunities for sustainable products.

#### 3.3.4 Area-based management

Area-based management, in the literature also referred to as zonal approach or landscape approach, is an approach with the aim of manage a whole area instead of single farms because most aquaculture farms use common resources like water and feed. Coordination between producers on this common resources is therefore necessary to reduce environmental and disease risks (Morales et al., 2017). Cumulative effects like mangrove destruction, effects from using certain feed or fertilizers of multiple producer sites in a determined location could be considered effectively when using a zonal approach (Bush et al., 2013). Area-based certification could also reduce the costs for small-scale farmers compared to single farm certification and also ensure higher positive ecological effects in coastal habitats (Bush et al., 2010).

#### 3.3.5 Technology

Traceability technology and information systems could play a role in increasing market access for small-scale producers in developing countries (Opara, 2003). Upcoming technologies include blockchain technology and information technology (Tian, 2017). Although the use of blockchain technology is quite new and described only to a certain extent in the literature (see for example Swan, 2015; Tapscott and Tapscott, 2016), this technology may provide new chances to create market access for small-scale farmers. Blockchain technology is an open database to provide security and open access. It is a decentral network of computers who make up an totally open database, in which transactions are fully verifiable. This can be helpful in creating transparency and traceability without third party certification (Yli-Huumo et al., 2016). Literature review shows the upcoming research on using blockchain technology to improve financial inclusion of small-scale farmers and increase transparency in food value chains and transport (Badzar, 2016; Chinaka, 2016). In addition, blockchain technology can reduce the effects of climate change, create transparency in fish value chains, and provide controllable financing systems to build sustainable socioecological coastal systems (Pfreundt, 2018).

#### 3.3.6 Summary

Due to the limitations of certification schemes, several alternative strategies exist that can increase sustainability, traceability, and transparency and improve market access for small-scale farmers. Group certification to reduce certification costs for small-scale farmers is an often-mentioned strategy, although price premiums seem to be a decisive factor in the effectiveness of this strategy. Cooperatives can help these farmers acquire market information, make efficient use of resources, obtain better market prices, and manage better marketing strategies. Governments can play a role in setting up national legislation on food safety and quality, providing conditions to meet requirements for international certification schemes, and supplying accelerated access to computers and technology. Area-based management can be used to reduce environmental and disease risks in aquaculture production systems and provide opportunities for small-scale farmers to be included in certification schemes. In addition, area-based management can be used to establish regional approaches to increase transparency and traceability. Furthermore, emerging technology such as blockchain may help to create transparency in food value chains without third-party certification improve direct market access.

### 3.4 Key concepts

The key concepts described above will be used during the collection of the data. The type of key concepts used were ‘sensitising concepts’, concepts that provide a thread for the research, instead of ‘definitive concepts’, concepts that can be clearly tested on their strictness within fixed boundaries (Blumer, 1954). Sensitising concepts “suggest directions along which to look” (Blumer, 1954, p. 7) and serve as reference points in the data analysis in order to contribute to existing theory. The use of sensitising concepts provides an interpretative framework in which space is left for additional factors (Bowen, 2006). This means that the key concepts were not used strictly in every interview but were kept in mind during the interviews as possible dimensions where attention can be drawn to. Figure 8 illustrates an extended conceptual model of this framework to clearly show the relationships between different key concepts.

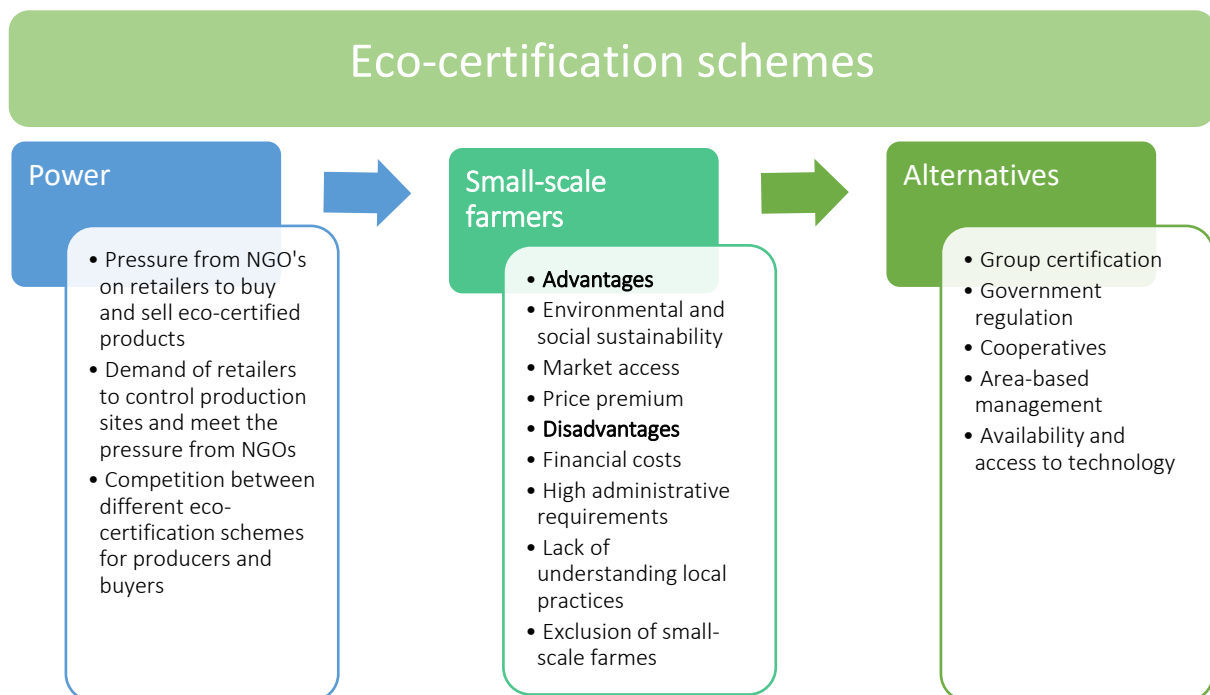


Figure 8 Extended conceptual model with key concepts



## Chapter 4 Methodology and methods

This chapter outlines the methodology and methods for this thesis. In this chapter the research strategy, research methods, respondents selection, data collection, data analysis, reliability, validity and ethical considerations will be explained.

### 4.1 Research strategy

For this research, a case study was chosen as the research strategy to explain the case in detail and provide deep insight into the processes and developments of eco-certification schemes for small-scale farmers. One of the advantages of using a case study is the ability to conduct an in-depth study of a subject that is restricted in time and space (Verschuren and Doorewaard, 2012). Another advantage of using a case study is the ability to use more than one method, which improves the validity of the research. For this case study, interviews, questionnaires and desk research were used as methods. However, by using a case study as research strategy, quantitative analysis of the data is not possible because only a small number of research units are considered (Verschuren and Doorewaard, 2012). Typically, a case study also limits the external validity of the research because only a single case with specific characteristics is targeted (Verschuren and Doorewaard, 2012). However, the results of this case study could also be made generalizable to a broader extent, as problems with eco-certification schemes for small-scale farmers are not limited to small-scale shrimp farmers in Bangladesh only.

### 4.2 Methods

The research approach and strategy as described above influenced the selection of the methods used (Verschuren and Doorewaard, 2010, p.157). Therefore, the research methods were closely related to the research approach and strategy. This section describes the stakeholder selection, data collection, and data analysis to outline the methods for this research.

#### 4.2.1 Data collection

For this case study, three methods were used: literature review, semi-structured interviews and questionnaires. The literature review is described in Chapter 3. However, the data for this research were mainly gathered via semi-structured interviews. The benefits of conducting interviews are obtaining an in-depth analysis of the subject and the possibility to ask more questions if something is unclear (Bryman, 2012). Conducting interviews is a suitable method for a qualitative case study (Verschuren and Doorewaard, 2010). Semi-structured interviews are useful when the topics for the interview steer the interview, but space is left open to follow up for more detailed information (Clifford et al., 2010). The aim of the interviews was to get insights into the power relations behind eco-certification schemes, the viability of eco-certification schemes for small-scale shrimp farmers in Bangladesh and the possibilities of alternative options for small-scale farmers to maintain market access to large retailers in the EU. In addition, some questionnaires were developed for small-scale Black Tiger shrimp farmers in Bangladesh to share their experiences with eco-certification schemes. The questionnaires focused in particular on the extent to which farmers were familiar with eco-certification schemes and what they see as incentives and obstacles for eco-certification.

The interviews took place between 17 December 2017 and 9 February 2018. Most of the interviews were conducted face-to-face (in-person or by Skype) to allow the possibility for highly in-depth questioning. Some interviews were conducted via email because of the limited time of the respondent. Although this method saves time, the depth of the interview is lower. Therefore, after conducting an interview by email, the researcher always responded to the respondent to ask more specific questions

about the given answers. The interviews were semi-structured for both face-to-face interviews and interviews conducted via email. Although the key topics in the interviews were the same in the interviews, the direction of the interview was dependent on the background of the respondent. The questionnaires for the small-scale Black Tiger shrimp farmers were sent on 12 February 2018. The completed questionnaires were returned on 23 April 2018 by four farmers. Appendix II shows the key topics for the conducted interviews and Appendix III shows the list of questions for the questionnaires.

#### 4.2.2 Stakeholder selection

Based on the literature review and the specific case addressed in this thesis, fourteen respondents were selected. These respondents were selected based on their knowledge on eco-certification schemes, their experiences with small-scale farmers, and a certain degree of familiarity with the aquaculture sector in developing countries in Asia, if possible specifically Bangladesh. In the first place, some respondents were selected via the network of the host organization. During the interviews with these respondents, a snowball sampling method was used to contact other relevant respondents. Using this method, participating respondents helped to recruit others, as often used in case studies (Verschuren and Doorewaard, 2012). In addition to these interviews, some Black Tiger shrimp farmers in Bangladesh were contacted (as arranged via a PhD student of WUR who had contacts with WorldFish in Bangladesh). Appendix I shows an overview of the selected respondents for the interviews.

#### 4.2.3 Data analysis

Most of the interviews were recorded and transcribed. For some interviews, only a summary was made because the respondent did not want the interview to be recorded. Non-relevant conversations were excluded from the transcription of each interview. After transcribing the interviews, a first check on non-relevant conversations was completed to ensure all the data were relevant to the research question. After the transcription and the gathering of relevant data, the relevant transcribed data was organised and coded using ATLAS.ti. Appendix IV shows how the analysis scheme for structuring the interviews was set up. The scheme demonstrates that the analysis of the data was done systematically based on the key concepts (Section 3.4). In the first step, the data was structured around the sub-concepts, and in the second step, the data was structured around the key concepts. This structure was helpful to cluster the data and obtain a structured analysis of the data. In addition to the factors targeted in this analysis scheme, space was left available to include any additional factors in the analysis. The questionnaires were not statistically analysed because only four were completed. Furthermore, because the content and structure differed, these questionnaires were not able to be treated the same as the interviews for the data analysis. Therefore, it was decided to only refer to relevant information in the questionnaires in Chapter 5.

### 4.3 Reliability and validity

Reliability and validity are important concepts for properly conducting research and ensuring its quality. Reliability refers to whether another researcher who performed the same research would find the same results. Validity refers to whether the research is trustworthy and plausible. To ensure the reliability and validity of the research, the methods of data collection must be assessed (Boeije et al., 2009).

#### 4.3.1 Reliability

The act of checking the research methods to ensure the reliability of the research is also called *methodological accountability* (Boeije et al., 2009). To ensure the reliability of this research, the transcribed data of each interview were sent to the corresponding participant to check whether any

mistakes were present and whether the perception was accurate. Almost all respondents responded that they had checked the data for accuracy, and some provided additional comments. However, some respondents did not respond, even after follow-up requests. The last method to ensure the reliability of the research was a detailed description of the research methods: with this method, the respondents had the opportunity to check and determine whether they trusted the results of the research (Boeije et al., 2009, p. 275).

#### 4.3.2 Validity

Validity refers to whether the results of the analysis correspond with reality. Validity can be divided into two types: internal and external validity. Internal validity concerns the quality of the research design: the methods used must correspond with reality (Boeije et al., 2009). Internal validity can be reached with the use of different methods. The internal validity of this research is guaranteed because a wide range of respondents were chosen (consultants, scientific institutes, certification organisations, and value chain actors). Furthermore, the interviews, questionnaires and literature review were used as different methods to gather data in this case study.

External validity refers to the question to what extent the results of the research can be generalized to a larger population (Boeije et al., 2009). Although the topic covered was very specific (eco-certification schemes for small-scale Black Tiger shrimp farmers in Bangladesh), all the respondents involved were familiar with certification, small-scale holders and sustainability beyond this specific case. This makes the research to a certain extent generalizable for problems with certification for small-scale farmers. The theoretical insights derived from the political ecology theory are useful to other cases as well which is also called “theoretical generalization” (Bryman, 2015).

#### 4.3.3. Ethical considerations

Ethical considerations are important for conducting research, especially during data collection and data analysis. “Informed consent” was obtained from all respondents prior to their participation in the research. This means that all respondents were correctly informed about the aim of the research and the use of the data (Boeije et al., 2009, p.60) and fully agreed with their involvement.

## Chapter 5 Results of analysis

This chapter describes the results of the analysis detailed. The first section is focused on the power behind eco-certification schemes, taking into account especially the power of retailers and NGO's. The second part addresses the viability, advantages and disadvantages of eco-certification schemes for small-scale farmers, followed by a third section in which some alternative options are explored. The key concepts presented in section 3.4 are used to analyze the data.

### 5.1 Power behind eco-certification schemes

This section explores the power behind eco-certification schemes. Although the field of power behind eco-certification schemes is much broader than two actors, this thesis focuses on only two actors of power: large retailers and NGOs. In the first part of this section, the market channel for shrimp from Bangladesh to Europe is outlined. The second part shows the pressure from NGOs on retailers to buy eco-certified products, and the third part outlines the pressure from large retailers in the EU on producers for eco-certification schemes.

#### 5.1.1 Market channel

The market for frozen fish and seafood in the EU can be divided into two sectors: the food service sector and the retail sector. The food service sector includes the delivery to restaurants and canteens whereas the retail sector comprises the sale of products to consumers to use at home. Supermarkets account for the largest share of the retail sector, responsible for approximately 80% of the total seafood market. Supermarkets can be divided into high-end, middle-range, and discounters, whereby high-end and middle-range supermarkets are increasingly requiring sustainably labelled seafood. However, even discounters seem to be increasingly interested in selling certified seafood. In Europe, large retail groups such as Carrefour, Royal Ahold N.V., and Aldi GMBH own different supermarket chains (CBI, 2016).

Supermarkets in northern and western European countries have committed themselves to selling only certified seafood products. Therefore, an eco-label is seen as a 'market guarantee' to enter markets in the EU (CBI, 2017). This finding agrees with that of Van der Pijl and Van Duin (2012), who mentioned that sustainability certification schemes in supermarkets in northern and western EU countries are becoming increasingly required to gain access to these markets. Tran et al. (2013) also indicated that such certification schemes are shaping the global market for shrimp. Because of this demand, eco-certification schemes are increasingly necessary to enter markets in the EU or the US, despite the difficulties of small-scale farmers to meet the requirements of such schemes.

The most important requirement to import shrimp products from Asia to the EU is the sustainability certification. This is the result of concerns about the sustainability of the shrimp sector in Asia, causing the rise of standards to ensure products are produced in a sustainable way. Food safety is next most important requirement, with primary concerns about hygiene and traceability. These food safety issues can be addressed by certification schemes like GlobalGAP or the International Food Standard (CBI, 2017). GlobalGAP or ASC is the minimum requisite to deliver to supermarkets in northern and western EU countries. In addition, Naturland and Label Rouge are national certification schemes that meet the necessary sustainable standards imposed by large supermarkets (CBI, 2016). However, these conditions also cause several barriers for importing shrimp from Bangladesh to the EU market, as import tariffs and standards on food safety and sustainability cannot always be met by farmers (Van der Pijl and Van Duin, 2012).

### 5.1.2 Pressure from NGO's

As previously mentioned, eco-certification schemes are increasingly demanded as a requisite to supply products to large retailers in the EU (Van der Pijl and Van Duin, 2012; CBI, 2016). An important factor in this shifting demand for eco-certified seafood products seems to be pressure from NGOs on retailers to sell eco-certified seafood (Bush et al., 2013). The findings of this research also show that NGOs are playing a role in the demand for eco-certified seafood products.

Different respondents acknowledged that eco-certification schemes are driven by NGOs, imposing retailers to demand eco-certified seafood products (Interview 6, 9, and 11). The influence of the WWF was mentioned as one of the driving forces behind the demand for eco-certification schemes, especially ASC (Interview 7 and 9). The WWF is essentially promoting their 'own brand' (ASC is established among others by the WWF) and has great influence in Europe (Interview 6). This causes the demand of retailers like Albert Heijn, Jumbo, Aldi and Lidl for ASC-certified seafood products. However, one of the respondents stated that retailers only fulfil this demand to *'keep WWF outside the door, although the added value of ASC next to eco-certification schemes like GlobalGAP is highly contested'* (Interview 6). To a certain extent, eco-certification schemes are driven by Northern actors like NGOs, while farmers sometimes feel "passed by western organisations who prescribe how it should be" (Interview 2). Therefore, according to this research, the requirements of eco-certification schemes for sustainable production seem to be driven by Northern actors like NGOs.

### 5.1.3 Demand of retailers

Previous studies have highlighted the role of retailers in the demand for eco-certified seafood (Busch and Bain, 2004; Vandergeest, 2007). The findings of this research show that the commitment of large retailers in the EU to sell only certified seafood products by 2015 influenced the demand for eco-certified seafood products. However, this commitment has imposed farmers with the burden to comply with the requirements of these certifications to obtain market access to large retailers in the EU.

The commitment of large retailers to sell only eco-certified seafood products, mostly ASC-certified, was cited several times by respondents (Interview 3, 8, and 13). Whereas previously, ASC certification was not required as a condition to deliver products to retailers in the EU, this new commitment supposes farmers will obtain an ASC eco-label (Interview 8). Although their products could be considered sustainable, it is difficult to supply products without an eco-label to retailers (Interview 3). Market access was mentioned as the primary reason that farmers seek to obtain an eco-label, due to the demand of retailers (Interview 11). ASC was highlighted as the most demanded eco-certification scheme among retailers in the EU, presumably from pressure by the WWF (interview 6, 9).

One of the main reasons mentioned for retailers to focus on ASC is because it is simple for them to stick to one standard and they make the most profit by using eco-certification schemes (interview 13). One respondent explained about the demand of retailers for eco-certified seafood products: "It gives them kind of feeling that they have a sustainable product". However, ASC certification seems to be problematic for small-scale farmers in Bangladesh, yet they face losing market access to large retailers in the EU without it (Interview 8). Therefore, retailers should be aware that eco-certification schemes are placing additional burdens on small-scale farmers and that alternative options to eco-certification schemes exist to ensure sustainability (Interview 13). Although China, Japan, and the US are growing markets, the most important factor pressuring farmers to become ASC-certified is the market demand in Europe (Interview 5). This suggests that eco-certification schemes are most of the time not intended by farmers themselves but are imposed on them by other entities, such as retailers and NGOs. One of

the respondents remarked that the EU market is ignoring other possibilities of including small-scale farmers because they are interested in simple solutions, like ASC certification (Interview 7).

#### 5.1.4 Competition

The literature has stated that competition exists between different eco-certification schemes (Bush et al., 2013; Ponte and Gibbon, 2005). Producers must choose the appropriate certifier to enter a certain market (Barret et al., 2001). The findings of this research also found that competition exists between different eco-certification schemes (Interview 11). For example, this competition caused GlobalGAP to establish a business-to-consumer logo in addition to their original business-to-business logo to increase market share (Interview 4). One respondent spoke about this competition and explained (Interview 14):

*“Yes, definitely there is competition. Competition between different kind of sustainability certifications, for example between ASC, GlobalGAP, Naturland, EU-organic, etc. They are of course competitors, it is always the demand of the market, who decides what kind of certification the farmers will get. If the market only asks for ASC or for organic—So, of course it is a competition for Naturland, if the market asks for ASC, the producers will not go for organic, they will go for ASC. Even if there is a difference in the standards, this is often not so recognised by the retailers. It is not about the details, it is about they need some kind of claim for the customers”.*

#### 5.1.5 Sub-conclusion

Eco-certification schemes seems to be partly driven by NGOs like WWF, imposing retailers to demand eco-certified seafood products. However, However, eco-certification schemes like ASC seems to be problematic for small-scale farmers, yet they could face losing market access to large retailers in the EU without it. Competition also plays a role between eco-certification schemes, because retailers decide which eco-label they want to buy and sell.

### 5.2 Small-scale farmers

Although the mass production in aquaculture comes from small-scale farmers, eco-certification schemes typically impose burdens on small-scale farmers, thereby causing a decrease in market access to large retailers for those farmers. This section analyses to what extent this decrease in market access could be proven in the case of eco-certification schemes for small-scale Black Tiger farmers in Bangladesh. A review of the question to what extent eco-certification schemes are viable for small-scale farmers in Bangladesh. In particular, two eco-certification schemes are targeted: ASC and Naturland. In addition, the advantages and disadvantages of each eco-certification (see key concepts in Section 3.5), scheme are discussed using the views of the respondents. The answers of the questionnaires among the small-scale Black Tiger shrimp farmers are also discussed in this chapter.

#### 5.2.1 Eco-certification schemes

##### ASC

In 2010, the ASC was established to set up a certification and labelling programme (Aquaculture Stewardship Council, 2018a) “to transform aquaculture towards environmental sustainability and social responsibility using efficient market mechanisms that create value across the value chain” (Aquaculture Stewardship Council, 2018b). Since 2004, aquaculture dialogues had been held that focused on the most important ecological and social impacts of aquaculture and how to address these in a set of standards. The purpose was to be inclusive in involving different respondents and covering many types of production systems. These aquaculture dialogues resulted in the establishment of the ASC, co-founded by the World Wildlife Fund Netherlands and the Sustainable Trade Initiative (Aquaculture Stewardship

Council, 2018a). The ASC standard is set up for 12 species, including salmon, tilapia, pangasius, and shrimp based on their environmental and social impact, market value, and degree of international trade (ASC, 2018a). In 2014, they created the Shrimp Aquaculture Dialogues (Marschke and Wilkings, 2014) to reduce the main environmental and social impacts of shrimp farming (WWF, 2018). The standard for shrimp farming consist of five challenges including biodiversity, feed, pollution, diseases and social welfare (ASC, 2018b).

To date, no single farm in Bangladesh is certified by the ASC. At least one organisation is figuring out to what extent ASC certification is possible for small-scale farmers in Bangladesh (Interview 8). The amount of corruption (Interview 3, 5, and 8) was cited by most respondents as the main reason why certification is very challenging in the context of Bangladesh. Another reason referred to how farms in Bangladesh are not intensified enough to obtain an eco-label (Interview 11) because ASC requirements focus on (semi-)intensive production systems, which cannot simply be applied to extensive Black Tiger shrimp farms (Interview 3).

### *Naturland*

Naturland is a German organisation involved in certifying organic agriculture. The organisation promotes organic farming methods worldwide and claims to be the first agricultural organisation with both organic and fair-trade compliance in one logo. The quality assurance of the products is verified by monitoring and both internal and external inspection. Environmental and social sustainability are the pillars on which the standard of Naturland is built. Fish feed and mangrove protection are the main aspects of environmental sustainability. According to Naturland, a considerable benefit of extensive shrimp farming is the possibility to enhance polyculture in the ponds and provide additional income for the small-scale farmers (Naturland, 2016).

To date, Naturland is the largest organisation for certification in Bangladesh (STIP, 2016). Currently, Naturland has certified 2600 small-scale shrimp farmers in Bangladesh, covering an area of 6000 hectare. The average farm size is between 1 and 3 hectare, and the farmers are clustered in groups. One of the main reasons why Naturland is involved in Bangladesh, in contrast to ASC, is that extensive shrimp farming is almost organic (Interview 8). A representative of Naturland pointed out (Interview 14):

*“Because the whole delta is possible to certify and you have lots of traditional, small-scale farmers. (...) Naturland don’t exclude any country from the beginning on, but they try to work with so many countries as possible, especially when the situation is difficult and you can improve something. And of course, Bangladesh is not an easy country, but it is definitely a nice project”.*

Van der Pijl and Van Duin (2012) acknowledge investment in Naturland as a strategy to increase the added value of shrimp from Bangladesh (although they do not specify who these investors should be). Naturland is also mentioned by respondents as an option for small-scale farmers to become certified and increase access to the market in the EU (Interview 7 and 13). SelvaShrimp, a company working in South-East Asia on extensive shrimp farming, stated that Naturland has already certified all their farms. However, SelvaShrimp is not selling their products on the EU market because they are focused on the US market (Interview 8).

To summarize, one way to address sustainability problems in the Bangladeshi shrimp sector are eco-certification standards. However, eco-certification in the context of Bangladesh seems to be challenging,

as the value chain of shrimp is associated with a lack of traceability and transparency (Interview 6, 10). ASC and Naturland are both to a certain extent present in Bangladesh, but are opposite to each other in many ways. ASC is focused on intensive production, which is not (yet) nearly present in Bangladesh. Naturland, on the other hand, focuses on extensive production and is therefore more suitable for small-scale shrimp farmers in Bangladesh because their production is almost entirely extensive. Therefore both examples can provide good insight into the advantages and disadvantages of eco-certification schemes and their applicability to small farmers, as described below.

### 5.2.2 Advantages

As outlined above, although ASC certification seems to be very challenging in the context of Bangladesh, Naturland may be a viable option for the country's small-scale farmers. In this section, the advantages of each eco-certification scheme are discussed. Although the headings in this sub-section refer to the advantages purported in the literature, this sub-section also weighs this against comments on disadvantages made by respondents.

According to the literature, environmental benefits and increases in livelihood are important benefits of eco-certification schemes (Klooster, 2006; Rueda and Lambin, 2013). In particular, price premiums and market access are highlighted as two important livelihood benefits of eco-certification (González-Benito and González-Benito, 2005; Nebel et al., 2005). This section addresses these statements in the case of ASC and Naturland eco-certification for small-scale shrimp farmers in Bangladesh.

#### *Environmental and social sustainability*

This research found that certification contributes to social and environmental sustainability, as targets are set on feed, fertilisers, labour conditions, and income (Interview 4, 5, and 12). Supermarkets and consumers can ensure that certain sustainability risks are addressed with ASC eco-certification schemes (Interview 5). However, the impact on sustainability was also criticised, as only a small amount (approximately 4,5%) of aquaculture worldwide is targeted with eco-certification schemes (Interview 13) (Bush et al., 2013). Therefore, the effectiveness of eco-certification in aquaculture is also contested because its impacts are limited (Interview 5) (Bush et al., 2013). Certain important issues like disease outbreaks or the origin of feed used in aquaculture are difficult to target with eco-certification schemes (Interview 13); the ASC standard only addresses particular issues, such as land-use efficiency (Interview 5). Furthermore, shrimp farming is not isolated to the farm itself (Bush et al., 2013) because feed and larvae are produced in other factories, which are not targeted in the ASC eco-certification scheme (Oxfam, 2017). However, the market demand for (ASC) eco-certified products could push farmers to improve their practices in order to meet the criteria set on environmental and social issues set by the eco-certification schemes (Interview 5). Because only one respondent was really familiar with Naturland, it became not entirely clear to what extent Naturland offers environmental and social benefits compared to, for example, ASC. However, the respondent of Naturland mentioned the following environmental benefit (Interview 14):

*“They (the farmers, F.T.) have to use certified organic shrimp larvae, so they get either really good quality of larvae, that is one benefit. (...) they just have a sustainable way of producing shrimp for themselves and also for the processing company”.*

#### *Market access*

Market access was regarded by some respondent as the most important benefit of eco-certification (Interview 7, 12, and 13). However, paradoxically, this benefit was also seen as one of the main barriers



to certification, especially for the ASC label. This contradiction occurs because although eco-certification gives farmers access to large retailers in the EU, if they cannot meet ASC standards, they may be excluded from these markets. One respondent stated plainly: “If they do not have ASC, small-scale farmers will lose markets” (Interview 7). For Naturland, one representative spoke of these challenges and he explained (Interview 14):

*“It is really a question of demand. You have a limited demand for organic shrimps unfortunately, that is the reason why we do not certify more shrimp farmers. (...) But the other challenge is of course the market and if you don’t have a big demand for organic shrimps, then there is no drive to certify”.*

This advantage of obtaining access to markets also carries a hidden disadvantage: although eco-certification schemes may increase market access, the lack of an eco-label may decrease market access. The extent to which a label can generate market access depends on the demand of eco-certified shrimp in markets where there is demand for eco-certified products. However, a farmer in Bangladesh has no influence on that demand. The power behind eco-certification schemes as addressed in the previous section can also be considered with this argument: If the market is not asking for eco-certified products, there is no incentive for farmers to become certified (Interview 5). One respondent of the questionnaires mentioned that market access to the EU or the US the main reason is for him to obtain an eco-label (questionnaire 2). Next to that, all respondents of the questionnaires that they are interested in more market access to the EU of the US in order to earn more money for a better livelihood (questionnaire 1, 2, 3, 4).

#### *Price premium*

Although a price premium seems to be an important market incentive and advantage for farmers to become eco-certified, ASC does not provide a price premium (Interview 8) (Marschke and Wilkings, 2014). Two reasons for this are the unlimited supply of aquaculture products (Interview 12) and the extra costs that consumers would have to pay in the supermarket if the ASC provided a price premium to farmers (Interview 5). Another respondent stated that this is ‘one of the real issues of ASC and others, that the farmers didn’t get any value of being certified’ (Interview 9). By contrast, farmers certified by Naturland will receive a better price on the market. The Naturland Fair Standards states the following: “Companies with Naturland-certified products pay at least this minimum fair-trade price to growers. If there is no international fair-trade minimum price for a product existing, a price of at least 10% above the generally accepted market-based price has to be paid” (Naturland, 2017, p. 7). A respondent from Naturland recognized the incentive of better prices as he explained (Interview 14):

*“For the farmers, the idea is of course that they get a better income. (...) They get a better price for their products and they just have a sustainable way of producing shrimp (...). But the whole idea of organic certification is of course to create a better income also for those people”.*

Another explanation could be that ASC does not have any added value next to existing eco-certification schemes like GlobalGAP (Interview 6), while Naturland provides added value with their organic products. Retailers are willing to pay more only to provide products with added value, namely organic (Interview 14). Two respondents of the questionnaires indicated that a price premium would be an incentive for them to obtain an eco-certification label (questionnaire 1,2).

#### 5.2.3 Disadvantages

According to the literature, the disadvantages of eco-certification are that producers often must pay for certification but do not always receive a price premium (Klooster, 2006). In addition, trade barriers are

mentioned in the literature as a disadvantage of eco-certification, as farmers may lose market access without ASC certification. Furthermore, high administrative requirements (Tovar et al., 2005), financial costs (Marschke and Wilkings, 2014), and lack of understanding local practices (Belton and Bush, 2013; Vandergeest, 2007; Vellema and Van Wijk, 2015) are noted as factors that exclude small-scale farmers from eco-certification. This section discusses to what extent these stated disadvantages affect small-scale farmers in Bangladesh.

#### *Financial costs*

The financial costs of becoming certified was often recognized by the respondents as one of the main disadvantages of ASC certification (Interview 2, 3, 5, 7, 12, 13). In particular, the costs for the audits were pointed out during the interviews. However, no one discussed what financial costs are related to the registration of the programme or the adjustments that farmers must make to their production practices. One of the respondents noted that the costs for the ASC audits are the biggest problem for farmers because they are often small-scale with low income (Interview 7). One respondent of the questionnaire indicated that the costs of the audits is the main obstacle to obtain an eco-label (questionnaire 3). Small-scale farmers often have a small business with low revenues, making it difficult for them to pay for the audits required for eco-certification (Interview 5). Combined with the lack of a price premium, ASC certification is not attractive option for small-scale farmers (Interview 12). Although Naturland also requires audits of the certification, the costs attached to these audits may be paid slightly different. Sometimes the farmers must pay for the inspection body and sometimes the processors or the inspection body pay the costs. During the interview with Nederland it has not become clear what the reason behind is for this practice (Interview 14).

These findings agree with the literature: the financial costs of the audits for certification are often carried by the producers instead of spreading it throughout the whole value chain of importers, retailers and consumers (Klooster, 2006). This is especially the case for ASC certification, which places the burdens on farmers to comply with ASC standards (Interview 12). Small-scale farmers must show evidence to become certified, placing pressure on them to meet standards that cannot be fulfilled easily (Interview 11). Although another respondent claimed that the ASC intended to spread the costs of the audits for certification throughout the entire value chain (Interview 8), this is not (yet) true in practice (Interview 12). Currently, the costs of the audits for ASC certification are paid most of the time by the producers instead of spreading these costs among multiple value chain actors, such as importers, retailers, and consumers (Interview 12). To distribute these costs more evenly, one respondent suggested (Interview 12):

*“That importers, retailers, and traders take responsibility and that they will also contribute to improvements. Not just making demands, but also really contribute. The ‘burden of proof’ must not lie on the producers, but on the person who buys the product. That, for example, Albert Heijn takes responsibility for where the products come from that they buy, because they often do not know that”.*

In case of the Naturland certification, it depends on who pays the costs for the audits. Sometimes the farmer will pay it themselves and other times the processor, the retailer, or the inspection body will take care of these costs. In the case of Bangladesh, the farmers do not pay the costs for the audits because the owner of the project (CLAMA GmbH, a German retailer) in Bangladesh pays for all these costs (Interview 14).

### *High administrative requirements*

According to the literature, administrative requirements are one of the main barriers to eco-certification for small-scale farmers (Tovar et al., 2005). The findings of this research indicated that this barrier may be even more important than financial costs in the case of ASC certification (Interview 3 and 11). Rather than the specific requirements, the high administrative requirements for becoming ASC-certified was recognized as the primary factor that excludes small-scale farmers (Interview 3):

*“Because the methodology is very heavy. If you produce shrimp in Saudi Arabia, then you need one fourth of the number of samples in your order compared to small-scale farmers in Bangladesh. Why? Because those small-scale farmers in Bangladesh belong to the lowest 30% on the Transparency International Index<sup>6</sup>. Those are rules that are in the standard”.*

High administrative requirements of the ASC and GlobalGAP can exclude small-scale farmers from becoming certified (Interview 4) in part because small-scale farmers often need technical assistance to read the documents (Interview 10). One of the respondents mentioned about ASC (Interview 11):

*“Monitoring and documentation are the biggest problem for small-scale farmers. A small-scale farmer will not check every morning the oxygen in his pond, that is not necessary, but although needed for becoming certified. (...) Don’t need all these technical standards for small-scale farms which do not use any feed, fertiliser, or chemicals. What is there to monitor? It is only applicable to intensive farming systems. The whole thing is that it is based for intensive feed systems and now they want to have a system where small-scale farms can participate, but nevertheless they need to do all these crazy documentation, with no functional purpose. So, it doesn’t make sense”.*

In the case of Naturland, it is not clear to what extent administrative requirements burden Bangladeshi farmers who want to obtain certification. Although this question was asked in an interview with Naturland, the respondent could not provide any additional information.

### *Lack of understanding local practices*

As mentioned in the literature, local practices are largely neglected in the current eco-certification schemes (Belton and Bush, 2013; Vandergeest, 2007; Vellema and Van Wijk, 2015), making eco-certification schemes challenging for local farmers (Marschke and Wilkings, 2014). This disadvantage is closely related to the disadvantage of *high administrative requirements*. The findings of this research showed that requirements in global eco-certification schemes are sometimes mismatched with local practices (Interview 3). One respondent questioned the relevance of these requirements. He explained: (Interview 2):

*“A requirement or a GMO [Genetically Modified Organism, F.T.], for example, people think: why? That does not play a role, that is not at all the case, although people in Europe are concerned about it”.*

The literature acknowledges that eco-certification schemes for small-scale farmers should consider locally produced species and local social and environmental impacts of aquaculture production (Marsche and Wilkings, 2014). Agreeing with this, one respondent explained the importance of considering the diversity of the shrimp sector (Interview 3):

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<sup>6</sup>The Corruption Perception Index (CPI) is part of the Transparency Index, a global coalition against corruption. The CPI ranks 180 countries and territories by their perceived levels of public sector corruption according to experts and businesspeople, uses a scale of 0 to 100, where 0 is highly corrupt and 100 is very clean ([https://www.transparency.org/news/feature/corruption\\_perceptions\\_index\\_2017](https://www.transparency.org/news/feature/corruption_perceptions_index_2017)).

*“The ASC standard is made for semi-intensive Vannamei shrimp. So you cannot apply that to the (extensive, F.T.) Black Tiger shrimp. (...). So my statement is let's create a sustainability space for Black Tiger shrimp. (...). And I would like to see that a club like WWF would get an eye for that. That they say: (...) ‘We are no longer talking about all shrimps, about the whole shrimp sector, we are talking about this Black Tiger shrimp (from Bangladesh, F.T.)’.”*

### *Exclusion*

The literature often found that small-scale farmers are excluded from eco-certification schemes due to a lack of technical and financial resources (Bush et al., 2013), causing trade barriers (Maertens and Swinnen, 2009) and polarisation between farmers (Belton et al., 2011; Tovar et al., 2005). The findings of this research showed that the respondents largely agree with the statement that eco-certification schemes are excluding small-scale farmers (Interview 3, 5, 9, and 11). One respondent highlighted this exclusion (Interview 3):

*“What is certifying? Ultimately a huge bureaucracy on your company. And that is only possible if you have money. And then the small farmers will be excluded”.*

Because they exclude certain farmers, eco-certification schemes can also create negative social impacts (Interview 12). Even if ASC began group certification, with the same requirements, only the best-performing small-scale farmers would qualify (Interview 13). Expanding on this, one respondent outlined the relationship between requirements and exclusion (Interview 14):

*“But group certification (of ASC, F.T.) also has all kinds of requirements, all kinds of documentation that needs to be done. And that comes upon the ASC requirements. That is another 40-page document. So, which group of smallholders can do this? Only again those who have a very good staff and can finance it. So then still a lot of people are excluded. And that creates unfair competition on the market”.*

### *Controlment*

Although not found in the literature, several respondents stated that controlment in eco-certification (in this case ASC) can be highly contested (Interview 3, 8, and 12). This is mainly because many indicators do not credibly audit factors like mortality, number of escaped animals, and use of chemicals (Interview 3, 6, 11, and 12). One of the reasons for these missing indicators is that auditors often check each farm only once per year. How can they then monitor the number of escaped animals? (Interview 6). One respondent questioned the value of ASC audits and he explained (Interview 3):

*“I recently talked to someone who was an auditor at ASC and who agrees with me on this point. He said, ‘Then a company is certified on the basis of the ASC criteria for biosecurity and then you go there and then everything just walks in all directions, escapes to a large extent and that is not reported’. That is really the vulnerability of sustainability, or certification. What is written on paper and how is this verified?”*

To solve this problem, one respondent suggested that both frequency and quality of audits must be improved (Interview 12):

*‘In addition, the verification must also be better and different. They also should not look at it once a year, because that does not work either. It really depends on the person who is doing the assessment, how good he or she is. In practice, this often does not work well. There must be more control over who performs these assessments’.*

Controlment in Naturland certification was to a large extent not considered in this research because only one person was interviewed who was involved with Naturland. Although questions about this topic were asked during the interview, the respondent could not provide additional information. However, a representative of Naturland explained that their certification requires the establishment of an internal control system: internal inspectors control and inspect every single farmer, and then the external inspection body comes to verify if this system is working. Because the auditor is not from the country itself, it may lower the danger of corruption (Interview 14).

#### 5.2.4 Sub-conclusion

Eco-certification schemes seems to be challenging for small-scale shrimp farmers in Bangladesh, especially in the case of ASC. Financial costs for audits, high administrative requirements as well as a lack of understanding local practices are some of the disadvantages mentioned. Naturland seems to be provide an example of an eco-certification scheme that is suitable for small farmers as they target extensive production systems, provide a price premium and don't put the costs for the audits on the farmer. The results also show that controlment is not always ensured with the use of eco-certification schemes. This is mainly because many indicators do not credibly audit factors like mortality, number of escaped animals, and use of chemicals and because audits are often done only once a year.

### 5.3 Alternatives

The previous section outlined to what extent certification is viable for small-scale farmers in Bangladesh and explored the advantages and disadvantages of eco-certification (especially ASC and Naturland). Because eco-certification schemes are only one method of governing sustainability and obtaining access to retailers in the EU, the question remains how to create market access in the EU for small-scale shrimp farmers in Bangladesh using alternative options. As mentioned in Chapter 3, some alternatives include cooperatives, government regulation, area-based management, group certification, and technology. Stakeholders confirmed that different alternatives to third-party certification are possible. This section describes these alternative options for small-scale farmers and compares them with eco-certification schemes, as outlined in the previous section. This will be done using the results of the interviews. In addition, recommendations are made about the viability of these options in the context of Bangladesh. The views of stakeholders are outlined to create a clear overview of the feasible options to obtain access to the EU market.

#### 5.3.1 Group certification

Group certification is often suggested as an alternative to single-farm certification because the costs of the audits could be shared among multiple farmers. The literature indicated that group certification focused on small-scale farmers can increase the likelihood that small-scale farmers participate in certification schemes (Kassam et al., 2011). However, Bush et al. (2013) warned that price premiums are a decisive factor in the effectiveness of group certification. This means that the choice between single-farm certification versus group certification is not relevant as long as there is no price premium. Although some certification schemes focused on niche markets (Naturland) provide price premiums, global certification schemes like ASC do not supply such price premiums.

According to the findings of this research, some stakeholders believed that group certification is a considerable solution for increasing the involvement of small-scale farmers in certification schemes (Interview 5, 6, 10, 13). Naturland is already built on the clustering of small-scale farmers into their certification programme (Interview 14). However, becoming ASC-certified remains complicated for

farmers because they need technical assistance to read the documents that are needed (Interview 5, 10). A spokesperson from ASC noted the following (Interview 5):

*“This group certification methodology is for us an instrument to retrieve the costs of certification, so that certification becomes available for small-scale farmers. It [must be] said however that it is still not easy for small-scale farmers because there are still all kinds of bottlenecks that they run into. And we realise very well that they need training”.*

Although group certification can decrease the current exclusion of small-scale farmers into certification schemes, respondents recognised that farmers still must comply with all the requirements necessary to get ASC certified (Interview 11 and 12). All respondents from the questionnaires mentioned if the costs of certification can be spread among a group of small-scale farmers, they would like to join such a group certification program. However, they also indicated that the costs have to be acceptable (questionnaire 1, 2, 3, 4) and that they want to have a price premium (questionnaire 1, 3, 4).

The use of group certification schemes seems to reduce several disadvantages of current eco-certification schemes (decrease in financial costs, exclusion); however, high administrative requirements still remain for small-scale farmers, requiring that they receive technical support.

### 5.3.2 Cooperatives

The literature showed that cooperatives can be a catalyst for small-scale farmers to obtain access to international markets (see for example Markelova et al. 2008). Barret (2008) suggested that organising small-scale farmers in groups and arranging better access to technologies for poorer households are crucial to increasing market participation. Barret et al. (2001) specified that certification costs for small-scale farmers can be surmounted by setting up cooperatives and attracting external financing.

The findings of this thesis suggest that setting up cooperatives may act as a way to organise small-scale farmers and eventually lead towards group certification to jointly bear the costs of certification (see also Section 5.3.1) (interview 8, 10, 13). As already mentioned, this alternative option partly overlaps with the option of group certification. However, cooperatives do not necessarily have to lead to certification. Cooperatives are useful not only as a stepping stone towards certification but also for obtaining financing, hiring a harvest team together (Interview 13), and setting up service centres to check certain indicators, such as water quality (Interview 8). To counteract a lack of trust in the supply chain of shrimp in Bangladesh, cooperatives could be helpful in improving traceability (Interview 13); however, it seems difficult to bring small-scale farmers together (Interview 9). In addition, the institutional context seems to play a role in the possibility of setting up cooperatives. One respondent mentioned that this could be challenging in the context of Bangladesh compared to Thailand, for example, where there are already associations of shrimp farmers who are fairly well organised at a high-quality level (Interview 13).

Therefore, cooperatives could be very helpful in three key areas: (1) clustering small-scale farmers together, (2) improving traceability, and (3) sharing costs for harvest teams or certification. In addition, well-established cooperatives can provide a stepping stone towards involvement in global eco-certification schemes. On the one hand, the institutional context is an important factor related to the achievement of such cooperatives. In the context of Bangladesh, this seems to be challenging but not impossible. On the other hand, it's possible that setting up cooperatives could incentivise the government to invest in improving sustainability and traceability.

### 5.3.3 Government regulation

Literature reviews show that the effort of certification schemes is mainly dependent on the effectiveness of state regulation (Bush et al., 2013). Setting up a national certification scheme as a condition to meet global certification standards could provide opportunities for small-scale farmers (Belton et al., 2011; Marschke and Wilkings). Furthermore, the government could play a role in providing technology, which could positively affect the participation of small-scale farmers in cooperatives (Ma and Abdulai, 2016).

According to the findings of this research, several respondents mentioned the possible role of the Bangladeshi government in improving the sustainability of the country's shrimp farming by regulating products to be produced in a sustainable way and creating improved market access to the EU. Respondents noted examples from Ireland and Scotland, where government intervention ensured products in these countries were responsibly produced (Interview 5 and 11). In addition, the government could set up trainings or could provide subsidies to farmers to improve sustainability and comply with the requirements of global certification schemes (Interview 12). Furthermore, respondents referred to the role of the government in disease control (Interview 4), checking the farms on certain criteria (Interview 5) and setting up a national standard as a condition to meeting global certification standards (Interview 13). Although it is not clear to what extent the latter is possible in the context of Bangladesh, one respondent criticised the idea (Interview 14):

*“Local certification systems in Bangladesh, I don't think it would work. They might work somehow for the local market, but there is not really demand in Bangladesh for organic products on the local market and it will not work for export, because in the export they will not trust the local Bangladesh label. (...) I don't think a local label is workable in Bangladesh for several reasons. One reason that would be the corruption., and I think it would be very difficult to set up a well working system”.*

Government may play a role in increasing market access for small-scale farmers and providing stepping stones that could lead towards global certification schemes. In this way, local practices can be more precisely incorporated into national standards. However, this may be challenging in the context of Bangladesh as implementation and enforcement of regulations and laws is often lacking and needs to be studied further.

### 5.3.4 Area-based management

Because most aquaculture farms use common resources like water and feed, area-based management, also referred to as zonal approach or landscape approach, aims to manage an entire area instead of single farms (Morales et al., 2017). Because this strategy is quite new, research on this strategy is limited and not all the respondents were familiar with it. Moreover, because the government could also play a role in this option, this section partially overlaps with the previous section.

The findings of this research show that area-based management was cited by several respondents as a quite new but potential possibility to help shrimp farmers (Interview 2, 4, 5, and 13). With this approach, a geographical location would be managed with all the stakeholders involved, like producers, processors, and governments (Interview 2 and 13). One of the reasons for this is the diversity of the shrimp sector: global certification schemes are not always applicable to local practices of small-scale farmers (Interview 5). Therefore, area-based management may be useful for ensuring products in a certain region are sustainably or responsibly produced. As mentioned in Section 5.3.2, previous government interventions in Ireland and Scotland ensured that products in certain regions are

responsibly produced (Interview 5 and 11). Within such a zonal approach, the focus could be, for example, on water quality or feed for a whole region. In this way, traceability could be improved without the need for an eco-label (Interview 4). In addition, making data about such a region available could make the process of controlment more efficient (Interview 5). As a result, cooperation could be reached on different levels, instead of the vertical approach of producer to consumer (Interview 13).

It seems that area-based management could provide several opportunities to improve traceability and sustainability to bring more small-scale farmers into the market, reduce the costs of certification (as costs could be spread among stakeholders in a whole region), and account for local practices. However, this option has not been studied yet in the context of Bangladesh, making it challenging to make strong statements about it.

### 5.3.5 Technology

Traceability technology and information systems can play a role in increasing market access for small-scale producers in developing countries (Opara, 2003). These options can be helpful in creating transparency and traceability without third-party certification (Yli-Huomo et al., 2016). According to the literature, the use of blockchain technology improves financial inclusion of small-scale farmers (Chinaka, 2016) and increases transparency in food value chains like fish and transportation systems (Badzar, 2016; Kim and Laskowski, 2017; Pfreundt, 2018).

According to the findings of this research, improvements in technology are seen as one of the most likely developments for improving traceability and transparency in food value chains (Interview 2, 3, and 5). For example, technological developments can reward producers who produce more sustainable products compared to others (Interview 2). In addition, satellites can be helpful in creating maps to see to what extent producers are improving water quality or using their land. Converting these images into QR codes could show consumers how farmers are producing their shrimp (Interview 3). Measurements of audits on shrimp farms could also become available via information technology, giving insight to farmers, consumers and auditors on how certain farms are producing. In addition, analyses about improvements of certain farms and aggregation of data could become available to a wider public (Interview 5). Farmers could also be helped by digitalising data and make this transparent in the value chain. In this way, increasing transparency and traceability could make certification superfluous because consumers could instantly check where their products come from (Interview 3, 13). One respondent acknowledged these possibilities with technology as he explained (Interview 2):

*“That it is possible, so to speak, that at the product in the supermarket people can see where does it come from, who traded it and so on and so on. And then you have so much more, you can actually create more transparency in that chain by increasing traceability. And I think we're going that way too.*

*(...) Yes, that is possible, I mean, that knowledge is already there. But it is not translated to the consumer. Of course, all kinds of business interests play a role here. But potentially that is possible (...).*

*The question is, of course, does the consumer want this, does the industry want to do this and do consumers want to pay for it. These are all complicated questions”.*

Improvements in technology may play an important role in creating transparency and traceability in value chains. These developments may even make third-party certification redundant if data could become increasingly visible for traders, retailers, and consumers. However, technological improvements also cost money and small-scale farmers would need access to this technology. Furthermore, technological developments may favour large-scale farms instead of small-scale farms as the former



would be more likely to afford this technology. Therefore, one of the dangers of this option is that small-scale farms are still excluded, which should be prevented. The involvement of the government could help to prevent this exclusion. As previously stated, governments can play a role in accelerating access to technology for farmers (Ma and Abdulai, 2016). Therefore, they could provide subsidies to farmers who want to invest in technology to improve traceability and sustainability of their products.

#### 5.3.6 Sub-conclusion

Alternative options are maybe more viable for small-scale farmers instead of current eco-certification schemes. Group certification could provide possibilities to spread the costs for the audits among a group of small-scale farmers. Setting up cooperatives can also be helpful for small-scale farmers to share costs for feed and harvest teams and possibly work toward the goal of group certification. The use of area-based management may be possible for managing a specific region in Bangladesh as “sustainable”. New technologies like blockchain can play a role in improving traceability and transparency in the value chain of shrimp in Bangladesh. The government of Bangladesh could be involved in both area-based management as well as setting up cooperatives and creating increased access to new technologies for small-scale shrimp farmers.

## Chapter 6 Conclusion and recommendations

This research was conducted to gain more insight into the power relations behind eco-certification schemes, the viability of two eco-certification schemes for small-scale Black Tiger shrimp farmers in Bangladesh, and the possibilities of alternative options. The research contributed scientific knowledge about the current state of governing shrimp farming and its implications for small-scale farmers. The research took the form of a qualitative case study in which interviews were used to gather the data. This final chapter describes the conclusions of this research, provides theoretical insights, gives recommendations, and reflects on the research process. As stated in Chapter 1, the main research question of this research was the following:

*To what extent are eco-certification schemes for shrimp driven by large retailers and non-governmental organisations in the EU and to what extent are eco-certification schemes and alternative options viable for small-scale shrimp farmers in Bangladesh to get access to large retailers in the EU?*

### 6.1 Sub-questions

This chapter first answers each sub-question, which reflects a portion of the main research question. Second, the results of the research are discussed and the central question are answered. Third, the results are used to provide some new theoretical insights. Finally, recommendations are presented, as well as a reflection on the process and limitations of the research.

*(1) To what extent are eco-certification schemes driven by large retailers and non-governmental organisations in the EU?*

Eco-certification schemes are mostly intended by Northern actors like NGOs and retailers to gain control over production sites in the South (Bush et al., 2013; Hatanaka et al., 2005; Klooster, 2005). Previous research shows that supermarkets and large retail chains are powerful actors in the demand and supply of food (Vagneron et al., 2009; Vandergeest, 2007). These actors are able to choose suppliers who meet certain conditions such as certification schemes (Vagneron et al., 2009). However, this ability sometimes causes competition between different certification schemes (Klooster, 2005). Retailers appear to be driven by pressure from NGOs who associate uncertified products with unsustainable practices (Bush et al., 2013).

Findings of this research show also that NGO's are playing a role in the demand for eco-certified seafood products. The influence of WWF is mentioned as one of the driving forces behind the demand for eco-certification schemes, in this case the ASC. Retailers seems to be influenced by this pressure, as they are increasingly asking for ASC certified products. Farmers have to adjust their production practices to meet the requirements that are set up in the ASC standard, although it seems to be very challenging for them as these global standards are not matching with local practices in the context of Bangladesh. Interestingly to note is that the demand for eco-certified products seems to be very market-driven: without an demand for eco-certified products, there would be no incentive for farmers to produce shrimp that could comply to global standards. Competition could also be found between eco-certification schemes, because the demand of retailers is a decisive factor in the demand for eco-labels.

*(1) To what extent are eco-certification schemes viable for small-scale shrimp farmers in Bangladesh in eco-certification schemes?*

Eco-certification schemes can provide certain advantages to farmers, such as environmental benefits, increased market access, and price premiums (Klooster, 2006; González-Benito and González-Benito, 2005; Nebel et al., 2005; Rueda and Lambin, 2013). However, this market-based governance tool is also criticised for excluding small-scale farmers (Bush et al., 2013; Belton et al., 2011; Jonell et al., 2012). This exclusion is due to high financial costs (Marschke and Wilkings, 2014; Klooster, 2006), high administrative requirements (Marschke and Wilkings, 2014), and a mismatch between global standards and local practices (Belton and Bush, 2013; Vandergeest, 2007; Vellema and Van Wijk, 2015).

The findings of this research agreed that small-scale farmers face difficulties in complying with requirements as set in global standards. Costs involved with audits, as well as requirements that do not fit local practices, are noted as barriers to participation of small-scale farmers in eco-certification schemes. Spreading out the costs of the audits throughout the entire value chain of processors, importers, retailers, and consumers (and eventually the costs for improvements in production systems) can be a solution to decreasing the high financial costs of eco-certification schemes for small-scale farmers. Moreover, it can be argued that Bangladesh provides high-quality organic shrimp. If global standards like ASC accounted for the specific farming system for Black Tiger shrimp, these farmers may become involved in global certification schemes and increase their market access in the EU.

*(2) What are alternative options for small-scale farmers in Bangladesh to get increased market access to large retailers in the EU?*

The use of eco-certification schemes as governance tools has limitations (as showed above) and should therefore be seen as only one method to increase sustainability in the aquaculture sector. Both regulatory and nonregulatory provisions are needed to improve the aquaculture industry (Jonell et al., 2012) and make use of the specific competencies of the producing countries, the private sector, and certification organisations (Bush et al., 2013).

The findings of this research agreed that alternative options are maybe more viable for small-scale farmers. With the use of group certification, small-scale farmers could improve their likelihood of certification by spreading the costs for the audits among a group of small-scale farmers. A first step towards group certification can be setting up cooperatives in which farmers are brought together to share costs for feed and harvest teams and possibly work toward the goal of group certification. Both the public-private sector (NGOs like eco-certification organisations) and the public sector (local/national governments) can be involved in the establishment of such cooperatives. The use of area-based management, in which both public (local/national governments) and private actors (companies) are involved, may be possible for managing a specific region in Bangladesh as 'sustainable' because the production of extensive Black Tiger shrimp in Bangladesh appears to use sustainable methods without fertilisers. However, notably, traceability and transparency in the value chain of Bangladesh still remains a significant challenge, making it difficult to mark shrimp from this region as 'sustainable' using this option alone. New technologies like blockchain can play a role in improving traceability and transparency in the value chain of shrimp in Bangladesh. The government of Bangladesh and companies that are engaged in these new technologies may be able to join forces to create increased access to those technologies for small-scale shrimp farmers, improve traceability in the value chain, and expand market access to retailers in the EU.

## 6.2 Central question

This section answers the main research question and discusses the study results in light of the literature. Again, the main research question for this research was the following:

*To what extent are eco-certification schemes for shrimp driven by large retailers and non-governmental organisations in the EU and to what extent are eco-certification schemes and alternative options viable for small-scale shrimp farmers in Bangladesh to get access to large retailers in the EU?*

According to the results of this research, eco-certification schemes like the ASC are considered to be a market-driven form of governance that places pressure on farmers. Although global eco-certification schemes like the ASC want to be straightforward in their standards, they have not taken into account local practices and differentiations in production systems. For example, small-scale extensive systems typically used in Bangladeshi shrimp farms are not usually included in global eco-certification schemes. Therefore, farmers in the global South are expected to meet standards set by the global North, which include adapting their production systems, to provide products that meet the demand of standard setters in the global North. Furthermore, several barriers exist for small-scale farmers to comply with global eco-certification schemes, including high administrative requirements, financial costs for audits, and the lack of a price premium. Therefore, eco-certification schemes should consider local practices, spread the costs of the audits (as well as costs for the adjustments in production systems) throughout the entire chain, lower the administrative requirements, and provide a price premium. Including multiple production systems in global eco-certification schemes, such as extensive production systems, can offer opportunities for small-scale extensive shrimp farmers to become more involved in global eco-certification schemes. Therefore, large retailers and NGOs in the global North should pay more attention to other eco-certification programmes like for example Naturland, which accounts for small-scale extensive production systems.

To come back to the literature, it seems that the theory of political ecology can be helpful to make sense of the power behind global eco-certification schemes and the implications for small-scale farmers in Bangladesh. Powerful actors such as NGOs and retailers in the global North can inhibit the benefits of eco-certification schemes because they use their values to influence production in the global south (Vandergeest, 1999). An example of this is WWF: they prefer intensive production systems compared to extensive production systems because of land-use efficiency in intensive production systems for example, and push therefore retailers to buy and sell ASC-certified shrimp, because ASC mainly focuses on intensive production systems. However, this means that either small-scale extensive shrimp farmers are excluded from market access to retailers in the EU or they have to pay to adjust their production systems in such a way that they can meet the demand from actors in the global North (Klooster, 2006; Havice and Iles, 2014). The costs for the audits and improvements in production systems have to be paid most of the time by the producers. In practice this means unfair access to eco-certification schemes for small-scale farmers, because often only large-scale producers do have the financial resources to pay (Vandergeest et al., 2007; Bush and Belton, 2011; Marscke and Wilkings, 2014). Requirements in eco-certification schemes do not always match with local practices (Marschke and Wilkings, 2014; Vellema and Van Wijk, 2015). Northern actors like NGO's are forcing farmers to comply with requirements that are not important for farmers themselves, such as GMO's. However, farmers are in this way forced to adapt to wishes from actors in the global North. The unfair distribution of costs for the audits (which are usually paid by the farmers) plus the lack of a price premium for eco-certified products does not make eco-certification attractive for small-scale farmers (Jonell et al., 2012). However, providing a price

premium would in practice mean that eco-certified products in the global North become more expensive. In practice, providing a price premium for farmers in the global South is only possible if actors like retailers in the global North are willing to provide a price premium for farmers in the global South.

### 6.3 Recommendations

As a result of this research, a few recommendations can be mentioned and are outlined below.

First, instead of focusing too narrowly on private co-certification schemes as the only way to govern sustainability, awareness should be created among retailers and NGOs about the limitations of eco-certification schemes for small-scale farmers. Most of the time only large-scale intensive farmers are able to meet the requirements of eco-certification because they have the financial resources to pay the costs for the audits. To make eco-certification schemes more accessible for small-scale farmers, retailers and eco-certification organizations in the global North have to think about providing a price premium for farmers. In addition to this, the costs of the audits for eco-certification have to be reduced, for example by spreading the costs throughout more actors in the value chain like importers and retailers.

Secondly, alternative options like group certification, cooperatives, government regulation, area-based management and technology should be concerned in order to maintain market access for small-scale farmers in Bangladesh. These options could remove some disadvantages of eco-certification schemes hopefully, such as high costs of eco-certification schemes. These options are not researched yet in Bangladesh, but further research could give a deeper insight into these possibilities.

### 6.4 Reflection

Writing a master's thesis is quite a complex and challenging process. Although this research hopefully gives a good insight into the viability of eco-certification schemes for small-scale farmers in Bangladesh, I want to make some additional comments on the process of research.

First, doing research for both the host organisation and the university was sometimes difficult, as both entities had different interests. Therefore, bringing both interests together in one research project was sometimes challenging. Second, the interviews were already being conducted while the process of demarcating and steering the research questions and theoretical framework was still ongoing. The content of the interviews was based on the theoretical framework and research questions, but the operationalisation of the key concepts was not elaborated yet. During the period of the interviews, the research questions and the theoretical framework were changed to a certain extent. Therefore, the questions in later interviews were sometimes more precise formulated compared to the first interviews.

Third, some questions arose about respondents' interpretation of certain concepts. Although I found semi-structured interviews helpful in extending some topics, I also wondered if the concepts were clear for the respondent. In my opinion, this was most evident in questions about certification: sometimes 'certification' to the respondents meant only ASC; other times they meant another kind of certification scheme (such as GlobalGAP). This sometimes made it difficult to interpret the results properly.

Fourth, the interviews were all sent to the respondents to check for any mistakes and if the perception was accurate. While most of the respondents sent back the extended interviews with some comments, other respondents unfortunately did not return the document, even after repeated follow-up. Because the topics discussed were the same for all respondents, the research could be considered reliable. However, the lack of controlment of some of the extended interviews decreases the reliability of the research.

Fifth, although all the stakeholders chosen had experience in shrimp farming related to questions on certification and sustainability, not all of them had specific experience in the shrimp farming sector in Bangladesh. Furthermore, I sent some questions on eco-certification schemes to small-scale farmers in Bangladesh via a contact person of Wageningen University & Research Centre. However, due to a lack of time only a few farmers were able to respond. This limited the results of the research because only the experiences of a few farmers in Bangladesh were taken into account. Furthermore, their opinions on various alternative options should be studied more in subsequent research.

Sixth, almost all respondents were familiar with ASC, but only one person was directly involved with Naturland. This made it difficult to make a clear comparison between the two eco-certification schemes. In order to improve the reliability of the research, I want to recommend to interview more respondents who are familiar with Naturland in additional research.

Finally, reflecting on my own process of research gave me the insight into my personal bias towards small-scale farmers. During this process, I discovered my preference for promoting this form of farming instead of thinking more about intensive production systems. This bias had some influence on the theoretical framework I wrote, as well as on the process of demarcating the research. For example, the choice of political ecology as a theory stems from my search for a theory that could describe the unequal power relations between the global North and the global South. This bias may have also influenced my interview questions, which included quite critical questions about the impact of eco-certification on small-scale farmers in particular. I took steps to prevent this bias as much as possible by reading theories about the advantages and disadvantages of eco-certification and also always asking consciously in the interviews about the benefits of eco-certification for small-scale farmers. Before I started this research, I was quite in favour of eco-certification as a way to increase sustainability. During the research, I became more critical of this approach as I saw the limitations of this market-based governance tool. I have experienced this as a contribution to my critical view, although I know (also by doing this research) that other ways to increase transparency, traceability, and sustainability in the market in quite difficult without an eco-label. However, this also gave me the motivation to contribute to more sustainable production and consumption and to think about alternative options like area-based management. Over all, writing this master's thesis gave me the opportunity to broaden my knowledge in a field I am highly interested in (aquaculture and small-scale farmers) and provided me with a new network of experts, for both of which I am very grateful.

## Chapter 7 References

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## Chapter 8 Appendices

### Appendix I: List of respondents

Number	Organization	Role	Date	Medium
1	Wageningen University and Research Centre	Project Manager Aquaculture and Fisheries	17-11-2017	In person
2	Wageningen University and Resarch Centre	Professor Environmental Policy	01-12-2017	In person
3	Solidaridad	International Programme Coordinator	05-12-2017	In person
4	Sustainable Aquaculture Solutions (SAS)	Aquaculture Health Specialist	14-12-2017	In person
5	Aquaculture Stewardship Council (ASC)	Improver Programme Coordinator	21-12-2017	In person
6	Heiploeg International B.V.	Manager Quality Assurance & Product Integrity	21-01-2018	Telephone
7	BlueYou	Owner and Managing Director	23-01-2018	Skype
8	Seafood Trade Intelligence Portal (STIP)	Manager of Operations	25-01-2018	In person
9	Asian Seafood Improvement Collaborative (ASIC)	Managing Director	25-01-2018	Skype
10	R&O Seafood Gastronomy	Quality and Sustainable Development Director	29-01-2018	Skype
11	Sustainable Fisheries Partnership (SFP)	Global Aquaculture Director	31-01-2018	Skype
12	Oxfam Novib	Policy Advisor Private Sector	01-02-2018	In person
13	IDH - Sustainable Trade Initiative	Program Officer Aquaculture	09-02-2018	In person
14	Naturland	Aquaculture and Fisheries Department	19-04-2018	Skype

## Appendix II: Semi-structured interview topics

The topics that are explained below were discussed during the interviews. The key concepts were the guide line for the interviews. Because the interviews were semi-structured, not every question is equally discussed during every interview. I found it important to leave room for the respondent's own input instead for following strictly the interview questions. This has been done in order to get extra information in addition to the key concepts because in this way an extra contribution to the theory could be delivered. As can be seen below, the concept of power was not asked specifically during the interviews. In the period in interviewing, I discovered that respondents came up with the concept of power behind eco-certification schemes. That is why I decided to ask more about that concept during the subsequent interviews, but the concept was not involved in the topic list before.

### Interview topics small-scale Black Tiger shrimp farmers in Bangladesh

#### Introduction

- (1) Could you tell what your function is and what you are doing in the organization?

#### Black Tiger shrimp from Bangladesh

- (1) What are the criteria to assess tropical Black Tiger shrimp from Bangladesh on sustainability?
- (2) What are the sustainability problems with shrimp in Bangladesh?
- (3) Which production system is the most sustainable to produce Black Tiger shrimp and why?
  - a. Intensive – semi-intensive – extensive?

#### Certification

- (1) On this moment only a small proportion of shrimp in aquaculture is certified. Should the goal be to go for more certification?
  - a. If yes, why?
  - b. If no, why not?
- (2) What are according to you the pros and cons of certification to contribute to sustainability?
- (3) Are there problems for small-scale shrimp farmers (in Bangladesh) to become certified (ASC, GlobalGAP/Naturland/BAP or any other certification scheme)?
  - a. If yes, what are the problems?
  - b. If yes, what could be possible ways to improve access to certification for them?
- (4) What could be possible ways to get sustainable produced shrimp from Bangladesh on the market in the EU, eventually without an eco-label but however with a guarantee of sustainability?

#### Alternatives for small-scale farmers in Bangladesh to become certified and get access to large retailers in the EU

- (1) Group certification
- (2) Cooperatives
- (3) Government regulation
- (4) Area-based management
- (5) Technology



## Appendix III: Questionnaires for the small-scale farmers

### Questionnaire small-scale Black Tiger shrimp farmers Bangladesh

For my research project at the university I am doing research to certification for small-scale Black Tiger shrimp farmers in Bangladesh. I want to find out what the main obstacles are in obtaining an eco-label and what incentives could be to obtain an eco-label and get more access to markets in the EU/US. It will take only 5-10 minutes to fill in the questionnaire and it is fully anonymously.

If you have any questions about the questionnaire, feel free to ask me! You can send your questions to: [femketop@live.nl](mailto:femketop@live.nl).

Thanks in advance for filling in this questionnaire; it will help me a lot!

- (2) Are you familiar with eco-labels? If yes, which eco-label do you know?
  - Aquaculture Stewardship Council
  - GlobalGAP
  - Naturland
  - Best Aquaculture Practices
  - Other, namely...
  - I am not familiar with eco-labels
- (3) Does your farm have an eco-label? If yes, which one?
  - Aquaculture Stewardship Council
  - GlobalGAP
  - Naturland
  - Best Aquaculture Practices
  - Other, namely...
  - My farm does not have an eco-label
- (4) If you ever tried to obtain an eco-label on your shrimp farm, did you experience obstacles for obtaining this eco-label on your shrimp farm?
  - Yes
  - No
  - I never tried to get an eco-label
- (5) If you ever tried to obtain an eco-label on your shrimp farm, was that intended by yourself or by government/certification organizations/non-governmental organizations?
  - Myself
  - Government
  - Certification organization
  - Non-governmental organizations
  - Other, namely...
  - I never tried to get an eco-label
- (6) What were the main obstacles for obtaining an eco-label on your farm?
  - Costs of audits
  - I need technical assistance to read the documents
  - Other, namely...
  - I never tried to get an eco-label
- (7) If your farm has an eco-label, what are the main reasons for you to obtain an eco-label?
  - Market access to the EU/US
  - Pressure from environmental organizations (like World Wildlife Fund)
  - Sustainability concerns
  - Other, namely...

- (8) Do you get a price premium from the certification organization because your farm has an eco-label?
- Yes
  - No
  - I don't have an eco-label
- (9) Do you get more market access to the EU/US because your farm has an eco-label?
- Yes
  - No
  - I don't have an eco-label
- (10) If you don't have an eco-label at the moment, what could be incentives for you to obtain an eco-label?
- Market access to the EU/US
  - Price premium
  - Sustainability concerns
  - I don't want an eco-label
- (11) If the costs of certification could be spread among a group of small-scale farmers, would you like to join this group to obtain an eco-label?
- Yes, but only if I get a price premium
  - Yes, but only if the costs are acceptable
  - Yes, but only if I get a price premium and the costs of obtain an eco-label are acceptable
  - No
- (12) Do you produce shrimp for the export to international markets or do you produce your shrimp to sell to domestic markets?
- International markets, namely ... %
  - Domestic markets, namely ... %
- (13) Are you interested in getting more market access to the EU/US to sell your shrimp?
- Yes, because ...
  - No, because ...

This is the end of the questionnaire. Thank you very much!

#### Respondent's Identification

Respondent's Name :  
 Date of Interview :  
 Village :  
 District :  
 Contract cell phone :

Appendix III: Analysis scheme

