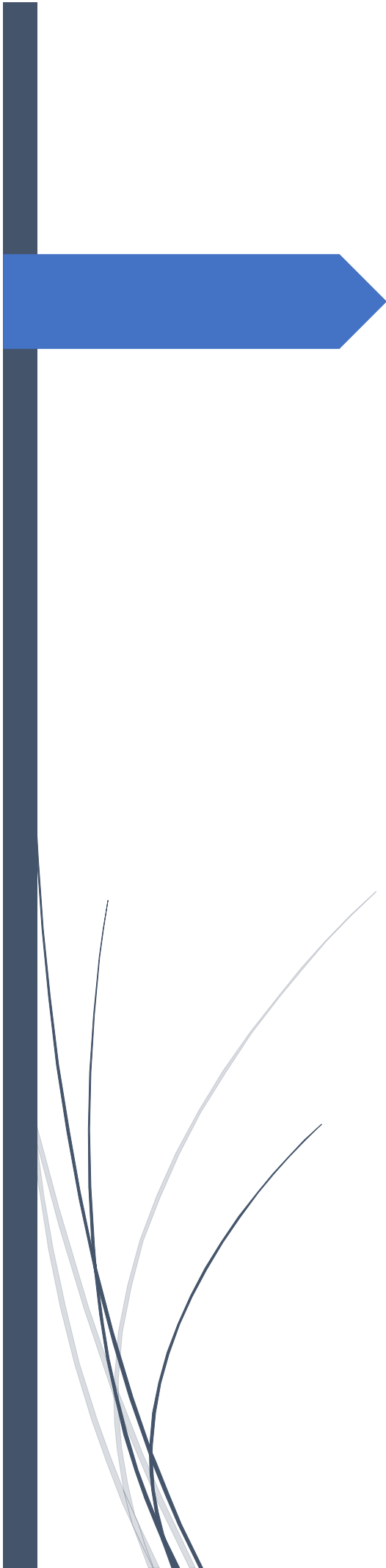




Stakeholders' path to obtain a certification based on the acquisition process of the Alliance for Water Stewardship

Cárdenas Uzcategui, Maria

AERES UNIVERSITY OF APPLIED SCIENCES

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for Water Stewardship

Maria Fernanda Cardenas Uzcategui

Aeres University of Applied Sciences Dronten, NL
Dalhousie University Agricultural Campus, Truro, CA
International Food Business

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Dronten, NL

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Preface

My name is Maria Cardenas, and I am a fourth-year student in the International Food Business program at Aeres University of Applied Sciences. This report contains research on the possibility of obtaining the Alliance for Water Stewardship for organic lime farmers in Colombia. I want to thank my coach Professor Pat Burgess for all his help during the thesis preparation, and I want to add a special thanks to Luis Angel Moreno, Melissa Gomez, Alexander Restrepo, Daniela Lasso, Glodis Delgado, Elder Ojeda, Javier Rivera, Carlos Erazo, Sabine Kuiper and Pieter Vlaar for their kind willingness to participate in this research.

Changes to Final thesis

The sample for the research increased; therefore, it was possible to obtain more data to code, analyze and compare. The main question was reformulated, all sources were checked and displayed correctly in the document. The overall research variables are mentioned and the variables per sub-question. The inductive nature of the research was described, the description of the research method, limitations, and recommendations for further research were improved. Factors for every sub-question were identified and displayed with graphs. Managerial implications were included, and the discussion of results was rewritten.

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Summary

Nowadays, consumers' desire and to be consciously involved in food production procedures is driven not only in terms of food quality but also by farmers' and employees' welfare. Furthermore, having this knowledge has become crucial in consumers' purchasing pattern behaviour.

A group of Colombian farmers and their European business partners are interested in improving the organic market position of both enterprises and understand that certifications are key when obtaining more substantial recognition in the market. Furthermore, clients have expressed interest in Alliance for Water Stewardship (AWS) at a meeting earlier this year.

Considering the potential market opportunity for both European and Colombian stakeholders as well as their previous expertise in successfully obtaining other certificates that are comparatively applicable to AWS, this research will explore the stakeholders' path to obtain a certification based on the acquisition process of the AWS. The main objective of this research is to find what is the feasibility in the implementation of a water certificate such as the Alliance for water stewardship?.

To assess the main question, three sub-questions were developed:

1. What is the typical procedure for a company when applying for a certification?
2. What are the main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate?
3. What is the opinion of organic limes stakeholders towards a new water certificate?

The research method implemented in this report was mini focus groups. The participants involved in the focus groups included organic lime supply chain stakeholders and educators of the Aeres University of Applied Sciences, making a variable and complete sample.

The outcome of this research was detailed and complete; the stakeholders have plenty of experience based on previous procedures for certificates shared in the focus groups and the higher education and research in certification the educators from Aeres University. According to the sample group, the AWS certificate is attainable despite the possible issues encountered throughout the certificate path.

The results showed that stakeholders are well oriented to begin the application for a new certificate with adequate help from outsourced auditors that can help them better to interpret the norm certification and criteria. Therefore, there is broad feasibility of the lime organic supply chain on obtaining the Alliance for Water certificate, even though it might although it entails hard work and an adaptation process for the members of the supply chain.

1. Introduction

The world is growing in population; in 2050, there would be at least 9 billion inhabitants; according to Billen et al. (2015), this will entail a rise in food consumption. Moreover, food quality requirements are increasing, as stated by the United Nations (2013), while at the same time, it is necessary to preserve environmental resources and biodiversity, and this represents a challenge for global agriculture. Globalization is a process through where the country's economy loses borders and connections, according to (Ristovska et al., 2015). It has been developing at a tremendous rate since the late 1950s, according to Roe & Mohtadi (2016). Globalization has helped throughout the years to make food or other goods accessible for some countries. Yet, many industries were not aware or concerned of the repercussions of the big-scale trade activity. Several sectors have turned a blind eye to their companies' behaviors, including the food industry. The entrance of food companies into the global market became inevitable because of the limitation of the domestic market (Ristovska et al., 2015). Therefore, there should be actions taken to decrease the environmental consequences while guaranteeing the flow of products around the globe.

A way to deal with this issue is through sustainable farming. Sansavini (2006) defines this system as one that meets the following criteria: i) conserving and protecting the essential agroecosystem resource bases [e.g., soil, water, genetic diversity), ii) providing adequate quantity and quality of the food and fiber to meet present and future requirements, iii) optimizing crop output per unit of capital, labor, land, or energy input and iv) are profitable enough to provide farmers with adequate living standards and support viable rural communities.

Society is shifting to a more sustainable lifestyle to ensure that consumption has as little negative impact on the biosphere as possible (Cohen, 2014) and take care of the planet's resources. And as the people are changing, so is the food industry. The change might be caused by either the consumers' persistence in adjusting their eating and consuming habits or the company's values and social responsibility of making this world a better one for all. The industry has undertaken this issue as one of its main problems to solve. Taking care of the planet's resources is not a significant job for only one person but rather a responsibility of everyone. There are several ways in which the food industry could improve to make this world a sustainable one.

Sustainable farms encourage biodiversity, conserve scarce water resources, and build healthy soil through techniques like composting and planting cover crops, according to CUESA (2021). Ecological farming considers various essential issues in food production;

however, organic agriculture is widely considered a "far more sustainable alternative for food production" (Varanasi, 2019). The lack of pesticides and a wider variety of plants enhances biodiversity and improves soil quality and reduces pollution from fertilizer or pesticide run-off. This growing method makes organic production the leading approach to produce and guarantee food in a sustainable way for future generations.

Nonetheless, there is a factor to consider in the food industry: the availability of certain products in specific geographical areas and their transportation to other countries. For this matter, food trade companies have been formed (International Trade Centre, 2019). The Cambridge dictionary defines a trading company as "a business that buys and sells goods, which can be regional, national or international scale." Trading companies are often looking for new opportunities in the market to supply the demand of their customers, which implies the company to remain in constant change to adapt to trends in the global market.

However, this constant change implies new challenges for trading companies (Adebanjo, 2009). Like any other company, they need to go ahead with new requirements from their clients, and this implies new policies that need to be fulfilled to keep on doing business with them. Moreover, the industry has also been changing throughout the years. The concept of "a business having the only goal to make the most profit possible is outdated," as McDonald (2020) stated. Whether, understandably, profit remains one of the essential goals in the company, it is not the only one. Many goals now drive businesses, and these include social awareness and environmental conservation. Also, the market share of certified products is rapidly growing, and advocacy organizations show strong consumer support by citing several surveys done by the International Trade Centre (2019). For this reason, ethics in trade started to be an essential requirement for trading companies.

Ethical trade is compound by several guidelines to consider, and the scope can be pretty comprehensive. According to FAO (2017), ongoing work with African fruit and vegetable exporters has shown significant environmental impact in producing farms, such as contamination of downstream water resources and dumping waste and common ground. Also, there should be a record of the implications of the social impact away from the production place, such as overpopulation in small rural towns where there are labor-intensive farms. Moreover, regardless of time constraints, initiatives should have plans for the future and not just the short-term future impact, for example, to see if the water used for the farms comes from a legal source. Ethical trade also focuses on social and environmental labeling. Some are membership organizations engaging a wide range of stakeholders in developing a label, as stated in the Ethical Trading Initiative (2010). Still, some private companies promote tags to be used by enterprises and the government.

One of the procedures that the food industry has been working on since 1987 is labeling organic products. The first certificate ever made in the world was created in Denmark, according to Kaad-Hansen (2020). The organic certificate states that "a fruit or vegetable is produced within specific regulations, including the absolute prohibition of artificial fertilizers, insecticides, and herbicides," according to McGuire (2017). There are many different types of organic certificates. For most of these certificates, the requirements entail several procedures that farmers need to fulfill, such as the proper use of water.

Water scarcity

Water has been misused and overused in numerous circumstances causing water scarcity. It is defined as "scarcity in availability due to physical shortage, or scarcity in access due to the failure of institutions to ensure a regular supply or due to a lack of adequate infrastructure" by Richey et al (2015). The percentage of water scarcity is alarming in developed countries due to the overuse of this resource and, in developing countries, the lack of infrastructure to make effective water use.

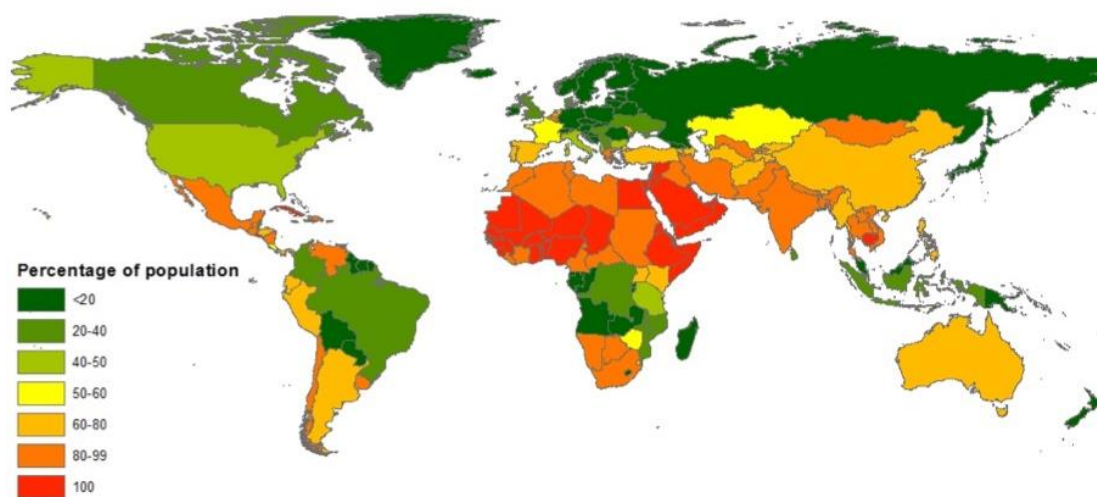


Figure 1: Percentage of the population experiencing severe water scarcity at least one month of a year (Mathews & Network, 2016)

Water is a resource that flows freely through the earth; in this way, it has created diversity and abundance life, enabling civilizations to grow and prosper, according to Richter et al. (2008). The situation has become a different story, with 7 billion people on earth, as Christina Nunez (2020) reported. Today, businesses are facing the brutal reality of the lack of freshwater. The problem may arise from the uneven distribution of the water. In another situation, if water were evenly distributed around the globe, this would support the world population, including the generations to come, according to Richter et al. (2008).

Population growth and climate change have put water resources under pressure to meet future demands. According to Richey et al. (2015), this might alter the temporal and spatial

distribution of the freshwater globally available. Freshwater ecosystems collapse as water supplies is strained by human use. According to Richter et al. (2008), "Rivers' inherent capacity to sustain fisheries, naturally, purify drinking water sources, and compensate for other human uses can be severely harmed when they are excessively exhausted." Human modification of natural water flows is now the leading source of freshwater species extinction worldwide.

There are three different types of freshwater resources. The first one is the primary resource precipitation, the second is the part of the precipitation that turns into run-off, and the third is the part of the total run-off that recharges the groundwater. According to Döll (2009), renewable water resources refer to the average run-off in the long term, while renewable groundwater resources refer to the average groundwater recharge in the long term. Before everyone needs to deal with an actual water shortage, steps to mitigate demand for water in times of supply scarcity should be identified and agreed upon, according to Loucks et al. (2017).

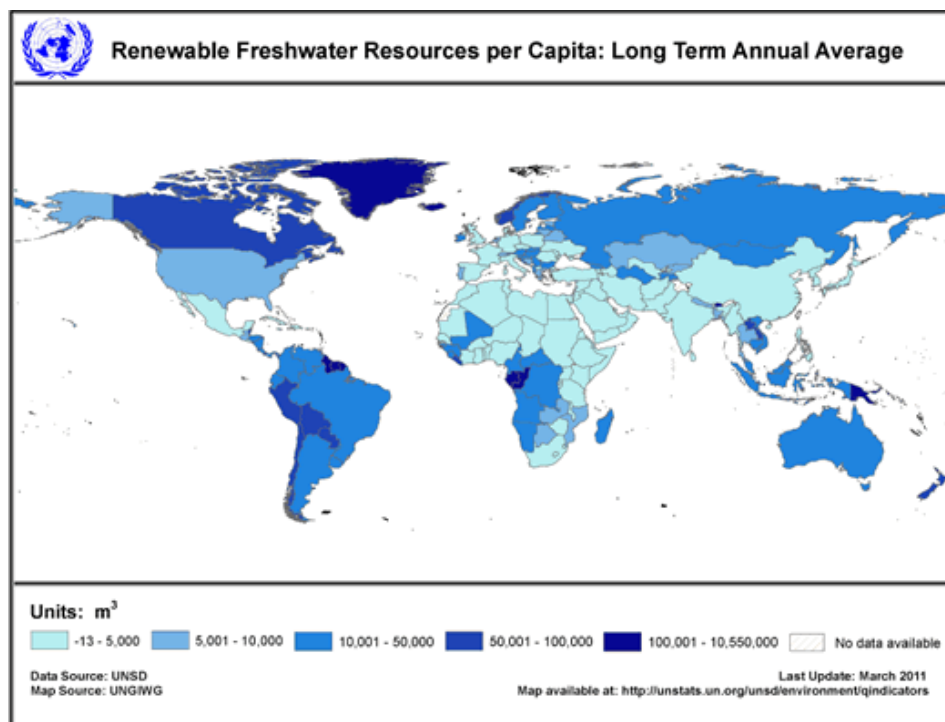


Figure 2: Renewable Freshwater Resources per Capita: Long Term Annual Average (United Nations, 2016)

The concern of having enough renewable groundwater resources has been pushing worldwide companies to look for solutions to assess, manage and secure water for future generations. The earth's finite freshwater needs to be used in a sustainable way for future economic development (WWAP, 2017). Anyhow, the demand for freshwater is growing, and this limited resource is progressively stressed by over-abstraction, pollution, and climate

change. Therefore, the World Water Development Report concludes how important and vital it is to improve wastewater management for the future.

Water consumption from precipitation and irrigations will rise globally from 6400 km³ in 2000 to 9060 km³ by 2050, and according to Jemric (2017), up to 35% of irrigation water is currently estimated to be nonrenewable. This situation is led by the extraction of nonrenewable freshwater supplies and freshwater being used above recharge rates. According to Newborne & Dalton (2016), water management in the farm and field would not make growing water-hungry crops in areas where water supplies are a limited viable choice. It is essential to know what will grow (crop selection based on water availability) and understand how it will be produced (water use efficiency).

Food security, energy production, industrial development, human health, rural settlements, economic growth, and ecosystems are all water-dependent and vulnerable to climate change. According to United et al. (2020), water management plays a crucial part in sustainable development essential for achieving the 2030 agenda for sustainable development of the Paris Agreement on Climate Change and the Sendai Framework for Disaster Risk Reduction. Other certificates have been developed more focused on water stewardship in the food industry besides those already known for an organic product. One of them is GlobalGAP, a global organization aiming to have safe and sustainable agriculture (GlobalG.A.P., 2021). The water stewardship certificates are specially made to assess the water conservation and reasonable utilization of this resource. Freshwater ecosystems are still under threat worldwide, and no single actor can restore them, according to WWF (2021). The best way to ensure that nature and humans can coexist is to work together and take concerted action.

Water certificates

Why water certificates? Companies have been shifting towards clients' demands regarding new trends, lifestyles, and concerns about their health and the environment throughout the years. This situation does not differ from that. Consumers are getting more conscious about worldwide water stewardship. Consequently, water certificates have been created to ensure proper water use in food production and have a label that the consumer can easily recognize. The need to have a water certificate arises from the changing trends in the international market. As an example, organic certifications used not have to be essential a few years ago. Still, at the moment, it is of significant interest for consumers to see the quality of the food they are buying. Therefore, it has become a crucial document to acquire and comply with for companies. Significantly the companies specializing in organic production and would like to be part of this international business.

According to Altobelli et al. (2019), farmers are willing to pay for organic certificates, including those who guarantee water use efficiency. They consider water a significant figure of the organic certificates. The farmers recognize the water impact caused by agricultural practices. However, the introduction of certificate schemes has also influenced the adoption of water conservation practices by farmers. Nonetheless, the self-awareness by the farmer keeps playing an essential role in water and soil conservation, as reported by Liu et al. (2018).

According to Goedhuys & Sleuwaegen (2013), the benefits are most significant for international standard certificates in less developed and institutionally weak countries, where the farmers can obtain a better profit in the global market. The advantages derived from direct efficiency and productivity gains by lowering the cost of production and sale of the product and the indirect effects of improving the company's competitiveness.

Water sustainability standards have the power to eliminate water theft and contamination, as stated by Vos & Boelens (2014). On the other hand, present guidelines focus on on-farm irrigation infrastructure and record-keeping, ignoring how water usage is geographically and politically rooted in catchments, regions, and larger administrative, socioeconomic, and cultural contexts.

In 2007, the main subject of company water debates was "water management." In ten years, several corporations started to refer to these activities as "water stewardship" (WWF, 2021). Companies beginning to think about water management is a crucial shift. It swings businesses from a governance response, which focuses on mitigating negative impacts on others, to a stewardship solution. This resolution focuses on solving shared water issues to reduce adverse effects and minimize risks.

According to Sarni & Howard (2019), water stewardship could lead to brand value. Their research results from the preference of buying sustainable products from consumers and their desire for transparency. The study mentioned how intangibles assets such as reputation and property rights counted for 84 percent of the companies value (Berman, 2019). The global trends that drive how performance and water stewardship strategies enhance brand value are: First, the rise of a brand with purpose, it happens when brands combine pro-social corporate practice with activist messaging, deals, and a goal, according to Vredenburg et al. (2020).

The brand with purpose creates authentic brand activism, leading to a more potential social change and the most significant gains in brand equity in the long run. Also, a study from Bharadwaj & Rodríguez Vilá (2017) states that consumers are constantly expecting brands to have a social mission besides just providing practical benefits. The result of this is

corporations that are taking very public social stands. Brands and companies also constantly use social purpose to develop marketing communication strategies, inform the consumers about product innovation, and push investments for social cause programs.

It is essential to clarify that a company with purpose is different from one with Corporate social responsibility (CSR), according to (Zu, 2019). CSR is more focused on what and how, referring to the action taken by an organization when complying with specific legal procedures regarding economic, social, or environmental responsibility. At the same time, the objective is more about where a company led by the purpose gets more inspired by their role in the world, which offers them a reason for being.

A brand with purpose improves brand loyalty; according to Arnett (2020), 63 percent of consumers prefer to purchase from purpose-driven brands; this comes from consumers relating to the company's story and being drawn by their mission. It is also mentioned that the social expectations from a company have never been greater and that no company can achieve its full potential without a sense of purpose.

The second trend which drives how water stewardships enhance the brand value is the consumer preference to buy sustainable services and products. According to Ruediger et al. (2021), the pro-environmental purchase behavior differs from the general purchase behavior. The general behavior is mainly driven by the benefits and costs that an individual consumer can obtain from a purchase. In contrast, the environmental behavior when purchasing is improbable to deliver an instant gratification or personal gain but is more based on the future-oriented outcome.

The Institute for Business Value IMB (2020) mentions that the rising awareness of global environmental issues tends to change the consumers' habits wherever they live. The back-to-basics mindset is becoming more and more a tangible way of living that many people are adopting. This mindset aims to opt for products that are fresh, simple, and contain no preservatives and fewer processed elements.

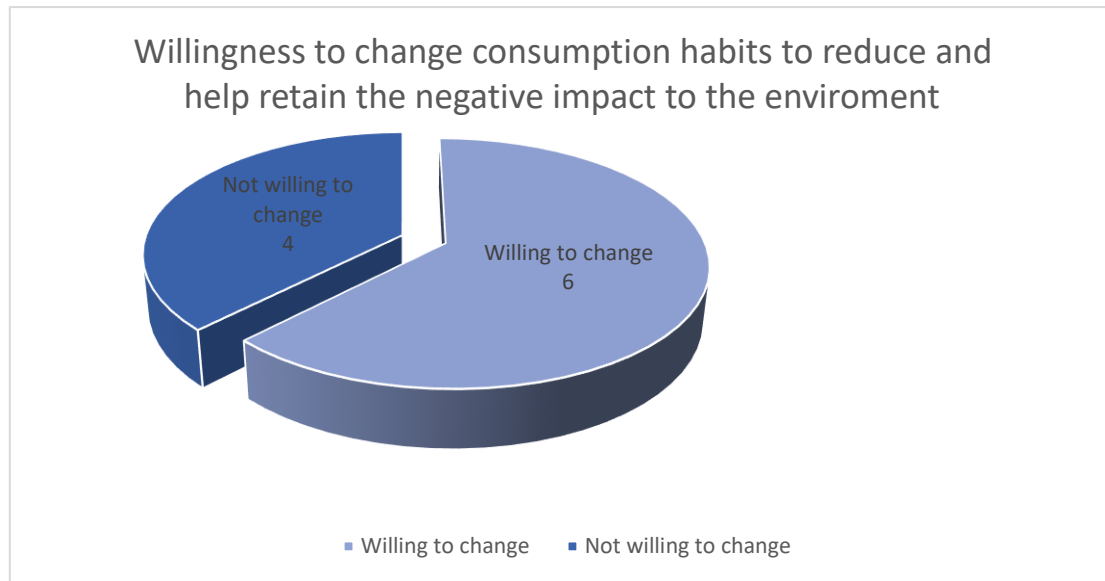


Figure 3: Willingness to change consumption habits to reduce and help retain the negative impact on the environment (Institute for Business Value IMB, 2020)

Also, their study revealed that almost 6 of 10 consumers, around 57%, are willing to change their consumption habits to reduce and help retain the negative impact on the environment, as shown in figure 3. Expectations for corporate sustainability are also rising, including practical and responsible water-related policies and activities. Companies known to have misused scarce water resources are more likely to get a damaged reputation, especially when their actions do not comply with legal requirements or negatively affect basic human and environmental needs.

Moreover, the general interest in sustainability creates the necessity of having a sustainable organizational structure. This way, it motivates to incorporate and communicate sustainability, according to Gertsen & Van Zomeren (2013). However, also needs to be analyzed the purchasing decisions (willingness to buy) readiness to pay (willingness to pay) of products with sustainability labels, as stated by Kaczorowska et al. (2019). Some consumers believe an expect sustainable products will use fewer resources such as water and energy. Therefore, they cannot understand why these products tend to be more expensive when cutting production costs. This issue creates a significant barrier for sustainable consumption in people's desirable purchasing behavior.

The third trend is the first wave of companies trying and finding ways to value water across their entire value chain. Since various groups conceptualize and describe water's value differently, it is harder to quantify this value. Governments often use principles from economics and civil society. At the same time, the private sector continues to use financial terminology, valuing water using various environmental, rights-based, or social-goods statements, according to Morgan & Orr (2015). Since all parties have a fair right to water

and its use, a business viewpoint must consider and negotiate these various approaches for valuing water as a scarce resource.

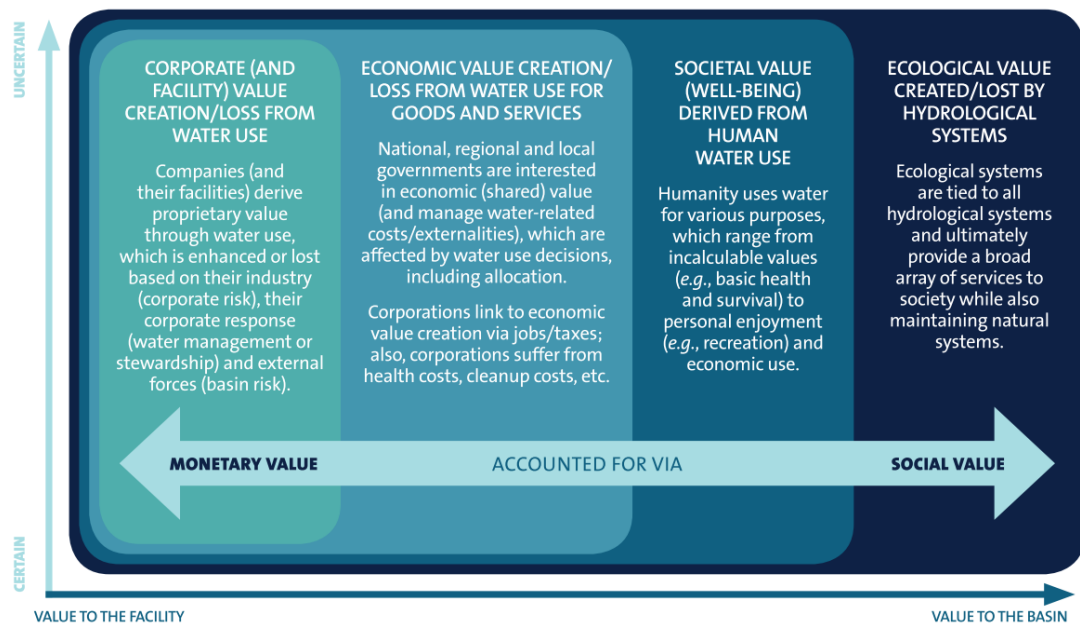


Figure 4: The value of water to a company, the economy, society, and nature (Morgan & Orr, 2015)

In figure 4, it can be seen the two different types of water value given by companies and various social entities such as governments or personal use, besides the ecological significance that represents the environment. The idea is to have comprehensiveness of both water values, monetary value, and social value. Companies need to shift from giving the water an economic value and comprehending and implementing the necessary actions to assess the social value of water and consider how much it can affect where they are taking the water and how they could solve this.

Companies have also concluded that enhancing water management is critical for human wellbeing and future prosperity (Roca & Searcy, 2012). For many businesses, improving water security remains a fundamental procedure. Water shortage is putting a damper on business expansion, and the changing customer behavior is causing the reevaluation of corporate strategy, as stated in (CDP, 2015). Some firms, on the other hand, see great potential opportunities in water stewardship.

To identify the worth of water in several competitive uses is necessary to recognize the value of the water. The variety of water often shapes stakeholders' attitudes and compromises their social and cultural values (The Valuing Water Initiative et al., 2020). It is crucial to comprehend these principles because they are the ones that dictate how they can or cannot be water used. Water valuation is helpful in decision-making in theory because it provides

a formal and open framework that facilitates an equitable water management process for the stakeholders.

The world business council for sustainable development also has a business guide for water valuation. The reasoning to make this guide is to approach how water is almost not valued or correctly priced when performing decision-making processes in the companies and assess the growing recognition of global disparity in water supply and demand (WBCSD, 2015). Their validation is divided into two types, water valuation, which includes the worth of water to different stakeholders, and water-related valuation, which assesses the value of costs and benefits associated with water.

Intending to have regulatory controls on the use and distribution to guarantee the protection of water supplies and minimize the adverse effects of water use, it is also necessary to have a voluntary commitment to improve water availability. Due to this, several organizations have united to create the Alliance for Water Stewardship (AWS). Following, this is a list of some of the businesses that conform to this union: The Nature Conservancy, International Water Management Institute, Water Environment Federation, Pacific Institute, European Water Partnership, Water Stewardship Australia, Water Witness International, and World Wildlife Fund (Kaledin & Conservancy, 2010).



Figure 5: AWS Logo (AWS, 2019)

The Alliance for Water Stewardship is defined as "a global membership collaboration comprising businesses, NGOs and the public sector. Our members contribute to the sustainability of local water resources through their adoption and promotion of a universal framework for the sustainable use of water – the International Water Stewardship Standard,

or AWS Standard – that drives, recognizes and rewards good water stewardship performance". According to AWS (2017). The Alliance for Water Stewardship's mission is to develop a global water quality principles system, collected in a permanent nonprofit institution. It can be applied in every area of the world with the necessary regional diversity to make the principles regionally appropriate, as stated by Kaledin & Conservancy (2010).

Water stewardship is considered the primary approach for the responsible use of water in the private sector, used mainly by multinational corporations, according to Hamilton (2019). To achieve water security at the catchment level is crucial to successfully manage the water-related risks for businesses, which later on helps them create a business value. The water-related risks may include some governance involved in water-related issues, financing, and institutions that companies might consider.

The Alliance for Water stewardship aims to develop global water stewardship that will promote social and environmental sustainability. According to Richter et al. (2008), this initiative would specifically target two groups in society: first, industries that use vast volumes of water in their activities, such as manufacturing, mining, agriculture, or energy production, and second; water systems that deliver water to cities and towns. Watershed conservation, water use efficiency, long-range planning, conservation of environmental flow and water quality in freshwater ecosystems, and social justice will all be addressed by the initiative.

The Alliance for Water stewardship vision is a water-secure world that enables people, cultures, businesses, and nature to prosper. Now and in the future, their mission is: to ignite and nurture global and local leadership in reliable water stewardship that recognizes and secures the social, cultural, environmental, and economic value of freshwater. (AWS, 2019)

The Alliance for Water Stewardship standard offers a globally applicable framework for water companies interested in knowing their water use and impact, besides the need to get the credibility of their company practices. According to AWS (2019), the standard was created after four-year consultation among stakeholders looking for a framework that could implement in any sector, site, or catchment around the world.



Figure 6: Members of AWS (Magagni et al., 2020)

The Alliance for Water Stewardship membership is available to all organizations interested in tackling the collective water-related challenges. In figure 6, it can be seen that some of the members of the Alliance for Water Stewardship. The membership is open to any organization in every location. One of the stewardship strengths is all the knowledge that the different members can share with the organization by contributing to the distinct and unique aspects of water stewardship in their locations.

The Alliance for Water Stewardship has five main steps to follow to implement the standard, which is the followings:

1. Gather and understand water-related data.
2. Commit to water stewardship and create a water stewardship plan.
3. Implement their plan.
4. Evaluate their performance.
5. Communicate and disclose progress with stakeholders.

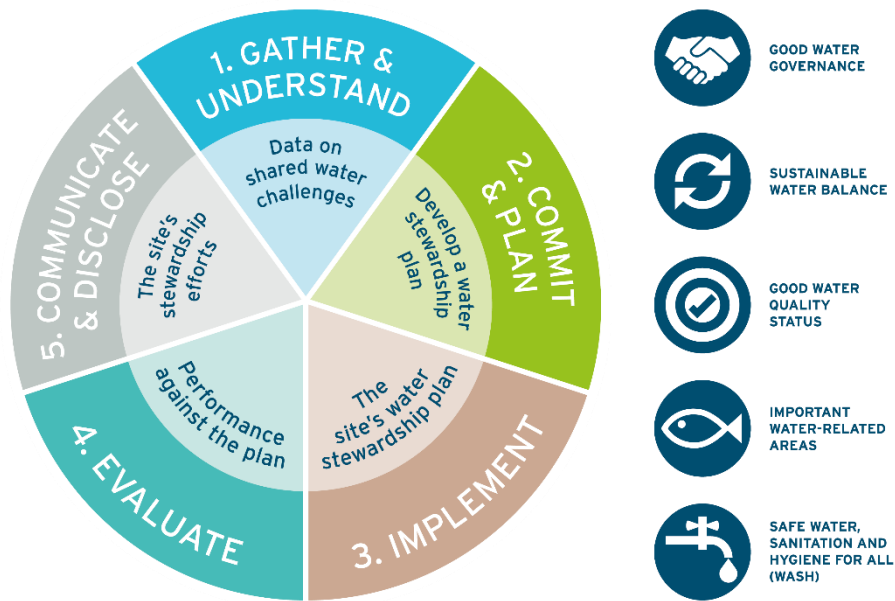


Figure 7: 5 Steps of the AWS certification standard (AWS, 2019)

The Alliance for Water Stewardship focuses on four main priority sectors, selected due to their availability and commitment to engage with the Alliance for water stewardship and the impact the sector produces on global water resources through operations and supply chains. They also believed that those four priority business sectors are the ones that might have significant influence to make a change from site to catchment-based action. Also, to use their leadership to support corporate and public policy goals (AWS, 2019), the sectors are Agricultural supply chains, food and beverage manufacturing, ICT and microelectronics, and textiles and apparel.

Water stewardship is based on the idea that by involving consumers in open and inclusive procedures, the long-term management of a shared water resource can be optimized. The workers must understand where water is coming from and how its use affects availability and water quality, according to Sym & Wade (2021). The idea of water stewardship is to ensure the anyone who uses the water source can satisfy their needs and also can be able to collaborate on a shared vision based on trust. Water consumers who follow the same ideas consciously support an environmental policy that ensures equitable access to water for everyone.

The Alliance for Water Stewardship was developed to evaluate water management by oversight and regulating the water activity at any company or farm. However, what makes the certification stand out is the approach devoted to the origin of the used water, more specifically to the catchment. Regardless of the certificate used by other companies, each supply chain may have individual aspects to analyze. The certificate englobes the technical

aspects of the place and documents the company needs to fulfill in the criteria. Nevertheless, there is a breach of understanding how feasible it would be to obtain the Alliance for Water Stewardship regarding the knowledge and capacity of the farmers and other existing stakeholders through the organic limes supply chain.

The certificate ensures adaptability to any company around the world and claims to be practical for all stakeholders. However, as Michel de Montaigne once said, “Saying is one thing, doing another” and the procedures for these certificates are not close to effortless but can be exhausting and, for some, even, a ‘hassle’ task. Naturally, as (Vos & Boelens, 2014) stated, “The most commonly used regulation technique in certificate schemes is auditing by third parties,” which is utilized when the enterprise has everything in order and is qualified to obtain the certificate. Nevertheless, the procedure before the auditing is the one that could turn complex and problematic for the stakeholder. Consequently, there is a decent chance that obtaining support from a third party who is appropriately trained for this certificate might be required. Or moreover, it also needs to be analyzed whether they could handle the procedure by themselves without having the prerequisite of paying an extra person. These issues are part of the knowledge gap of this research and will be assessed with the stakeholders involved in the organic limes supply chain and expert personnel in certificates.

After analyzing the problem of this report, the research name was established as the Stakeholders' path to obtain a certificate based on the acquisition process of the Alliance for Water Stewardship. This description leads to the central question: what is the feasibility in the implementation of a water certificate such as the Alliance for water stewardship?

From this topic, there are some sub-questions to consider regarding the leading research. These are:

1. What is the typical procedure for a company when applying for a certificate?

The stakeholders implied in the research have had experience working on several types of certificates and can share the insights of obtaining these. Moreover, they are prepared regarding the implications of starting a certificate from scratch and can talk about the steps to take to succeed on a certificate.

2. What are the main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate?

Based on the stakeholders' ability to obtain a new certificate, it can be deduced that enough experience is available to share where situations have not run plain sailing as expected. Also, it could have been entirely impractical for them to perform the company certificate tasks smoothly. Therefore, the sub-question will evaluate the main barriers within the organic

limes supply chain stakeholders and include the external stakeholder that could interfere in the process.

3. What is the opinion of organic limes stakeholders towards a new water certificate?

Due to the variety of certificates out in the market these days, it was relevant to evaluate the stakeholders' opinions towards a new certificate. This time, the certificate is focused on water management, yet it is not the first time this is mentioned on a certificate. Farmers have been working for water management for other organics certificates, and therefore it was crucial to hear the opinion towards the Alliance for Water Stewardship. The main objective for this sub-question was to evaluate the interest and behavior when working for a water certificate.

2. Materials and methods

The scientific research method presented in this thesis was developed by obtaining empirical evidence; this means the analysis was constructed with the data and observation gathered through the study of patterns and behaviors of the parties involved.

The empirical evidence had observation as its primary source, and the information was of qualitative nature. According to (Aspers & Corte, 2019) “Qualitative research is about questioning the pre-given (taken for granted) variables”. Moreover, the qualitative research method focuses on “people’s experiences, attitudes, behavior, and interaction” as stated by (Vishnevsky & Beanlands, 2004), suggesting that the attitude and how had been the sample group’s experience towards a certificate is of relevance for this study.

Moreover, qualitative research grants the chance to “explore and understand, rather than measure phenomena and behaviors,” according to (Berk et al., 2015). The concept of understanding helps guide the study from an observation point of view to conclude by comparing the final findings with the theory, which is better known as inductive research.

The inductive research approach is described as a “form of content analysis” as stated in (Kairuz et al., 2007). This analysis is a combination of reflection and interaction and is intended to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data through inductive reasoning according to (Thomas, 2003). An example of inductive reasoning is “John is an excellent swimmer. His family has a swimming pool. John's sister Mary must also be an excellent swimmer” This example shows how a hypothesis can develop a theory or conclusion.

Focus group

A focus group is defined as a group of selected participants who can contribute to the open discussion for research; this method is mainly applied to a small group of participants. “The main difference of this method from other qualitative research methods is that the focus group is designed for a specific and focused discussion topic,” according to (Magaña & Miranda, 2014). “The group must have a facilitator and participants who are carefully chosen to create an accessible environment where people can openly talk and express their opinions about the topic to be discussed,” according to Kansas (2016). The main advantage of a focus group is conducting structured and directed research while also being expressive; besides, it can yield a significant amount of information in a short time, according to (Berkowitz, 2016).

When making a focus group is required to make steps determining the topic and aim of the research. To research in the right direction, identify the individuals who could participate,

prepare a guide with the focus group questions, choose a location, recruit the participants, plan a session led by the facilitator, and finally transcribe and analyze the results. (Drake & ETR, 2013).

This research was conducted with mini-focus groups. According to (O.Nyumba et al., 2018), when there is a small potential pool of participants and are challenging to reach, researchers can only convene with the groups by forming these with 2 to 5 participants, preferably with individuals with expertise in the area of research. According to (Fauvelle, 2021), mini-focus groups provide a more “private, intimate atmosphere, where respondents are more likely to open up.”

The private atmosphere is relevant due to how where the groups separated. The first group has three stakeholders involved in the organic limes supply chain, and respectively, the second group was formed only by farmers of the organic limes producing company. Therefore, it was essential to not to see their opinion being affected by the participation of the stakeholders of the respective companies. The last group was conformed by higher education and research in certification of the Aeres University of Applied Sciences. While they had relevant experiences with certificates, these were not related to the limes industry. However, it was important for the overall view of certificates taking into account their experience with food products and the implication of certificates in the industry.

The information was gathered from different mini-focus groups because it brought a deeper sense of what lies behind their thoughts and ideas about certificates by giving them a comfortable space to express themselves. Besides, it was also assessed the possible scenario where the Alliance for Water Stewardship certificate was implemented by the farmers and the other involved companies. The goal of the focus group is to extend, clarify and qualify the Alliance for Water Stewardship standard as a possible water stewardship certificate starting from the experience with other certifications.

Furthermore, the information collected during the session will be coded to see the frequency and similarities of the ideas discussed during the meeting. The parties involved chiefly belong to the supply chain of the organic limes. Therefore, the study focuses on the Alliance for Water Stewardship as a standard for crops located in the south part of Colombia.

ASPROMAYO is a farmer association located in San Lorenzo, department of Nariño, Colombia, that produces the organic limes exported to the Netherlands. This association is composed of 61 farmers who work together with the export company EXCOAGRO.

EXCOAGRO s.a.s, a Colombian company dedicated to exporting high-quality agricultural products, is located in the northern region of Valle del Cauca in the city of La Union, Cafetero, and Caldas (EXCOAGRO, 2020).

Moreover, OTC Organics B.V is an organic fruit and vegetable trading company located in Dronten, The Netherlands (OTC Organics B.V., 2021). This company works directly with ExcoAgro and Aspromayo; therefore, it is primarily interested in getting involved in the Alliance for Water Stewardship process and certificate. Besides, OTC Organics consider getting certified with AWS in the coming year.

The focus groups were organized on Microsoft teams for the group of administrative employees and professors. The last group was done through WhatsApp videocall due it was more accessible by the Colombian farmers. The sessions were recorded with the permission of all participants. Moreover, the date for the research was chosen according to the availability of the participants. The first focus group was expected to have at least one representative of every organization plus the moderator. Five participants were expected for the second focus group, and for the third focus group, it was expected to have four participants.

Table 1: Steps for the realization of a focus group (Brandtner et al., 2015)

Steps	Procedure
1. Formulate research problem	The capacity and feasibility of stakeholders to obtain a new certificate
2. Identify sample (number and size of groups, source of participants)	1 st mini-focus group: 4 participants 2 nd mini-focus group: 5 participants 3 rd mini-focus group: 4 participants
3. Identify moderator	Maria Cardenas, the student conducting this research
4. Develop and Pre-test a questioning route	Questions based on the sub-questions of this research
5. Recruit Participants	They have been recruited through email and WhatsApp
6. Conduct focus group	May 27, 2021, on Microsoft teams July 09, 2021 on Microsoft teams July 16, 2021 on WhatsApp
7. Analyze and interpretation of data	Through transcribing and coding the focus groups
8. Report results	Sharing the participants' experience regarding other certificates with the theory presented in the introduction.

Consequently, three formed sub-questions helped guide the investigation, and the research method assessed each of the following questions in the next paragraph. These questions sum up a global perspective of certificates and the opinion about implementing the new Alliance for Water Stewardship certificate.

1. What is the typical procedure for a company when applying for a certificate?

The stakeholders involved in the organic lime supply chain have had previous experiences with obtaining certificates. Most of these certificates assess the organic factor in their production process. Therefore, getting the testimonies of expertise with other certificates and how they were established through the years is a promising start when obtaining the Alliance for water stewardship certificate. This dilemma will be obtained through the discussion and comments that the participants will share during the focus group.

2. What are the main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate?

It is not specified how adaptable this certificate is for different regions around the world. There is plenty of information to be considered, such as how well the Colombian farmers can comply with all requirements of the AWS certificate and which aspect might become a barrier to obtaining it. These barriers could be of financial, social, or governmental type. It would be analyzed through the focus group by collecting the parties' opinions to realize this project and discuss any concerns related to this new certificate.

3. What is the opinion of organic limes stakeholders towards a new water certificate?

According to AWS, the certificate is pretty much adaptable to any farm, company, and environment. However, it is practical to see the stakeholder's opinion, which will need to apply all the criteria for a new certificate. The objective is to see if the certificate will add value to their product and if the stakeholders will decide to implement it or not. Nonetheless, it is necessary to check the general opinion towards a water certificate for any other food product.

The problem noticed in the organic lime supply chain is the difficulty it might take to obtain a water certificate. Therefore, the main objective of this research is to know what the feasibility in the implementation of water certificates was, such as Alliance for Water Stewardship for organic lime producers. If the certificate is in line with what the stakeholders have previously done for other certificates, the procedure is doable regarding the possible barriers and the overall opinion about AWS is acceptable then it might be feasible to obtain the Alliance for Water Stewardship.

Table 2 shows the variables for the research.

Table 2: Research variables

Variables	Dependent or independent
Stakeholders -Farmers/producers -Export company -Import company -Certificate issuer of export company -Higher education and research in certification	-Dependent
Participant's location -Colombia -The Netherlands	-Independent

Table 3 shows the variables for every sub-question of this research.

Table 3: Research variables per sub-question

Sub-question	Variables	Dependent or independent
1.-	-Initial contact	-Dependent
	-Contact with the farmers	-Dependent
	-Payment	-Dependent
	-Reliance on experience	-Dependent
	-Outsourcing	-Dependent
2.-	-Barriers	-Independent
3.-	-Opinions	-Dependent

3. Results

The research method was implemented in three mini-focus groups divided according to stakeholder relevance of the organic limes supply chain, producers of organic limes, academic background/experience, and language.

Table number 4 displays the list of participants for each mini-focus group, the name of focus groups, participants, the number, and the focus activity of every person involved in the research.

Table 4: Overview of participants

Mini-Groups	Focus group	Name	Participants	Focus activity
Focus No.1		Stakeholders of the organic limes supply chain	1-Luis Ángel Moreno	Coordinator of certificates
			2-Melissa Gomez	Export manager
			3-Alexander Restrepo	Project development manager
			4-Daniela Lasso	Farmer representative
Focus No.2		Producers of Organic limes	5-Glodis Delgado	Organic Limes producers
			6-Elder Ojeda	
			7-Javier Rivera	
			8-Carlos Erazo	
Focus No.3		Higher education and research in certification	9-Sabine Kuiper	-Lecturer International Food & Agribusiness at Aeres Hogeschool Dronten
			10-Pieter Vlaar	-Lecturer Logistics, Financial & Risk Management. Team leader sustainable agri-& food supply chains.

After realizing the three mini focus groups, the results were coded and divided according to the sub-questions of the research. It is critical to mention that the coding explained for each question and its counting will add up the mentions during all focus groups. The results are displayed as follows; for sub-question number 1, the themes were identified as steps were

was included in all the codes matching the procedure when a company applies for a certificate.

For the second sub-question, the themes were identified according to the stakeholder, which could be external or internal to the supply chain of organic limes. The themes were coded into barriers which were shown according to the stakeholder type. For the last sub-question, the coding was divided through every participant of all focus groups since it was relevant to get to the individual opinion towards water certificates. It was necessary to define priorities, conformity, or disagreement with the Alliance for Water Stewardship.

1. What is the typical procedure for a company when applying for a certificate?

For this sub-question, the participants expressed the experience on previous certificates when it was encouraged to share during some of the focus groups questions. Later, the statements were coded into ‘steps’ because each participant mentioned or implied during several occasions.

More in detail, step 1, initial contact, was identified through the participants' comments where it was mentioned the very first action for them to make when beginning the certification process. The 3 principal codes for this step were ‘inform’ mentioned 10 times, ‘motivate’ mentioned 7 times and ‘stakeholders’ (in general) cited 8 times. Step 2, contact the farmers, was coded with the following words, producers/ farmers mentioned 10 times and contact/ talk to/ communicate mentioned 7 times. For step 3 the following terms were used; payment/pay mentioned 11 times and cost, said a total of 4 times.

For step 4 the word used for coding was ‘experience’, mentioned 22 times, including when it was implied as previous procedure. For step 5, the terms used for coding where help/outsource were mentioned 10 times (regarding the help to obtain the certificate).

Table 5: Codes for sub-question 1

Steps	Codes	Times mentioned
1, Initial contact	-Inform	10
	-Motivate	7
	-Stakeholders	8
2.Contact the farmers	-Producers/farmers	10
	-Contact/talk to/communicate	7

3.Payment	-Payment/pay	11
	-Cost	4
4.Reliance on experience	-Experience	22
5.Outsourcing	-Help/outsourse	10

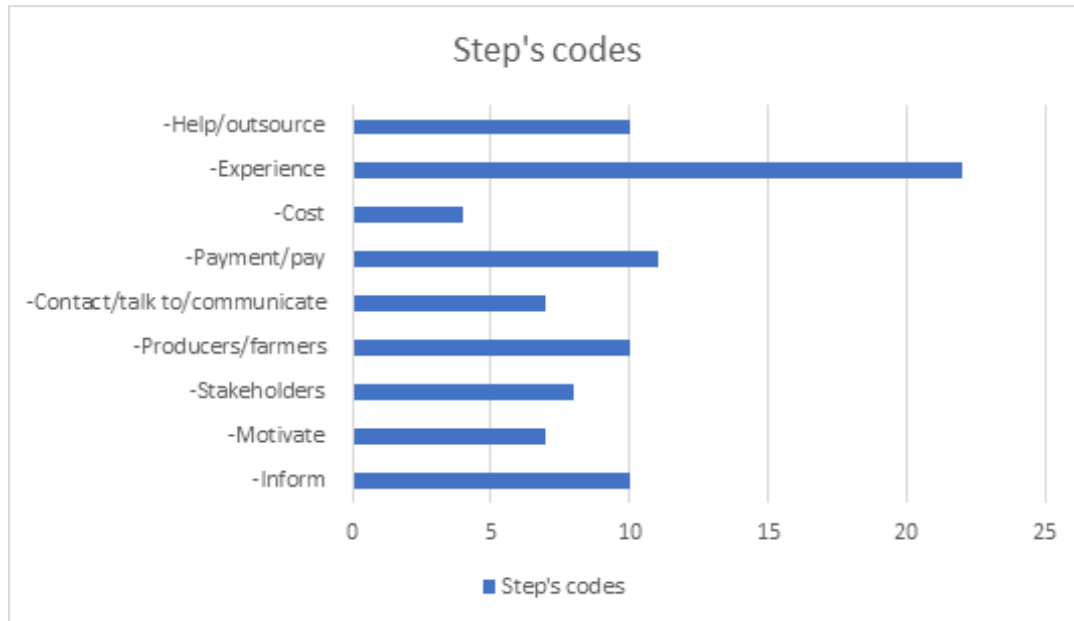


Figure 8: Codes for sub-question 1

Focus group 1 mentioned that asking to the clients what was required was their first step, in table 11, appendix 1, participant 1 states “First things first. OTC is responsible for informing its clients, I think, that they inform the exporting company and a client that the importance of having such certificate in the short or long term” referring about the communication among the supply chain and how their decision depends on what the client wants. For step 2, participant 4 stated, “the market is a bit difficult, we need such certificate to be able to maintain or open other doors in the European market” to mention this as how the intention for a new certificate is communicated to the farmers, by starting from a market pull circumstance. Moreover, the payment in step 3 focus group 1 mentioned that “Excoagro paid for the project certificates in the year in which it began when the Organic certificate,” regarding that farmers needed some help from the export company when the organic limes project started. Participant 2 mentioned that now is a “little easier” in comparison of the first time it was asked for a certificate for step 4, and participant 1 remarked how it is helpful to “look for a person who knows the standard” so there can be a better understanding of the activities to make.

Moreover, focus group 2 in table 12 of the was more focused on sharing their experience so the farmers could inspire and motivate other farmers such as participant 7 said for step 1 “Motivate others, those who are in the association and those who are outside the association”. Furthermore, participant 6 mentioned that “So people are wanting to get into this story (after the farmers share with them). Today in this region there are quite a few people who are organizing” to contact the farmers, step 2. Participant 6 implied that the farmers were contacted because of their results as pioneers of the organic program in the region.

For step 3 payment, participant 7 stated that “The payment comes from ourselves, that is, because from that kilo of lemon that they sell over there” to refer about how the money for the certificates came from their work (even though the farmers are not directly paying). Participant 8 also remarks how to love and understand what you do is vital to continue, and whenever the farmers have been asked about the difficulty of a certificate, its advice is to “try, the only way is to want and start doing things right” basing themselves in previous certificates. Besides, participant 7 emphasizes that “the training sessions and the engineer who has been investigating has helped us” to refer to the outsourcing of some internal auditors to complete the certificate criteria for step 5.

In focus group 3, table 13, participant 10 stated, “You want to be certified. Sometimes you have to look all over your processes, your suppliers, and then you” remarking in this way that the project needs to be discussed with all stakeholders before making an individual decision. Later, participant 9 refers as the next step to contact the farmers. However, the participant with a worrying face mentions, “They think oh, another Western company again, asking for the another certification” commenting that farmers will not be pleased with the news since the participant perceives it becomes too much for them at a certain point. Participant 9 also mentions that is not only extra work for the farmers but also the money that needs to be invested “That's why you need to do a very proper calculation. If it's really worth all the effort”. At the same time, the difficulty for farmers getting loans that might not be able to repay is also mentioned.

Moreover, based on the experience of participant 10 for step 4 of the certification process, “It can be quite. Exhausting” and that is why participant 9 mentions that “there are many consultants you can hire to get certified, you have to look really well for the right one” regarding their veracity, experience and cost that leads to step number 5.

Table number 6 summarizes the comments expressed among the focus groups regarding every step when obtaining a new certificate.

Table 6: Results of all groups for essential steps when applying for a certificate

Steps	Focus group 1	Focus group 2	Focus group 3
Step 1: Initial contact	Inform/ask clients about certificate	Motivate other farmers	Ask all stakeholders if is of their possibility
Step 2: Contact the farmers	Tell the farmer the market is needing certain certificate	Other farmers have learned from their experience and are connecting already since results are positive	Expect a negative reaction since is time and money consuming
Step 3: Payment	Ask the export company to pay for certificate	The payment is done by export company but according the farmers the money comes from the product anyway	To check if is really worth to not give higher loans to farmers which they would not be able to pay later
Step 4: Reliance on experience from previous certificate process.	Certificate coordinator use experience from previous certificates	Sharing with other producers that it is not difficult, you just have to put intention into it	It can be a an exhausting process and you need to have the support of all stakeholders
Step 5: Outsourcing	Export company looks for an specialist for each certificate	Farmers have learned new practices through the certificate specialist	The specialists are necessary, it is quite expensive though.

2. What are the main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate?

In the following 3 tables, statements about the barriers participants have experienced when obtaining a certificate are presented per mini-focus group. Each table is divided by the internal or external stakeholder sharing the experience, the individuals' obstacles, and comments for each barrier. Only the most relevant words have been included in this table after coding the information.

The barrier 'documents/register' was mentioned 26 times, being one of the most relevant issues among the participants regarding the difficulty level of this paperwork for the different parties. 'Infrastructure' was mentioned about 4 times, a low number but anyhow relevant as a barrier for the producers and export company.

'Market' was mentioned 20 times regarding the importance of having a particular certificate to be part of the market and sometimes as a requirement to join the organic market. The certificates represent a barrier for some producers which might find costs too high or procedures too tricky.

Moreover, 'natural resources' was mentioned 2 times and 'environment' was cited 10 times, regarding how its awareness sometimes underestimates and becomes a barrier when stakeholders take resources for granted such as water. 'Price' was mentioned a total of 9 times, which is sometimes perceived as the only incentive for other farmers to join and become organic.

'Reliability' was mentioned 5 times regarding the issues with auditors. The participants sometimes find it difficult to choose who will audit the criteria for the certificate, considering the reliable factor and the 'cost' as well. The cost has been 3 times mentioned among the participants, regarding all the different prices that auditing companies have in the market and, how complicated it can become to decide for one,

'Fieldwork' was mentioned 3 times regarding how fatiguing it can be to change all procedures in the field itself and the complication of getting auditors from one distant place to get to the farm and check the work in the area.

Furthermore, 'Pressure' for certificates was mentioned 2 times; it was meant to explain how some certificates can be mainly a market pull and become a requirement for growers, not giving them another option rather than obtaining it. 'High price' was mentioned 3 times regarding how much it cost for some stakeholders to make all the procedures.

Table 7: Codes for Sub-question 2

Codes	Times mentioned
Documents/registers	26
Infrastructure	4
Market	20
Natural resources	2
Environment	10
Price	9
Reliability	5
Cost	3
Fieldwork	3
Pressure	2
High price	3

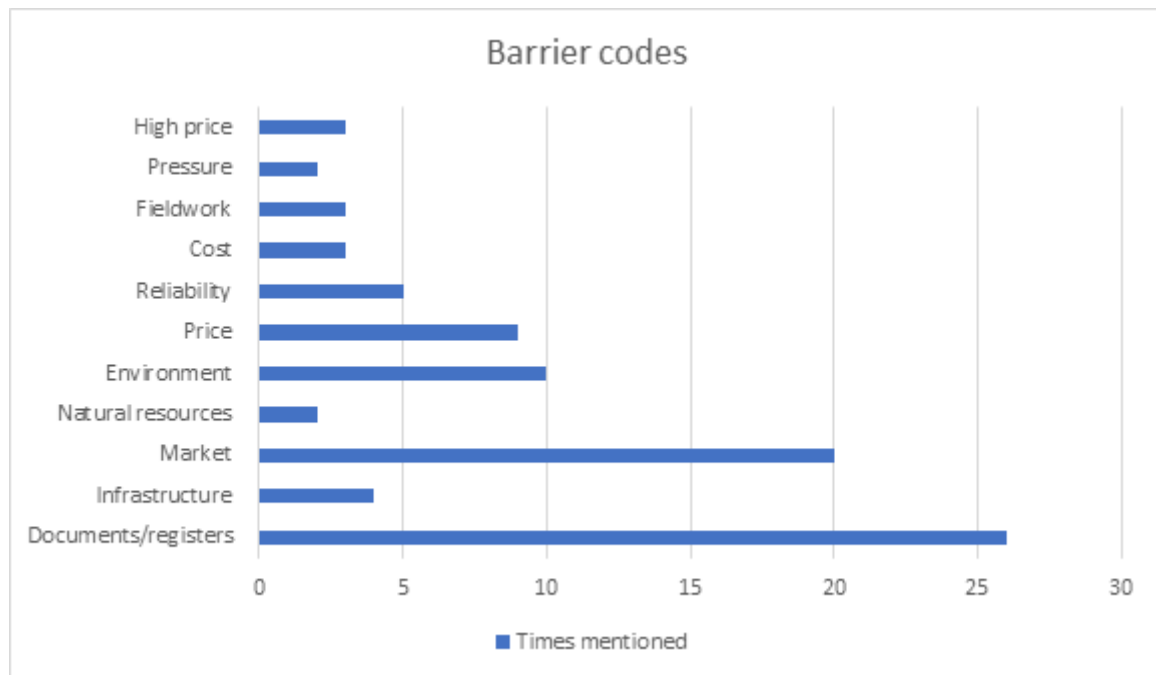


Figure 9: Codes mentioned for sub-question 2

In table 14 of appendix 2, focus group 1 comments on several barriers the participants have encountered while obtaining a certificate. For the producer's representative, the most significant barrier was the documents or registers. The participant mentions, “With farmers, the ones that seem the most difficult are the records.” Due to these were not used to have a register of anything in their farms, and now all need to be written down. The export company expressed the same barrier. Participant 2 stated that “at the beginning, it was a bit difficult

because we were totally unaware of documentary areas.” While participant 1 said, “is the most complicated part when we are going to start a new project is to interpret the norm, that is the most difficult part”. Both were referring to the process of interpreting the norm to make the changes for each criteria. Moreover, participant 2 mentioned that some infrastructural changes could not be performed at the farms and, therefore, “are points that we have to leave there as pending and incomplete,” which hinder the certificate process . Participant 3 also mentioned how the market tends to be a barrier, as its stated “is only the marketing model, so it is a less cumbersome way” to what is performed at the import company in comparison with the rest of the supply chain.

The focus group number 2 identified some barriers as well; in table 15 of the appendix, participants 6, 7 and 8 mentioned Documents and register as an obstacle for them. However, participant 7 stated “You learn to be orderly, deal with different things and cool too, because that gives us all the records” which gets complemented with “It has been difficult, but the truth is that it is beautiful, it is beautiful. When you sit down to look at records ” stated by participant 6. Both participants refer on how despite the registers are challenging; these still help to the overall organization of their business. Moreover, other barrier identified by external stakeholders was the environment awareness by the community, participant 8 and 7 reflects on how water was wasted due to their perception a resource that was “more than sufficient”.

Moreover, clients also reflect some barriers for the participants, the fact that “it is almost almost let's say it, so an obligation if I want to sell, I have to be registered in the more certifications” as participant 7 stated. This becomes a barrier when the farmers are not able to sell anything if the certificates are not complete or performed. For participant 7 is also quite disappointing that the price of organic products is the only incentive for other producers to obtain a certificate, as he stated “the resource of money is very important, it serves for our life, it is something important, but more important is to take care of ourselves, ourselves, our health, take care of our environment”.

Focus group 3, table 16, participant 9 mentioned how the high price and reliability of auditors are a barrier, “And and the prices are really yeah, there are big differences between out there, so that's something you have to explore well.” Meaning the stakeholders should be careful when choosing who is going to work with them. Moreover, participant 10 states that “To get all the paperwork done so got all the interviews. The right people in the right place” regarding the auditor who will need to go to the farms but also referring to the work on the field as the hardest barrier. Also, the market pull was identified as a barrier for this group, participant 10 says “because if you don't have them you lose your clients” regarding the pressure obtained from some customers regarding the requirement of some certificates

and according to participant 9, either way the person paying for these requirements “is always the consumer”

Table number 8, is a summary of all barriers identified among each focus group. It can be observed how some of the barriers were mentioned in all groups, and others were just recognized by one group. The barriers were compared by frequency and intensity among the focus groups and figure 10 shows the percentage according to each mentioned barrier.

Table 8: Results of all groups regarding Main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate

		Barriers						
Focus groups	Internal and external stakeholders	Documents	Infrastructure	Market pull/Clients	Lack of environment/water awareness	High cost of auditors and certificate	Adapting procedures	High price of organic products due to certificates
Focus group 1, 2 and 3	Producers	x						
		x						
						x	x	
Focus group 2 and 3	Clients			x				
		x						x
Focus group 1	Export company	x	x					
	Import company			x				
Focus group 2	Community and other farmers			x	x		x	x
Focus group 3	Auditors/ Outsourced employees					x		

In figure 10 shows the percentage of each mentioned barrier during all focus groups.

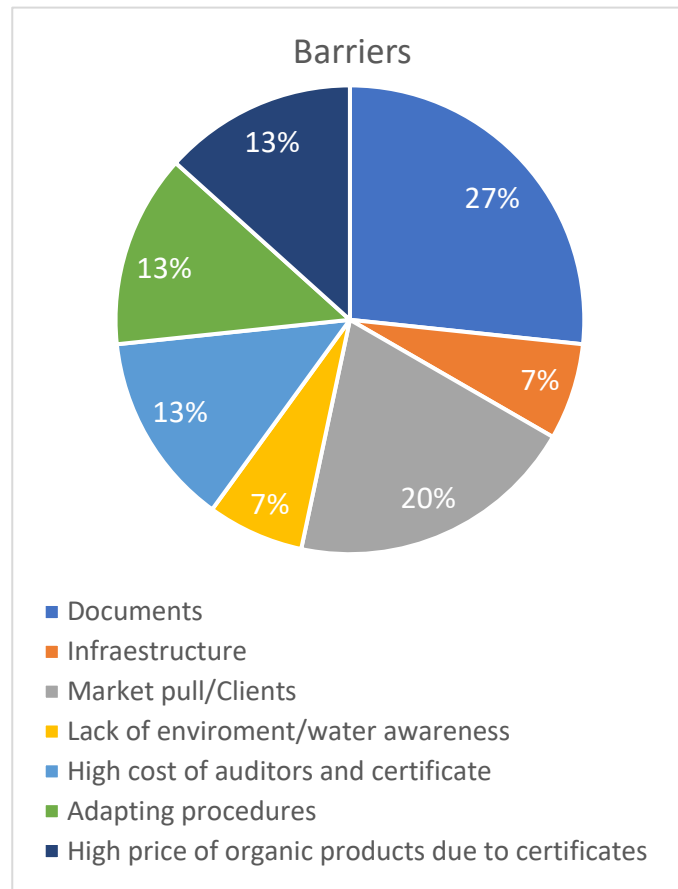


Figure 10: Barriers frequency - Sub question 2

3. What is the opinion of organic limes stakeholders towards a new water certificate?

Due to the variety of certificates out in the market these days, it was relevant to evaluate the stakeholders' opinions towards a new certificate. This time, the certificate is focused on water management, yet it is not the first time water is mentioned on a certificate. Farmers have been working for water management for other organics certificates, and therefore it was crucial to hear the opinion towards the Alliance for Water Stewardship. The main objective for this sub-question was to evaluate the interest and behavior when working for a water certificate.

For the first and second focus groups, some similar opinions can be seen that were coding in the following way. First, the 'market pull' was mentioned a total of 10 times regarding that if the customers require and want it, the producers and other stakeholders will adapt to it. After, 'water awareness' was either mentioned or implied in the conversation 25 times, being one of the factors with significant recognition among the participants.

'Recognition' was mentioned about 4 times, implying that the water certificate will give the farmers a wider spot in the international market for the coming years. 'Water management' was also mentioned 4 times, regarding the importance of learn new and different ways to use the resource in the fields.

The last group mentioned 2 times that the certificate could be just an 'overlap' taking in account water is assessed by other agencies and that it could just be too much extra work. 'Integrated systems' was also mentioned a total of 4 times, highlighting the importance of having a certificate that could have every factor included instead of making different certificates for each issue. Also, 'price' was mentioned again, a total of 2 times, to discuss how the water certificate would increase the product's price for the final consumers.

Table 9: Codes for sub-question 3

Codes	Times mentioned
Market pull	10
Water awareness	25
Recognition	4
Water management	4
Overlap	2
Integrated systems	4
Price	2

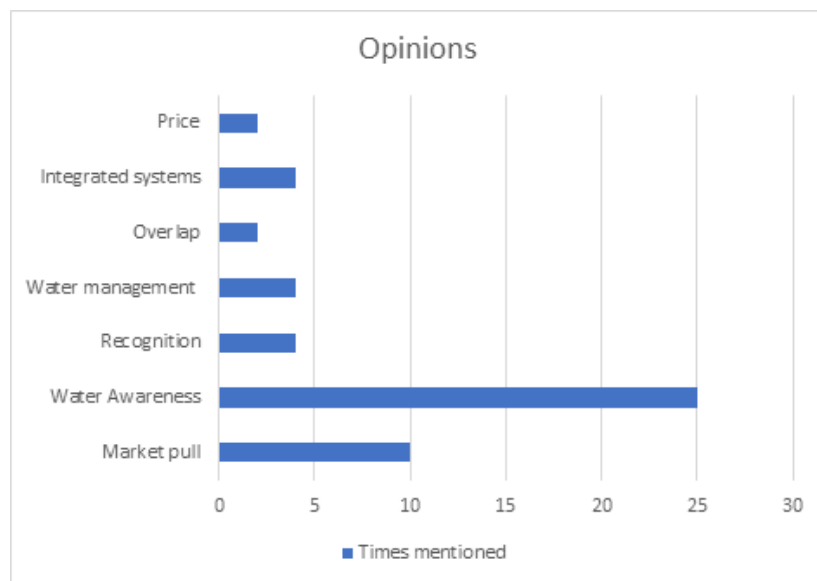


Figure 11: Codes for sub-question 3

In table 17, appendix 3, several opinions were shared about a new water certificate. For example, participant 4 mentioned, “I think the trade will ask for this certification as well to the producers” to explain the producers would get it because it is required by the client. Nonetheless, participant 9 also expressed “In the future to be able to reach other people so that they are also aware that water can, it can become very necessary in the future” as a sign of water awareness for them and the community, as well as participant 1 states there are “bad practices” from producers make and it could lead to contamination, therefore, the participant agrees it is “good to be able to implement.” Moreover, participants 2 and 3 agreed with the statement that “good management of this resource will have a great impact on the market” and “This is going to give a status to both the company and the producers” and therefore it will give the companies international recognition that can be used in their favor.

In table 18, participant 5 from focus group 2 mentions that “Well, yes, if the project requires it, well, man, it would be necessary to do it” to refer that if the market requires it, the farmers are willing to go on with the certificate project. Moreover, participants 6 and 8 share water awareness “is the source of us, of life” as participant 6 mentioned, the opinion to obtain a water certificate seems to them very helpful from an environmental point of view. While, participant 7 and 8 are focused on improving the water management at their enterprises, “the more trained we are in saving water, of course, that is, it is very important, it is not only useful to tell us how often we have to water, I say, but the more knowledge we have of how to save water, it is excellent”.

Participant 9 shared in table 19 that there can be some overlapping in certificates “Water management is already involved in lots of certifications.” Participant 10 agrees by naming it as a lack of integrated systems “You use integrated systems in which you have one system” so, in his opinion, it would be way easier to have one certificate with all relevant issues. According to participant 9, the water certificate would represent an increase in the final price for consumers “I’m in doubt of these new certifications because this supermarket also has to convince their customers the consumers to pay more” and mentions being “skeptical about it”. However, participant 10 does see a bit of usefulness when he mentions, “You have to deal with water on a good way. I don’t need this certificate for it, I have to do it, otherwise I cannot produce in the long run” referring to water management and how each producer should do it anyhow because of the good benefits.

Table number 10 shows an overview of all opinions expressed towards a new water certificate by all participants involved in the focus groups. Some factors were repeatedly told by the participants of the same focus groups or different ones.

Table 10: Opinion of each participant about the water certificate

Participant	Opinions towards a water certificate							
	Water awareness	Market pull	Recognition in the market	Outsource help needed	Water management	Overlap of certificates	Increase the price for customers	Lack of integrated systems
1	x	x						
2	x							
3			x					
4	x	x	x					
5		x		x				
6	x							
7					x			
8	x				x			
9						x	x	
10	x							x

Figure 12 shows the most relevant topics graphed by percentage considering the frequency of the code and the comparison within the three focus groups.

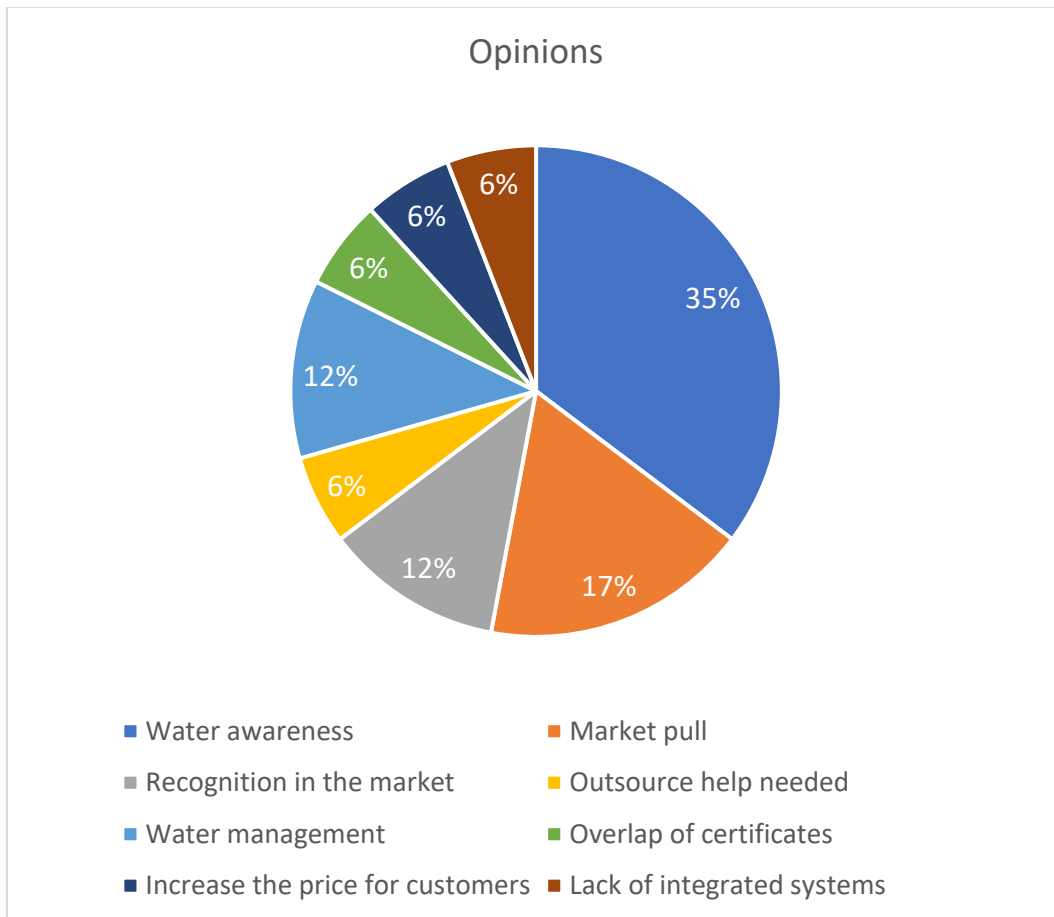


Figure 12: Opinions towards water certificates from all focus groups

Moreover, the focus group records are available for whoever would like to listen to them in the following links; however, be aware that some of this research was conducted in Spanish.

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https://drive.google.com/file/d/1wKAKdrTOUU6UB3BWGCB_HdvkWBX_EoKZ/view?usp=sharing

<https://drive.google.com/file/d/1n6XtQ35GUwIFNKYNdjxv7s-2YOE6sQA3/view?usp=sharing>

4. Discussion of Results

The previous sections analyzed the knowledge gap of this research, which is focused on the Stakeholders' path to obtain a certification based on the acquisition process of the Alliance for Water Stewardship. The missing aspects were in its majority recognized as the willingness and easiness of getting a new water certification, based on the steps and barriers from previous certificates and general opinion about a new water certification. The results demonstrated that farmers are willing to go ahead with this water certification since the other credentials have improved their lives and businesses in many aspects. However, the stakeholders directly involved in preparing the documents find the procedures quite exhausting and somewhat confusing. Therefore, there are some skeptical opinions on whether the water certificate might be essential or not.

Essential Steps When Applying for a Certificate

The results for sub-question 1 correlated with the steps to take when asking for a new certificate, but it differed in some aspects. For example, the communication channel is diverse for every stakeholder, so when the initial contact (Step 1) is performed, the information is shared differently among the supply chain.

The first group, which had the participation of the import and export company, agreed their first contact was with its clients, whether the producers from focus group 2 thought about immediately sharing it with other farmers to motivate them. Both correlate with the answers of focus group 3, which mentioned the importance of communicating through the whole supply chain to perform the certificate procedure successfully because all stakeholders must get involved. (Adebanjo, 2009)

According to the answers for step 1, it can be implied that groups do communicate through the supply chain which solves out the first hypothesis of this research. The hypothesis mentioned the importance of agreeing on how the certification was going to be obtained through the lime supply chain, this finding correlates with the statement of Adebanjo (2009). Who states that stakeholders are constantly communicating to discuss what changes might have to be made to satisfy the market.

For step 2, the focus group where the import/export companies were involved in contacting the farmers from a market perspective was more relevant. As mentioned in the previous paragraph, the business drives around customer preferences. Focus group number 2 was fully involved in sharing with business acquaintances since they are generally happy with the certificates. Instead, focus group number 3 expected an adverse reaction from the farmers considering how much money and time it cost to obtain a certificate.

The results for step 2 were very different than expected. For the higher education and research of certificates focus group, the farmers' reaction towards a new certificate was expected to be negative. However, the farmers demonstrated gratitude because the previous certificates have made them part of a settled market and have given them more opportunities, same as the export and import company mentioned. This outcome implies that it is doable to go further with other certificates since the farmers are experiencing benefits and are open to new opportunities, which is very positive for the lime supply chain.

For step 3, the payment is made by the export company in their supply chain. However, the farmers mentioned that either way, the money comes from the fruit price. The farmers know more or less how much money is invested in the certificates, and they agree with it. This statement correlates with the literature previously presented where Altobelli et al. (2019) mention the willingness of farmers to pay for certificates. On the other hand, focus group number 3 feared that small farmers or export companies did not have enough money to afford the certificate. The participants mentioned that farmers should not compromise with loans that could not be later repaid. This is a valid point and real issue that needs to be analyzed depending on the stakeholder in the supply chain. However, the experience from the supply chain members was rather satisfactory, as mentioned in step number 4, so it can be deducted that the money invested in the certificate is worth it for the obtained profit. Focus group number 3 insists that the process of getting a certificate is exhausting. Although the other focus groups might agree on this, it was also mentioned that once stakeholders had the first certificate, the experience of obtaining “another one” was much more straightforward and attainable.

According to Sym & Wade (2021), a network of professionally credentialed individuals can support the organization with the norm implementation regarding preparing the compliance with every criteria of the certificate norm. Outsourcing would help the stakeholders to interpret the standard for step number 5. However, the high cost of these employees needs to be considered, as mentioned by focus group number 3. Anyhow, the focus groups' experiences imply that it is necessary to have external help and that stakeholders are aware of the high costs, but it is not much it can be done about it.

Moreover, the steps identified from the coding of the focus groups also correlate with the complex measures when obtaining the Alliance for Water Stewardship Certificate (AWS, 2019). Initial contact and ongoing contact with the farmers relate to gathering information, creating a plan to acquire the water certificate, implementing the plan, and evaluating the plan's performance connect with the process made by the stakeholders who are dedicated to making all the paperwork for the certificate. The last step of the Alliance for water stewardship, to communicate and disclose, is part of what the farmers previously mentioned

when it was stated the positive outcomes after the certificates and how they wanted to share these with the community and other farmers. Therefore, the Alliance for Water Stewardship concept is adaptable for the stakeholders of the organic lime supply chain.

[Main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate](#)

The barrier with the highest percentage in figure 10 qualified as most relevant for the certificate procedure is ‘documents’, with a 27% and it takes the first spot. The focus groups participants mentioned the factor document in various scenarios. For example, the level of difficulty interpreting the certificate norm for the stakeholders working directly with the certificate company. For the farmers, documents had been identified as a barrier when there was a lack of knowledge about performing or keeping registers. However, the farmers mentioned that although it was challenging to adapt, it was still worth it and enriching. The farmers were somewhat satisfied with the profits of their farms after the certificates. Therefore, it was demonstrated that passing through the first stage adaptation was difficult, but then after, the process becomes more doable and makes it possible to continue other certificates. To sum it up, documents for certificates are necessary and although it might be tricky it also bring benefits for the stakeholders.

‘Market pull’ takes the second spot with 20%. It was mentioned as a barrier because sometimes the sales of the products depend on having a certification. If the process is too complicated or the producer has no chance to obtain the certificate, it misses out on the opportunity to export its products. However, participants mentioned that the certificates have also opened many doors for the producers and distributing companies, which correlates with Goedhuys & Sleuwaegen (2013) theory, where it is stated that “international standards had a more significant impact on less developed countries.”

The high cost of organic products is located in the third spot with 13%. This barrier was identified by focus groups 2 and 3. The stakeholders affected by the high price of the products are the clients and the community, and the high-cost barrier is exacerbated as the price continues to rise after a certificate. This could act as a deterrent for future farmers who might want to acquire the certificate. The high cost of certificate auditors has a third spot in the barriers with 13%, and all focus groups mentioned it. This affects the stakeholders directly and the final customers. However, as Vos & Boelens, (2014) stated, “The most commonly used technique of regulation in certificate schemes is auditing by third parties” therefore, this barrier is unavoidable in acquiring a certificate. Adapting procedures also had a 13% result. It might be difficult regarding the organizational changes that need to be made in the company to cope with the criteria of the certificate. However, there are no solutions for this barrier aside from deciding not to apply for the certificate.

The final barriers are lack of environmental or water awareness and the infrastructure, both with 7%. These topics were barely mentioned but are of high relevance. The lack of water awareness can be presented among the community next to the farms, which is not directly involved with the production and see water as a 'sufficient resource.' The infrastructure can be relevant but is something that the stakeholders can solve in the product supply chain.

Opinion from organic limes stakeholders towards a new water certificate

The opinion that had a higher relevance (figure 11) during the focus groups' discussion was the water awareness with 35%. The participants were deeply concerned about water stewardship. The majority agreed that having a certificate that would only focus on the water was vital for the environmental and economic future of the lime industry. These attitudes correlate with the information stated by Altobelli et al. (2019), "The farmers recognize the water impact caused by agricultural practices". The participants also were conscious of the water scarcity around the place the farms are located and the whole Colombian region, it could be observed the participants knew and are eager to take control of the situation to make a positive difference.

The market pull is shown in the second place with 17%, the issue was assessed from different perspectives. Some of the participants agreed that in the future, this certification will perhaps be mandatory for stakeholders to be part of the market, and this correlates with what it was mentioned by The Institute for Business Value IMB (2020) that rising awareness of global environmental issues tends to change the consumers' habits wherever they live. Therefore, some stakeholders think this could be a deal changer for the market, and most of the participants agreed on making changes to fit into the market, so the opinion lies more on the acceptance side. Also, with a percentage of 12% it was mentioned that good reputation could be gained from obtaining a certificate for water stewardship. It would give the stakeholders better market recognition which correlates with Berman, (2019) theory which states "reputation and property rights counted for 84 percent of the companies value". It is important to focus your business values on environmental aspects. The participants are concerned about that; therefore, obtaining a water certificate would give them the recognition needed for the international market and their community.

Water management also had 12%; participants think that a water certificate could give them the knowledge to improve their water management procedures. This shows the commitment of the farmers to help the environment by improving their performance. Moreover, it also indicates that the participants require more information about water management and that obtaining the certificate would give them more than just economic benefits. For the last position, there are four factors with the same 6%: increased price for customers, outsourcing help needed, overlapping certificates, and lack of integrated systems.

The increased price for customers has been previously discussed in the certificate barriers. However, it was stated by Ruediger et al. (2021) “the second trend which drives how water stewardships enhance the brand value is the consumer preference to buy sustainable services and products”. Therefore, if the consumer is prepared to spend more on sustainable food, it might not be an issue to charge more for products that ensure water stewardship. Also, it has been mentioned the outsourced help is an essential factor when obtaining a water certificate. This topic was mentioned as a barrier. However, it was also said that this procedure would remain a standard no matter what, and therefore it needs to be considered when getting a certificate.

The overlap of certificates and lack of integrated systems complement each other; it was expressed as the absence of a certificate that could unite every interest factor for producers and consumers. However, it is difficult to assess a topic deeply if it is just a small part of a ‘major certificate’. Besides, the experience of the stakeholders so far has been very different, and every day there are more and more certificates; therefore, an integrated system does not seem as a solution for the moment of this study.

Managerial Implications of the Study

This study suggests that obtaining a new water certificate such as the Alliance for Water Stewardship is achievable for the organic limes supply chain stakeholders. The first managerial implication of the research is to communicate among the supply chain by asking about their position regarding the certificate so the decision of obtaining it can be consented by all stakeholders. The communication would avoid inconveniences concerning the criteria to be complied for the certification norm by the stakeholders. The second managerial implication is to establish a payment agreement for the certificate among different stakeholders since it would benefit all the supply chain and not only to rely on what the farmers could afford. Moreover, although the outsourcing work of external or internal auditors might be expensive, it is also essential. Therefore, outsourcing is the third managerial implication since it is a factor that needs to be considered and added to the budget when planning the certificate.

The study showed there is a variety of barriers that can be expected when obtaining a certificate. Managerial implication number 4 is to make sure that one of the stakeholders in the supply chain has a level of understanding for certificate paperwork. However, it was shown that the information had been shared adequately for the organic limes supply chain, and results have improved after years of experience. Moreover, it was noticing how the certificates became a requirement for specific food markets, converting into a barrier for the supply chain that cannot obtain it or becoming an opportunity for suppliers to enter new

markets. This issue implies that managerial implication number 5 is to keep adapting to new developments in the market to maintain the position.

Finally, the study shows how the stakeholders are prepared to assess the water factor with a higher importance in the supply chain. It was demonstrated a level of water awareness and an undeniable concern of trying to make procedures differently. As a result, it is expected to have a production that is more environmentally friendly. Besides, the stakeholders are conscious about how the Alliance for Water Stewardship might become a standard food product certificate since the water importance. Managerial implication number 6 is to prepare the path of the stakeholders since there is a willingness to assess and obtain the alliance for water stewardship certification before long.

Limitations of the Research

It is beyond the scope of this study to start the certification process of the alliance for water stewardship to have a better overlook of what it implies to obtain it. Because, first, it is too expensive just for research purposes. Second, the time constraints are not enough to obtain the certificate and compare how the process correlates with the commented steps, barriers, and opinions of the organic limes and external stakeholders.

Two factors constrained the methodological choice. The research adopts the pitfalls started by the risk of non-participation due to availability, according to (Schwab, 2016) . The research might have gone a different direction with the missing statements of other participants. Another counterproductive factor of the focus groups is the lack of direct participation by some individuals, as mentioned by (Gaille, 2015). Some participants tend to share more than others, which might make it difficult for others to express their opinions.

Therefore, a limited response from the participants would require further research by perhaps adopting this research's findings as variables and using another investigation method such as surveys.

The language was another issue in this research. The study was conducted in Spanish and English; it was impossible to gather all focus groups since not every participant could manage both languages.

Recommendation for Future Work

Future studies with a long-time constraint could be performed with a party involved in the alliance for water stewardship to analyze the pre-and post-process of obtaining the certificate. Moreover, the recommendation for the focus group might be to start earlier with gathering participants or offering a reward for its participation as an incentive.

5. Conclusion and Recommendations

The procedure of obtaining a new certificate has its complexity, but it is doable. Of course, there are several issues to consider when even thinking about beginning with a new process. The possibility of starting with a new procedure for the Alliance for Water Stewardship was discussed with the stakeholders involved in Colombia's organic lime supply chain.

This research was summed up to three sub-questions which would be responded to in the following paragraph. For the first sub-question, “what is the typical procedure for a company when applying for a certificate?”, environmental quality management systems, for example, AWS, have a set of steps defined. However, these steps may not consider the perspective of all stakeholders equally along with their challenges and benefits. The findings show the steps to take when making this decision are; the initial contact as part of the market research of the import company, later the connection with the farmers to explain why this is necessary, and to check the capability to obtain this.

The next theme is the payment, to decide who and how the certificate will be funded. Moreover, the reliance on experience from previous certificates is an advantage for new certificates. As of last one, the outsourcing, understanding that they might need help interpreting the certificate norm better.

Due to the certificate is made for any company or farm, is relevant to consider the challenges of each supply chain individually. Therefore the second sub-question is “what are the main barriers in the organic lime supply chain for the stakeholders to obtain a new certificate?” The main barriers were identified as the documents due to is new for some farmers and tends to be difficult to the rest of the stakeholders. Also, market pull because of how the certificates became a consumer requirement and the incapacity to sell the products without these and the increase of price for final consumers, can be too expensive for some people who might decide not to buy the products.

Communication is vital when undertaking an activity that can affect or benefit all stakeholders; therefore, the third sub-question is “What is the opinion of organic limes stakeholders towards a new water certificate?”. The overall opinion is how certificates might be too much for some farmers and stakeholders, however, the findings reflected a positive opinion about their experiences and also, the concern of the stakeholders towards the water is remarkable therefore, willingness to get involved in the alliance for water stewardship is highly acceptable.

These three sub-questions lead to respond the main question of the research of the central theme; Stakeholders' path to obtain a certificate based on the acquisition process of the Alliance for Water Stewardship. The main question is, “what is the feasibility in the implementation of a water certificate such as the Alliance for water stewardship?”

The process to get a certificate entails many steps, time, effort, and money. However, the participants have succeeded with previous certificates and know to start with a new project. The findings of this research contribute as part of the factors to consider when obtaining a new certificate, such as the first steps to take, the barriers to consider, and the importance of hearing and communicating about the alliance for water stewardship. In this way, the obtention can be of general agreement of all members of any supply chain.

The path for the stakeholders to obtain the alliance for water stewardship is one of communication, teamwork, budget, and determination. The feasibility of getting the certificate is comprehensive, and different actions could help ease full compliance with the certificate norm and overall project.

Recommendations

1. To make a certificate norm that can be easily understandable by all supply chain members so the stakeholders can opt to obtain it.
2. To outsource internal and external auditors to increase the chance of full compliance for the Alliance for Water stewardship norm.
3. To gather with all stakeholders once the norm has been interpreted and check if everyone can comply with the steps considering the individual issues and opinions.
4. To keep adapting to new developments in the market, including new certificates that are internationally required.
5. To do extensive research about the cost and implications of obtaining the Alliance for Water Stewardship to plan the budget and procedure.

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Appendices

Appendix 1

Table 11: Focus group 1 Steps to make when applying for a certificate..

Steps	Statements
Step 1: Initial contact	“First things first. OTC is responsible for informing its clients, I think, that they inform the exporting company and a client that the importance of having such certificate in the short or long term” - Participant 1
Step 2: Contact the farmers	“We are going to need such a certificate. Yes, then I am going with that and farmers are also informed in the meetings, look, the market is a bit difficult, we need such certificate to be able to maintain or open other doors in the European market” Participant 4
Step 3: Payment	“Well, and there later, we go to Excoagro who makes the payment and to us, because we are like those who work like that with farmers, then Luis is the bridge there with the certifier and with Excoagro.” Participant 2 “-Excoagro paid for the project certificates in the year in which it began when the Organic certificate began, but from the second year on, all the costs of organic certificate have been done by the farmers.” Participant 3
Step 4: Reliance on experience from previous certificate process.	“Well, when there are certification processes or a new certificate let's say it is a little easier how to work because we already have the experience from the beginning” Participant 2
Step 5: Outsourcing	“Well, I say that looking for those people, who have the ability to make us known and that standard itself is, for example, when now that we are in the course of SPRING, we have to look for a person who knows the standard that we out giving to look what we need here, this is and so.” Participant 1

Table 12: Focus group 2, Steps to make when applying for a certificate..

Steps	Statements
Step 1: Initial contact	“Motivate others, those who are in the association and those who are outside the association” “Motivate them to get into this story that they believe in this story that is beautiful. Besides being beautiful, it is profitable " participant 7 "Today we, the chip has already been changing, that is, look at that of applying chemical poisons to the bushes and to the soil and they no longer support that" “Because you learn all that, we used to grow lemon, but like this, the custom, before the ancient custom of the parents, no record was kept." Participant 7
Step 2: Contact the farmers	“So people are wanting to get into this story (after the farmers share with them). Today in this region there are quite a few people who are organizing. Apart from our association, they are creating two other associations that are aimed at the same (certifications)" participant 6 “People and learned and look that it is not only at the level of ourselves, but at the level of our region” “You in our region no longer look at the burns (of waste, after communicating with the producers)” Participant 6
Step 3: Payment	“The payment comes from ourselves, that is, because from that kilo of lemon that they sell over there they get this, this, and in the end the rest (money) apart from that they (the exporting company) put in, but still that comes from the same, from the same product of the same lemon” Participant 7 “When I like this story, when you want to move your family forward, you want to improve your standard of living (you make the effort)” “Because in reality, in Colombia it is very hard, that is, the field. Very ungrateful the prices for all the costs of the supplies.(regarding prices of conventional products)” Participant 8

Step 4: Reliance on experience from previous certificate process.	“There are also people who have asked me what if it is difficult and I say, no, try, the only way is to want and start doing things right” Participant 8 “In other words, the more that is done with affection with dedication and one understands what is being done and where we are going, there is nothing difficult, sometimes a difficult one like that, right? But hey, with enthusiasm and dedication you learn” Participant 5 “What do I tell you of concern is when suddenly they tell you that such a certifier is going to come, they put you in fear, but no. As long as one is in order, the farm for me has been fine”. “Could it be that I'm wrong? Could it be that they are going to visit me? Could it be that no? But since things are and one, consider that it takes them in order, that is, we have not really had an unpleasant experience" Participant 6
Step 5: Outsourcing	“Our goal was to sell our most expensive products and that we were going to pick up greater resources for our family from the product, but then little by little the talks they were giving us, the training sessions and the engineer who has been investigating has helped us.” Participant 7 "Yes, at the beginning Maria is as we were not used to having so many papers on the farm, one says well, as usual she is going to come.(The person helping them)” Participant 8 "Yeah, no, we weren't used to being watched.” Participant 5 “What to be with so much story to carry so much stationery. We have not been used to them being aware of us as they are, we used to have the habit of maintaining the farm in a different way, without papers, without records, many things” Participant 8

Table 13: Focus group Number 3, Steps to make when applying for a certificate..

Steps	Statements
Step 1: Initial contact	“You want to be certified. Sometimes you have to look all over your processes, your suppliers, and then you. You'll get a few on your own (participants for certificates)” “Ah yeah, your whole supply chain (needs the certificate) and then it's an over added value, because then you can also use it for other functions in order.” “Then, in my opinion, of course, everybody I. I think it's always important no matter what you do, that you can have your proof that you that you can show how your product is made.(communicating that to the supply chain)” Participant 10
Step 2: Contact the farmers	“They think oh, another Western company again, asking for the another certification” “They will not be pleased, that's one thing. Because it's not them who are coming with the idea to get certified, it's us” Participant 9 “The producers, is there already an internal control system? What is already there?” Participant 9
Step 3: Payment	“That's why you need to do a very proper calculation. If it's really worth all the effort because you don't want to give those farmers a large loan or more debts in order to get certified.” Participant 9 “Paying for certification and of course they were able to sell the products for your certifications and they got better prices for it.” Participant 9 “We have suppliers which work conform to a system, or they don't pay extra, but they have also a big quantity of products so we don't comply” Participant 10
Step 4: Reliance on experience from previous certificate process.	“But for examples if you have more certification which you have to make, for example handbooks, reports or seizures etc. A special report. It can be quite. Exhausting” Participant 10 “But you need to make sure that once you decided to have this certification, that you have the support of all your stakeholders.

		“Yeah yeah, because you need their help in their efforts and to get a certification through the whole chain” Participant 9
Step Outsourcing	5:	“Of course, the people who safeguard these certificates. Now you know they have the certain knowledge and it's always a well, it can be very time and money consuming sometimes, especially if they ask.” Participant 10 “Certain type of data or certain type of procedures which won't have real added value, you know. And I said ok it has to be done because it's conformed to our regulations.” Participant 10 “Yeah, I mean it's easy to hire a consultant and to pay a lot of money to get certified. That's one of the easiest options. Ok, it's also one of the most expensive options. There are many consultants you can hire to get certified, you have to look really well for the right one” Participant 9

Appendix 2

Table 14: Focus group 1 Main barriers for the stakeholders of the organic supply chain when making a new certificate

External and internal stakeholders	Barriers	Comments
Producers' representative	-Documents	“With farmers, the ones that seem the most difficult are the records. That every day the certificates are increasing and more to say, there is already a man who says that around here he says he has, he has more papers than clothes, because the amount of records they have to fill seems difficult.” Participant 4
Export company	-Documents -Infrastructure	“let's see That at the beginning, it was a bit difficult because we were totally unaware of documentary areas. Like the concepts, the adaptation area” “I say that sometimes I like physical adjustments, because, for example, the documentary part is sometimes a little difficult to understand, but you can see the steps and processes, but there are things that suddenly, as physical adjustments, are hard”

		“So sometimes they are points that suddenly are points that one has to leave there as pending and incomplete that at the end time subtracts points from the process that is not that the company does not want to do it but, but that it cannot be done, then no there is like a flexibility for it,” Participant 2
Export Company	-Documents	“Many Producers did not know about the issue in what is the registration part, I think that is the most complicated, the most complicated is the issue of registration in the farms because all farmers do not have the training” “t is the most complicated part when we are going to start a new project is to interpret the norm, that is the most difficult part, Eh already one from experience already knows what is what, where to go, to which website to go download the rule. Point to point all the points cannot be understood and always when there is a new one, a new certificate or a new project for the farmers.” “Farmers are farmers as adults, it can be said that they are over 50 and 60 years old. Their level of literacy is not so good, it is difficult for them to write, keep accounts, achieve the part of numbers, yes, but in these 4 years and medium that we have been working, they have improved a lot” “I believe that this is about raising awareness among farmers, I know that they cannot do much about what the basin that supplies that area is, they cannot do much because they are already in the lower part” Participant 1
Import Company -	Market	-“The process of the certificate that we have as an importing and distributing company, because they are Eh, Eh, is only the marketing model, so it is a less cumbersome way since they (Export company

		and farmers) have more records, more control of their information” Participant 3
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Table 15: Focus group number 2, Main barriers for the stakeholders of the organic supply chain when making a new certificate

External and internal stakeholders	Barriers	Comments
Producers	-Documents	“It has been difficult, but the truth is that it is beautiful, it is beautiful. When you sit down to look at records ” Participant 6 “You learn to be orderly, deal with different things and cool too, because that gives us all the records it gives us a way out. It is much better to sell the products” Participant 7 Yes, well, for me it has also been a good experience of managing an entire administration like the one I have, which I started managing a farm keeping records of daily account activities” Participant 8
Community	-Conception of sufficient natural resources -Environment awareness	"The behavior of us with nature, with our environment, the change in the community has been greatly noticed" “Because before all this existed, we always looked at a bit of disorder, we looked at our places a bit of flaws.” Participant 8 “The topic that Carlos mentions apart from nature, care, environmental management is something very nice that before it used to be not be like that, now with the teachings that these people have left us is different” Participant 7
Clients	-Market -Certificate as a requirement to sell	“In other words, it is almost almost let's say it, so an obligation, if I want to sell, I have to be registered in the more certifications, I have a lot, the better I am going to be positioned in the market at a global level, let's say it like this." Participant 7 “Yes, yes, what Javier says, I know if it is real, that is, the certification, that does not teach him much

		about how he should keep his accounts and besides that, that is, it positions you in the market, that is, that is, it is no longer if I want to (more that he has to)" Participant 5
Other producers and part of the community	Purchase price as main incentive for other producers	"We all understand that it is good if the resource that the resource of money is very important, it serves for our life, it is something important, but more important is to take care of ourselves, ourselves, our health, take care of our environment, the soil, the water for animals" Participant 7 "So that has been very important and that we try to insist to people that money is cool, good, but cooler than one that in about 20 years we can have a clean environment and breathe cleaner air, let's give a place where it is not polluted, air, water" Participant 7

Table 16: Focus group 3, Main barriers for the stakeholders of the organic supply chain when making a new certificate

External and internal stakeholders	Barriers	Comments
Auditors of Outsourced employee	Reliability and high cost	"I mean for me most of the time situations in the country itself are the most difficult to gets the auditors on the right place to reach the people to get it done before the deadlines. That's where lines are always too tight in those countries" Participant 9 "But also it's important that the auditing party is reliable. For example, that you find the right auditors and they they are good communication. Prices are really different and there are big gaps between pricing. Participant 9 "So that's also something you really have to explore. Well, which auditor has the right accreditation as well? Is this auditor allowed?" Participant 9

		“To do the audits in that certain country, I also had some issues with that's that's for example, auditor/auditing company was allowed to do an specific certification, but not in that specific country” Participant 9 “And and the prices are really yeah, there are big differences between out there, so that's something you have to explore well.” “Because that's at the end, you have to pay for it and it has. I mean, there has to be a benefit for the producing country, producer or for you.” Participant 9
Producers	Work on the field	“Is really complicated, and frustrating and time-consuming.” “The real work in the is the hardest part. “To get all the paperwork done so got all the interviews. The right people in the right place” Participant 9
	Getting the producers to work conform the system	“sometimes the culture, let's try to modify to modify the people to work conform to the system in the company itself” Participant 10 “You know, and and what should be no send. It's the internal compliance procedure and the internal control system.” Participant 10
Clients	Pressure of having certain certificate and all criteria in compliance	“A certificates, then you have some, let's say, external ways. Some pressure on your on your back, and that's what's been also telling them because they are important or trampled organic certificates, they are very, very important, because if you don't have them you lose your clients” Participant 10 “But now you are checked on it? Yeah, because of the certifications you have checked on it and if you are for example responsible for this.” Participant 10

	High price increased through certificates	“Uhm, so at the end is always the consumer.” Participant 9
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Appendix 3

Table 17: Focus group 1, Opinion of organic limes stakeholders towards a new water certificate

Stakeholder type	Opinion	Comments
Producers represent	-Because the client requires it -Water awareness	“Well, yes, I think this certification may become necessary because in the future, I think the trade will ask for this certification as well to the producers” participant 4 "In the future to be able to reach other people so that they are also aware that water can, it can become very necessary in the future and it may end or something like that" participant 4
Export company	-Importance of water for the region -Water awareness	“Eh, they are new certifications related to water and all those certifications related to water. And I think that at the level of here in our country, at the regional level, I believe that the boom right now is the issue of water, if looking at everything what is coming to us in the future” participant 1 “Because of the bad practices that many producers develop, which are going to be harmed and there will be contamination in the basin, then that, I believe that these two certifications are for water management, which is where it starts, which is how to say “the mother of all certifications” would be good to be able to implement it " participant 1
Export Company	-Recognition in the global market	"This is going to give a status to both the company and the producers, we are still an alliance, so I think it would be interesting, interesting, let's say we can start studying it and be able to implement it and it would be good" participant 2

Import Company	-Water as an important trend	"Good, perfect, because from OTC suddenly with all this with what Luis has just said, we are convinced that the new trend is going to be water management" participant 3
	-Recognition in the global market	"So we believe that in the coming years this type of certifications that prioritize the good management of this resource will have a great impact on the market" participant 3
	-Water awareness	"But it is also very important that, let's say the awareness that it will create with the farmers of not wasting the resource" participant 3

Table 18: Focus group 2, Opinion of organic limes stakeholders towards a new water certificate

Producers	Opinion - code	Comments
Participant 5	-If requested by the clients, they will do it.	"Well, yes, if the project requires it, well, man, it would be necessary to do it, we must all point it out, we are already involved in this and we have to continue, because if we have nothing in that project, water is life" Participant 5
	-Outsourcing help	"And that is important everything that has to do with protection, maintenance, saving water, everything is important and what is clear is that hopefully from beyond Europe they help us in that story because has been hard (for them to do all alone)" Participant 5
Participant 6	-Water awareness	"With the protection, with the saving of water, the maintenance of the catchments. In other words, that is my second mind, because that is the source of us, of life" Participant 6
Participant 7	-To learn a better water management	"Sure, I mean, I don't see it, I don't see it, I don't see any inconvenience to it. That is, the more trained we are in saving water, of course, that is, it is very important, it is not only useful to tell us how often we have to water, I say, but the more knowledge we have of how to save water, it is excellent if I would not have any problem

		and more when you say that it is directed from where the water is born.” Participant 7
Participant 8	-Water management -Water and environment awareness.	“But beyond filling out a record have a role to fill. Yes, we should put on our boots and focus more on school because it is useless to fill out a paper to show Europe but we can't do anything here. There is to see how to receive help, as the colleagues say” Participant 8 "And try to see how something is managed to pay the bills, fill out the papers” “You can send me, I can fill out whatever papers, but it would be very important that. Whatever is done it will also be for nature, for trees” Participant 8

Table 19: Focus group number 3, Opinion of organic limes stakeholders towards a new water certificate

Higher education and research in certification	Opinion	Comments
Participant 9	Overlap of certificates	“Water management is already involved in lots of certifications, so there's quite some overlap.” “Uh, and I can hardly imagine that this certification is that important And that it will justify all the investment”
	Higher price for customers	“I'm in doubt of these new certifications because this supermarket also has to convince their customers the consumers to pay more for these already organic products. Because of this AWS certification” “So I'm a little bit skeptic to be honest.”
Participant 10	Lack of an integrated system	“In the end it should integrate it. It's most important that it's that you integrate. You use integrated systems in which you have one system” “An extra need for an extra certificate”

		“You know, sometimes it's only used because there is a current problem and I think water is very important, but use integrated systems already or certificates and don't do something extra because it's only confusing”
	Water management	“You know the that? That's always difficult because it benefits the society and the country which the production, for example with avocados and use a lot of water, especially on places where water is very scarce” “And sometimes you know, then it's not done in very, very proper way. If you continue this existing and let's high production methods, then we'll have a problem. So, it's in my opinion it's more necessary as a producer. And let's say, let's say to the triple bottom line, you want to produce an economic, social and environmentally sustainable way. You have to deal with water on a good way. I don't need this certificate for it, I have to do it, otherwise I cannot produce in the long run”