



Norwegian University  
of Life Sciences

**Master's Thesis 2020 30 ECTS**  
The Faculty of Landscape and Society

# **Sustainable water footprint of avocado imported to Norway from Chile - Norwegian retailer's information and influence on water management**

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### Acknowledgments:

I would like to thank my supervisor, Professor Espen Olav Sjaastad, for his guidance in academic design, resourceful input and patience.

I would like to thank Rema 1000, Bama and Nature's Pride for forthcomingly participating in this study and sharing openly.

Gina is the one I owe the biggest thanks for keeping our family ship shape at all times and patiently made room for countless writing hours.

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## Thesis summary

This thesis investigates the control regimes of the enterprises constituting the value chain for avocado from producers in Chile to the Norwegian retailer Rema 1000. The Norwegian enterprises Rema 1000 and Bama together with Dutch Nature's Pride constitute the value chain downstream of the producers. The effectiveness of the combined control regime of the downstream enterprises in ensuring sustainable water consumption in the production is evaluated. The thesis also describes the legal and administrative regime for water management in Chile and conclude that the regime and find that the effectiveness of the enterprises control regime is strongly influenced by the state's water management. Climatic changes including the mega drought affecting Chile since 2010 is briefly described and is found to have significant impact on sustainability of industrial avocado production.

By investigating the water footprint and the effects of the control regime this thesis seeks to analyse what Norwegian importers of avocado are doing to ensure sustainability in the production of exotic fruits and vegetables with a potentially large impact in the producing locations. By comparing the practice with global value chain theory the thesis seek to better understand the potential effects of the regime. The due diligence framework is also used to compare the practice of Rema 1000 to an approach for corporate social responsibility (CSR) that is increasingly applied by the private sector and that are likely to become a legal requirement for at least some of the value chain enterprises.

The research is based on data gathered from openly published documents from the value chain enterprises, interviews with the enterprises and non value chain stakeholders, document analysis of third party standards and review of research and openly available information from news media and other sources.

Avocados sold by Rema 1000 are primarily produced close to Panquehue in Aconcagua and sold through Nature's Pride and Bama. The two Norwegian downstream enterprises contractually demand sustainable water use by their supplier's, Nature's Pride does however not require sustainable water use in their policy or contracts, causing a mismatch of environmental criteria through the value chain. I find that the third party standards applied by Nature's Pride to control producers are not able to guarantee sustainability. I conclude that the groundwater extraction for industrial avocado production in the Aconcagua is unsustainable. This is however not identified by Bama and Rema 1000. I hold that the legal and administrative regime and the climatic changes are contributing to creating the unsustainable situation.

Following the conclusions of this thesis I have several recommendations for the value chain enterprises, including a full implementation of the due diligence approach, a strengthened focus on contractual compliance and the cease of purchase of unsustainable avocados.

## Table of contents

Thesis summary .....	3
List of maps and tables .....	5
List of abbreviations.....	5
Chapter 1 Research topic, field of study and research questions .....	6
Research topic .....	6
Field of study .....	6
Research questions .....	7
Chapter 2 Methodology .....	8
2.1 A qualitative case study - Methodology .....	8
2.2 Document analysis methodology.....	10
2.3 Ethics .....	11
Chapter 3 Conceptual and theoretical framework .....	12
3.1 Value chains – information sharing and influence.....	12
3.2 CSR.....	14
3.3 Human rights due diligence - The business’ responsibility to respect human rights.....	14
3.4 Water use and sustainability .....	16
Chapter 4 The Chilean water management regime and prior empirical literature .....	20
4.1 Legal and administrative conditions water governance, Chile .....	20
4.2 Prior empirical literature (alternate heading?).....	23
Chapter 5 Avocado production and the value chain .....	30
5.1 The avocado industry in Chile.....	30
5.2 Current updates .....	31
5.3 The value chain .....	32
5.4 Control regime of Rema 1000 and Bama .....	34
5.5 Nature’s Pride’s Standards and control regime .....	40
5.6 Perspectives of non-value chain actors .....	51
Chapter 6 Discussion.....	54
6.1 Analysing sustainability & Rema 1000’ information systems .....	54
6.2 Problems in the control regime .....	57
Chapter 7 Conclusion .....	63
Findings for main research questions .....	63
Contributions to the research field.....	64
Recommendations .....	64
Literature list .....	65

Annexes.....	72
Annex A – List of enterprise documents and correspondence.....	72
Annex B – interview guides .....	73

## List of maps and tables

Map 4.1 The watersheds for the rivers Petorca, La Ligua and Aconcagua

Map 4.2 Aconcagua basin with vigilance committees

Table 5.1 Exported volumes of avocado from Chile per month (2018-2020)

Table 5.2 Import periods for avocado

Table 5.3 Standards and tools applied in this value chain

## List of abbreviations:

ASOEX: Asociación de Exportadores de Chile

CBD: Convention on Biological Diversity

CBI: Center for the promotion of imports, Netherlands Enterprise Agency.

COC: Code of conduct

CSR: Corporate social responsibility

DW: Deutsche Welle

EU: European Union

FAO: Food and Agriculture Organisation of the United Nations

GRI: Global Reporting Initiative

GVC: Global value chains

IPBES: Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

IWRM: Integrated water resource management

MT: Metric tonnes

OECD: The Organisation for Economic Co-operation and Development

OFG: Opplýsningskontoret for frukt og grønt

OHCHR: Office of the High Commissioner for Human Rights

SCOC: Rema 1000' Supplier code of conduct of

SDG: UN Sustainable Development Goals

USDA: United States Department of Agriculture

UN: United Nations

UNGA: United Nations General Assembly

UNGP: United Nations Guiding Principles for Business and Human Rights

WMA: Water management accounting

# Chapter 1 Research topic, field of study and research questions

## Research topic

The research topic for this master thesis is corporate knowledge, influence and information sharing, through due diligence processes undertaken downstream in the value chain as they relate to water impacts by avocado production in Chile. In light of the criticism directed towards the avocado production in Chile I aim to find out what retailers and Norwegian importers of avocado are doing to make sure the avocado available for consumers have a sustainable water footprint.

## Relevance of the research topic

Avocado growing consumes a relatively high amount of water per unit of produce. The avocado grown in Chile is mainly exported and there has been public criticism of the overuse of water by the avocado industry in Chile, especially related to the water crisis in the Petorca province. This criticism has been directly linked to import to North American and European markets (Facchini, A. & S. Laville, 2018; USDA, 2018; Milne, 2019).

There has been an immense growth in demand for avocado both in Norway and internationally. Avocado imports to Norway reached 12 000 tonnes in 2016, representing an increase of 249 % since 2007 (OFG, 2017). Sales volumes have remained consistent through 2018, on well above 12 000 tonnes (OFG, 2019).

As there is a continued strong demand for avocado and some interest from supermarket chains to avoid environmental harmful practices it becomes relevant to ask what the actors in the chain from avocado growers in Chile to Norwegian grocery stores can feasibly do to avoid environmentally harmful practices.

An increasing Norwegian public attention to sustainable food production and the legal framework with *Miljøinformasjonsloven*, the environmental information act, and the prospective supply chain transparency and due diligence law, would also make this highly important information for the Norwegian retailer.

Bush et al (2015) hold that the research in sustainability governance of chains is still wanting and needs further case studies. By comparing practice in the avocado global value chain (GVC) from Chile to Norway to relevant literature, I hope to contribute to better practice in the GVC and make a small contribution to the pool of research on GVC and environmental risk assesment. The Chilean water management is heavily affected by climatic changes and this case can also serve as a discussion of the efficacy of value chain control regimes in a context of climatic change.

## Field of study

The study is focused on import of avocado to a Norwegian grocery chain through a value chain from Chile. The Grocery chain selected for the study is Rema 1000. Norwegian wholesaler Bama and their Dutch subsidiary Nature's Pride are important organisations in this value chain and represent a significant part of the field of study. The primary field of study is the management and governing policy as concerning water sustainability within this value chain. In a realisation that the regulative and physical context in Chile is of great importance for the design and performance of the control regimes in the value chain water resource management and water availability constitute an important part of the basis for discussing the value chain.

Due to travel restrictions and information restrictions, the analysis is focused on the context for avocado production in Chile and the control regimes in the value chain of the buyers downstream of the producer. Sustainability of avocado production will be discussed focusing on avocado produced

in the Aconcagua valley, with a focus on the Panquehue area. The issues of information gathering and access are further discussed in the methodology of the case study below.

### Research questions

Within this defined field of study and building on the theory I will attempt to answer the following research questions:

1. **Can Rema 1000 with confidence say that their avocado from the Chilean value chain has a sustainable water footprint?**
  - 1a. **Are the avocados produced sustainably?**
  - 1b. **Does Rema 1000' information systems give them insight into the sustainability of the practice?**

Following from these I find it prudent to also ask

- 1c. **Can the existing control regime ensure sustainability?**
- 
2. **What are the potential problems associated with the current control regime?**
    - 2.a **Are there specific challenges to reaching a sustainable production through the control regime at producer level?**
    - 2b. **Are there specific challenges to reaching a sustainable production through the control regime for the value chain?**
  3. **Can a full implementation of due diligence improve sustainability outcomes?**
    - 3a. **Does the current approach satisfy due diligence expectations?**
    - 3b. **Can a full implementation of due diligence improve sustainability outcomes?**

Given the serious challenge posed by the climatic changes and the regulative regime in Chile the question of whether the current regime could be able to deliver sustainable avocados, by selecting sustainable producers or by shaping producer practices, comes to the forefront. Crucial in this undertaking is the appropriate flow of information.

To expand on this I will look into what Rema 1000, through Bama, and their subsidiary Nature's Pride, are equipped to do to ensure sustainable water management in their supply chain of avocado from Chile.

To answer the question about potential problems I will discuss both producer level challenges to the effectiveness of the control regime and value chain challenges forming the outcome.

The last research question contrasts the practice with due diligence expectations to evaluate and suggest how a full implementation can be reached, and analyse what course of action may be fitting with such an implementation.

## Chapter 2 Methodology

### 2.1 A qualitative case study - Methodology

The choice of methods is important as it shapes the analysis, and the data that will be available to analysis. I have chosen to do a qualitative case study within my research topic. According to Maxwell (2008) it is important to see all the five elements: research question, methods, conceptual framework, validity and goals as interlinked. In pointing out how these influence each other Maxwell also points to the importance of updating preferences if you gain new insight under way in the case study. According to Bryman (2012), case studies are suited for researching the complexity and particular nature of the case in question, which in this thesis is the internal control mechanisms of the value chain defined in the field of study-section above.

In choosing a qualitative case study methodology I find it prudent to point out that I am basing this in a critical realist approach, believing that the responses and other data I get can give me insight into the actual processes the interviewees are observing.

#### *Data collection, sampling, and sources*

The field of study is defined by the value chain of avocados produced in Chile ending up in a grocery store in Norway. The ideal scope would cover the entire value chain from farm to retailer, however access of information has made some limitations to this that will be addressed below. The choice of Rema 1000 and their value chain was in part influenced by the fact that they are members of the organisation *Etisk Handel Norge*, Ethical Trade Norway, (*Initiativ for etisk handel* prior to a name change in 2020) and assumedly held a shared interest in illuminating the topic. The other large actor in the Norwegian grocery sector, Norgesgruppen, is also a member of Ethical Trade Norway and could possibly have been selected for the case. However, their structure is somewhat more complex and access to information and key persons could therefore have been an obstacle.

When the field of study was chosen I contacted Rema 1000 through Ethical Trade Norway and they helped me address who sat on the key insight of the issue as well as including Bama's CSR Director in our dialogue. Rema 1000 and Bama both agreed to take part in the study in a preliminary meeting in the fall of 2018. The Bama subsidiary Nature's Pride is a crucial actor in the value chain for avocado, as it is the enterprise buying the avocado from producers. Nature's Pride would also have to be included to cover the value chain from Chile.

The access to the Dutch company Nature's Pride have been somewhat more challenging than the two Norwegian companies. I decided that the data from Nature's Pride was crucial and focused first hand on getting information from them. My main contact with Nature's Pride has been with their adviser responsible for monitoring water management. Through a dialogue going from early 2019 to spring 2020 I have through several interviews, conversations and documents gotten data that can contribute to the analysis and help answer my research questions. I was however not given access to information about which producers Nature's Pride are buying avocado that are sold in Norway from. It is therefore a limitation in the scope of study that I have not been able to interview the producers or conduct other data collection about the specific farms.

All the correspondence and dialogue with Nature's Pride is listed in annex A. Interviews with the sources in Rema 1000 and Bama were conducted in April 2020. Interviews in Rema 1000 and Bama are done with key CSR personnel with expert insight into the enterprises control regimes. Rema 1000 and Bama were given access to the section of the case chapter including data about their companies. Bama and Rema 1000 replied briefly to this with additional information in January and February 2021, this is included in the respective sections in chapter 5 and dated.



Deliberately selecting these sources could be described as purposeful sampling. According to Maxwell purposeful sampling “is a strategy in which particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices” (2008, p. 235). As well as expert interviews, documents from the companies will be purposefully selected to provide data about the processes studied. A list of company documents providing data is listed in annex A.

The interviews were done as semi structured interviews designed to give data to contribute to answering the research questions. However, I also left room for pursuing explanations and other elements brought up by the interviewees to cover issues that the sources considered relevant and to pursue insights created during the conversation.

According to Bryman (2012) triangulation could be done by either a combination of different sources, or by a combination of different methods, or also a combination of both. Sampling data from interviews and making sure to have respondents both within and external to the value chain would therefore be one leg of triangulation, while using written sources for document analysis to attain information relevant for the case is another. Referencing prior empirical literature providing a context for information given from the organisations in the value chain could also be seen as a method of triangulation, or a method of increasing the reliability of conclusions reached.

As well as the data from interviews with experts from companies in the value chain I draw on perspectives from civil society in Chile and on empirical research and media sources describing the water situation and agriculture in the relevant regions. I have interviewed a representative with the Heinrich Böll foundation country office in Chile and sought to interview the environmentalist organisation Modatima. The Heinrich Böll foundation has done considerable work on the impact of the avocado industry and its imprint on water resources together with local organisations, is interviewed. The organisation Modatima that has been working extensively with the avocado industry and the water situation in the Petorca province have unfortunately not responded to my request for an interview. A recent interview with Modatima leader Rodrigo Mundaca by DW (Ebert, 2018) is used as data representing a non-value chain view of the avocado industry. Perspectives from the Danwatch report (2017) containing input from various stakeholders, including Modatima, is also included in the section on non-value chain perspectives (5.6).

Previous empirical research done on water and avocado in Chile will be presented alongside a case study of water management in an agricultural supply chain in the section prior empirical literature (4.2). Published information such as online news media coverage about the water situation would also provide written sources for triangulation.

#### *Validity and reliability*

Bryman (2012) clearly state that a case is not a sample of one. Addressing the issue of external validity he states that the case is not generalizable. However a detailed description of the case could provide a basis for judging whether the findings are transferable. According to Shenton (2004) providing sufficient context for the reader to be able to decide whether the described environment is similar to another situation and whether the findings can justifiably be transferred to that setting can allow transferability.

Following Shenton (2004) a detailed account of the sources and sampling is given, in order to contribute to making the study replicable. Further, showing in the analysis that the findings emerge from the data and not from the authors predispositions will further strengthen the validity.

## 2.2 Document analysis methodology

### *Selection of documents and limitations*

I used document analysis as a systematic procedure for reviewing and evaluating two standards as they pertain to sustainable water management in the value chain. The aim of the document analysis to exert answers from the relevant text and analyse the potential impact of the Globalgap IFA standard and Spring standard applied by Nature's Pride. The documents are accessible from the Standard provider Globalgap's webpage. According to O'Leary (2009) it is important to consider whether the documents can answer what we are trying to find out. This is of especially high importance when analysing a small number of documents, however this is mediated by the fact that the document analysis is a supplement to data from interviews and correspondence. Also these documents are pointed out by actors in the value chain as the relevant policy to ensure compliance with sustainable water management, which makes them relevant to analyse, independent of their ability to give full or satisfactory answers.

O'leary's work plan for document analysis also reminds us that it is imperative to consider the function and potential biases of the documents. Whether the researcher has the skills for apprehending the documents and to know what data one is searching for (O'Leary, 2009). Applying a priori themes to the text will ensure that I get information on the relevant data. On the issue of skillset I must state in the analysis if there are parts of the document that are too technical or otherwise incomprehensible to identify potential shortcomings of the analysis. Similarly, a proper description of the characteristics of the documents will be written in the document analysis. When analysing the text from the documents I referred the corresponding 'Globalgap IFA General regulations and 'Spring general rules' and other supportive documents from Globalgap in clarifying interpretation of instrumental words or the described functions, these documents are specified in annex A.

The theoretical basis for the document analysis is based on the approaches described by O'Leary (2009) and Bryman (2012). Owen's 2014 article on document analysis in policy analysis has also been instructive. Owen describes the use of a conceptual framework guiding the research and the use of analytical memos to help in the interpretative act.

### *Coding and analysis*

Owen (2014) describes the process of coding as similar to assigning a title, using words or salient short phrases that signal its content. This coding is a part of the interpretative process and can make room for emerging themes.

I applied a thematic analysis where thematic areas and coding is used to identify important themes and corresponding sections of text. By "interviewing the document" I address the similar questions as to Nature's Pride to the document to elicit its answers. Constructing a priori themes based on the relevant parts of this interview guide allowed me to search through the text to highlight presumably relevant passages. Combining skimming, reading and interpretation to exert the relevant content of the expansive documents have helped me identify the relevant parts of the text for eliciting answers to the questions through analysis.

The themes drawn from the interview guide were: due diligence, flow of information, water management and ecology (environmentalism). In an iterative process I formed the new theme 'efficiency' in the coding process; it also became evident that the theme 'flow of information' was of less relevance to the analysis, and the theme 'due dilligence' was relevant foremost in the sub theme 'abiding to law'. I applied several sub-themes under 'water management' and 'ecology' when coding the text.

In the document analysis I started by identifying the sections from the itinerary that most likely contained relevant text to answer my questions. I read these sections in detail and highlighted areas of importance as pertaining to the five themes (due diligence, flow of information, water management, water and ecology and flow of information). I used supportive documents supplied from the document publisher Globalgap to clarify unclear passages as far as possible and read through all supportive appendixes referenced. Data from the supportive documents were included in analytical memos together with highlighted text from the guideline and annexes.

After carrying out this deliberative reading and skimming of the document I searched the document for key phrases pertaining to the five themes such as the theme “titles”, synonyms and related phrases. E.g. for ecology I also searched for ‘environmental’ and ‘sustainable’. This was done to make sure there were no relevant passages in the parts of the document that were initially identified as less likely to be of relevance. The searches confirmed that the relevant text was contained in the sections identified from the itinerary. After conducting the searches and adding additional highlighted text to analytical memos this information was condensed into answers for the thematic questions as are written out in the document analysis.

Bowen (2009) advise that the researcher should not simply lift words and phrases out of the text to throw into the research report. I have therefore attempted to extract the overall meaning while still giving room for sufficient detail in the document analysis, aiming at evaluating the documents in such a way that empirical knowledge is produced.

### 2.3 Ethics

Harm to participants, lack to informed consent, invasion of privacy and deception are important concerns for ethical design of social research according to Bryman (2012). In this study there is limited reason to stipulate harm to the participants. As the participants are informed professionals in the relevant field, and have been informed about the goal of the study and have consented to participating, one could also assume they have done independent risk assessments of their participation. The fact that the respondents have been informed by the goal of the study and that the respondents have considerable insight into the topic and the field of study also limits the possibility of deception.

As the information gathered is not considered personal information the study is not registered with the NSD. The informants are anonymized as they represent their enterprises and organizations.

There is a risk that thesis will be condoning, or be read as condoning, unsustainable practices and by that protracting environmental and possible social hardship. This could be countered by clearly stating the limitations of my analysis and the extension of my conclusion. There is however relatively little focus on this topic outside the milieu of the stakeholders, so there is relatively little risk that any stakeholders would find such misrepresentation beneficial.

There is of course also a possibility that the study will uncover facts or point to conclusions that may cause changes, such as stronger demands to growers, change of suppliers or other consequences. If such changes could be foreseen, extra diligence should be extended to the factual basis of these conclusions.

## Chapter 3 Conceptual and theoretical framework

Water use in avocado farming in Chile is limited mainly by three factors: national law, including the privately owned drawing rights, physical availability and value chain actors. Social pressures, corporate social responsibility (CSR) including industry standards, and reputational awareness could be influential factors operating through the value chain actors. Demand is of course also an important influence working through the value chain.

In this chapter I will present the concept value chains and some key concepts drawn from the literature. I will expand this theoretical basis by bringing in some perspectives from CSR literature and introduce the concept human Rights due diligence. Finally I will present some reflections on water use and sustainability.

The legal regime of Chile, along with the administrative implementation capacity will be presented in chapter 4. Chapter 4 also presents prior empirical literature on water management in Chile and on water management in supply chains. The value chain actors and their control regimes are described in chapter 5.

### 3.1 Value chains – information sharing and influence

Global value chains (GVC) are frequently used to refer to the string of production and transactions from producer to retailer or consumer. The terms ‘supply chains’ and ‘value chains’, often with the prefix ‘global,’ are both used to refer to the same organisational structure, often independent of the analysis of value creation or movement of physical goods. Staying close to the wording of the authors I am therefore using both terms here, leaning on the interpretation presented in the review by Bush et al (2015) that the terms have developed building on each other, and now are seen to be converging. The academic field is relatively young, dated to the early 2000’s by Hernandez et al (2014), while others note the existence of academic publications far earlier and date the uptick in frequency to the late 90’s (Gereffi et al, 2005; Ansari & Kant, 2017).

The main body of value chain theory is concerned with the constituents of the value chain. However, for the analysis of sustainability in this thesis I will like Bush et al. (2015) hold that non-firm actors are also influential for the activity in the value chain.

#### **Global value chain theory**

Bush et al (2015) describe the global value chain (GVC) as an approach refined from the earlier Global commodity chain approach. Explaining that in the focus on the ‘value chain’ the concept of ‘value added’ is implied. While stating that GVC is criticised for not taking sufficiently into consideration the coordinating role of non-firm actors, Bush et al. (2015) still hold that GVC is used to describe how vertical relations between producers and consumers are influenced by a complex of networked actors.

Yeung and Coe (2015, p. 30) describe how “some 80 % of international trade [is] organized through global production networks coordinated by lead firms investing in cross border productive assets and trading inputs and outputs with partners, suppliers, and customers worldwide”. Somewhat in contrast to Bush et al (2015), Yeung and Coe in their article argue that the studies of global production within the framework of GVC lack “a comprehensive and dynamic theory explaining how these globalization processes are actually organized” (2015, p. 30).

Yeung and Coe (2015) note the difference between producer driven and buyer driven global commodity chains. The global production network approach has a clearer focus on the network of actors around a production process. However, this approach has not extended its field of study to sustainability or environmental issues (Bush et al, 2015). Yeung and Coe notably state that “geographically situated actors are likely to adopt and pursue different strategies” (2015: p. 33)

reminding us that the driving motivation and applied strategies most likely is not similar for European buyers of avocado downstream in the value chain as for the producers upstream in Chile.

According to Spence and Rinaldi (2012) the supply chain, rather than the individual organization, is the level at which the market actors can achieve competitive advantage. This allusion to collective action is challenging in the context of differing strategies, but there are certainly ways to align values and strategies along a value chain. Auditable third part industry standards are a tool that might be applied to this end. The due diligence approach introducing shared responsibility along business links in the value chain should also generate interaction aimed at aligning values and desired outcomes.

### **Governance in value chains**

In the article 'The governance of global value chains' Gereffi et al (2005) suggest five categories of governance structures. From category one to five these have increasing power asymmetry. Using the three factors given in the article – complexity of transactions, codifiability of information, and capacity of suppliers. Whether to define the avocado value chain as (1) a market, (2) a modular value chain, (3) relational value chain, (4) captive value chain, or (5) hierarchy will be discussed in chapter 6.

On relational value chains the writers expect complex interaction between buyers and sellers, often creating mutual dependencies and high levels of asset specificity. Trust and reputation in relationships built up over time are factors that can contribute to overcome the challenge of spatially dispersed networks within this mode of governance.

For captive value chains the switching cost for relatively small suppliers of changing to other buyers are significant. Hierarchical value chains, in contrast, are categorized by vertical integration and managerial control.

The authors state, with an explicit reference to horticulture, that “global buyers can and do exert a high degree of control over spatially dispersed value chains even when they do not own production, transport or processing facilities” (Gereffi et al, 2005:82).

Arthur Mol (2015) points to the importance of transparency to empower the environmental victims vis-a-vis the market and state forces, but points to the danger of disclosure of procedures rather than outcomes. As such Mol holds that transparency practices should be held up against substantive criteria, such as improved sustainability and more effective environmental governance.

Spence and Rinaldi in their article Governmentality in accounting and accountability (2012) hold that supply chain governance could be analysed with similar concepts to governance, as what is happening is in many practical aspects the same. One key concept they suggest is fields of visibility: a lens to analyse what is being illuminated and what is potentially obscured by the information systems present. This is highly relevant when discussing sustainability governance in value chains.

The article Barriers for sustainable food retailing by Chikanova & Mont (2015) is using the label corporate supply chain responsibility, abbreviated SCR. The authors discuss retail as a change agent towards sustainable food systems and assume that market pressure or the positioning to take strategic market shares are driving retail enterprises ahead of suppliers and food producers. Chen et al (2018) is also pointing to the end closest to the consumer in the value chain as the one most scrutinized or where public criticism is most frequently targeted. This aligns with our research topic, starting the analysis with the Norwegian retailer.

How these aspects can be applied to the avocado value chain will be further discussed in chapter 6.

### 3.2 CSR

Corporate social responsibility, or CSR, is used to describe private firms' perceived duties towards society, or more loosely to encompass activities aimed at increasing societies' benefit not directly stemming from value maximization. Several writers discuss CSR with relevance to governance and sustainability in value chains. The academic study of CSR is loosely defined, as is the use of the term by private firms. The field has its clear critics (Eg Utting, 2008; Bruner & Sjøfjell, 2019), I nonetheless find that the CSR field is addressing some central questions in assessing corporate conduct.

Ansari and Kant (2017) describe the contradictory objectives of profit maximalization and reduction of environmental impacts. At the same time their broad review references examples where input reductions, that at least partly are environmentally motivated, are leading to cost reductions. Both perspectives however point to the consideration of cost when manoeuvring sustainability as CSR.

Consumer behaviour is also discussed as a motivation for CSR. Arthur Mol (2015) point to price premiums and niche markets becoming available with labels and information systems. Chikanova and Mount (2015) on the other side list lack of consumer awareness and interest about sustainability as a barrier for supply chain sustainability. However, in their article on sustainable food retailing these writers hold that the supply chain sustainability agenda is not objectively defined by the company but is socially constructed by the corporate external environment.

Both Mol (2015), Parella (2019) and Utting (2008) include stakeholders, as the actual or potential environmental victims, or stakeholders by other means of involvement when addressing corporate responsibility. Parella (2019) include the consultation of stakeholders as a necessary component of human rights due diligence. Mol (2015) hold that transparency will only lead to increased sustainability if those meant to use the information have access to and literacy regarding the information.

Writers such as Peter Utting (2008) and Simon Pahle (2010) along with Bruner & Sjøfjell (2019) all agree that voluntary CSR approaches have not succeeded or are insufficient to obtain sustainable value chains. Utting writes that "CSR has largely failed in terms of scale, scope and the development of effective instruments" (2008, p. 963). Bruner and Sjøfjell underline the need for extra-corporate legislation and point to the example of the French law obliging companies to prevent abuses in their corporate groups and value chains.

Utting goes on to state: "In the field of environmental management, attention has tended to focus on eco-efficiency, that is, the ratio of energy use or emissions to growth or unit of production, rather than absolute reductions." (2008, P. 964) Similarly, he states that Codes of conduct often ignore macro impacts.

The aspects of cost efficiency or affordability of environmental policies, consumer pressures, stakeholders and the efficiency of voluntary measures will be discussed in chapter 6.

### 3.3 Human rights due diligence - The business' responsibility to respect human rights

The United Nation's Guiding principles on business and human right (UNGP), developed by Special representative John Ruggie, was endorsed by the Human Rights Council in June of 2011 (UN, 2011). The Guiding principles outline the responsibilities to "Protect, Respect and Remedy" human rights by states and businesses. The principles consist of three pillars, the state's duty to protect human rights, the enterprises responsibility to respect human rights and the access to remedy for rights holders. In the UNGP framework human rights due diligence is one component of a complex system. The human rights due diligence focus on the need to prevent and address adverse human rights impacts caused by the business or contributed to through business links (Ruggie & Sherman, 2017). Article 17 of the UNGP state that a human rights due diligence should include "assessing actual and potential human

rights impacts, integrating and acting upon the findings, tracking responses, and communicating how impacts are addressed” (UN, 2011, p. 22).

The OECD guidelines for multinational enterprises (OECD, 2011) is committed to by all OECD governments, including the OECD members Chile, Norway and the Netherlands. These guidelines were amended in 2011 to incorporate the *protect, respect and remedy* approach of the UNGP on human rights. The guidelines are non-binding principles promoted by OECD governments. These guidelines have a more detailed description of due diligence and state that “Potential impacts are to be addressed through prevention or mitigation, while actual impacts are to be addressed through remediation.” (OECD, 2011, p. 23). Both the UNGP and the OECD guidelines clearly state that if identifying a risk for adverse impacts the business should take the necessary steps to cease its contribution.

The OECD and FAO have collectively made a guide for due diligence in agricultural based value chains (OECD/FAO, 2016). The guide is a 5 step framework covering (1) establishing strong management systems, (2) identifying, assessing and prioritising risk in the supply chain, (3) design and implement a strategy to respond to identified risks, (4) verify supply chain due diligence, and (5) report on supply chain due diligence. The guide clearly state that risk assessments should cover environmental, social and human rights impacts, and that ‘red flags’ could induce the need for enhanced due diligence. The guide also allow for downstream enterprises the practice of assessing the due diligence carried out by upstream suppliers as a replacement for conducting their own full due diligence of the production.

The Due diligence approach have been criticized for creating confusion as it can be seen as both a process to manage business risk and a standard to relieve the enterprise of obligation (Bonnitcha & McQuodale, 2017). It is commonly stated that without a human rights due diligence the company does not know how and if they are violating human rights, and implicitly the company that does not know cannot meet the obligation to respect human rights, for instance in this statement by Ruggie and Sherman (2017, p. 924) “Simply put, without conducting human rights due diligence, companies can neither know nor show that they respect human rights and, therefore, cannot credibly claim that they do”. In this understanding the human rights due diligence can be seen as the one procedure that relieves the enterprise of absolute liability for adverse human rights impacts, and as such I hold that Bonnitcha and McQuodale hold a valid point. There are other possible approaches to respecting human rights who would meet the same strict criteria, however that is not a practicable approach, the human rights due diligence have gotten wide uptake and are now implemented by multilateral organisations such as the OECD (OECD, 2011) and the EU (EU, 2020). Ruggie and Sherman also answer the critique by showing to a practical reality “we have found that conducting human rights due diligence can be difficult, especially in complex global value chains, but not because of confusion about its meaning under the Guiding Principles” (2017, p. 925).

The UNGP explicitly state that the responsibility to know and show covers adverse impacts enterprises are linked to through business relations. The gauging of human rights risk should draw on internal and possibly external human rights expertise. The framing of risks and not only ex post facto adverse impacts implies the need to project and consider possible and likely future adverse impacts. The guiding principles state that expectations of the response to prevent and mitigate risk varies with the connection; whether it is a direct part of business and the business could be said to cause the impact, or if they are only contributing to the impact, or only linked to the impact through a business relationship with another entity. When a business is only linked to adverse impacts or risk the enterprise’s leverage over the relevant party is of importance; with larger influence comes larger responsibility. The guiding principles also state that the enterprise should consider ending the business relationship if one does not have leverage to influence the situation. (UN, 2011)

While the assessment of risk is an evident part of the due diligence approach, the requirements for transparency are differing somewhat between different approaches. The OECD guidelines are requiring transparency about what risks are assessed (OECD, 2011), The UNGP however demand that enterprises communicate how impacts identified by the due diligence are addressed (UN, 2011). Academics like Kishanti Parella describe the need for broader transparency to make due diligence an instrument suited for addressing social and environmental equity.

Parella (2019) states that meaningful human rights due diligence should include four aspects 1) monitoring human rights, 2) reporting on social and environmental performance, 3) undertake impact assessments and 4) consulting with groups whose human rights they can harm. In an earlier article Parella (2014) considers the possibilities of deceit, or manipulation, in due diligence processes including multinational value chains. Legal frameworks that mandate due diligence reporting are dependent upon consumers or non-governmental organisations calling out manipulation or exercising their leverage to encourage firms to change practices, according to Parella (2014).

Parella (2014) also critique the asymmetries of risk that due diligence does not address, or the fact that the reputational risk on the buyer does not extend to the upstream seller. I agree that due diligence is not a tool for assessing or addressing market imbalances as such. The fact that a large multinational buyer could end the business relationship upon detecting human rights risk or adverse impacts in the operations of a producer is a systemic disparity. However, both the UNGP and the OECD Guidelines for multinational enterprises have formulations leaving room for considering the wider impact of ending a business relationship. It will in almost all instances also hold a cost for the buyer to change suppliers. Although the reputational risk is described as largest for the companies selling products to consumers, there are clear marketing risks also for suppliers such as agricultural producers to suffering reputational damage. As an example it is thinkable that the reputational risk extending to Norwegian grocery sellers related to poor environmental conditions in producing countries as Chile extend through the value chain to Chile, making producers exposed to the same reputational risk. I hold that Parella's critique of due diligence ability to address systemic asymmetries is relevant, however it must be considered vis a vis empirical cases and the actual caveats that exists in the due diligence frameworks.

The human right to water is forming a basis to apply the UNGP due diligence approach to water management in the avocado supply chain. The OECD approach to due diligence is more directly including environmental impacts in their framework, with a separate chapter on environment, stating inter alia that enterprises should collect and evaluate adequate and timely information on environmental impacts (OECD, 2011). The promised EU due diligence legislation will also combine consideration of impacts on the environment and human rights (EU, 2020).

Based on the above description of due diligence we will consider the control regimes of the supply chain organisations and contrast their practice with the expected procedures. I will specifically look for activities assessing human rights impacts, monitoring human rights, acting upon findings, consulting with potentially affected groups, and reporting and communicating about these processes.

### 3.4 Water use and sustainability

#### **Concepts of sustainability**

There is no one obvious definition of sustainable water management. Seeing sustainability as a combination of environmental, social and economic factors there are several at times contradicting ideals. The gradual 'more sustainable' is frequently used about anything with reduced environmental impact. The Brundtland commission introduced a forward-looking perspective on sustainable development (World Commission on Environment and Development, 1987).



Building on the Brundtland commission understanding Bruner and Sjøfjell (2019) in their legal discussion on corporate law, governance and sustainability apply a strict understanding of sustainability: “[A] practice can accurately be described as “sustainable” only if, at a minimum, it could be pursued indefinitely without further degradation of the environmental, social, and economic ecosystems on which we depend for our survival.” (2019, p.1)

In the Brundtland commission however the aspects of environmental protection are moderated by the need for increased economic activity, aimed at increasing welfare. The commission in its forward-looking perspective also flagged the need to curtail consumption in developed countries to allow for needs to be met in developing countries. The stricter definition applied by Bruner and Sjøfjell is echoed by the policies of Rema 1000 and Bama in their Codes of Conduct, explicitly stating that there should be no degradation of nature, locally, in their production chains (Rema 1000, n.d. a; BAMA, n.d. b). This is however not a straightforward position as the environmental impact from farming frequently is manifest prior to suppliers entering into the value chain of Rema 1000. What baseline to measure degradation of the natural environment from is therefore a key issue. The statement, specifying degradation of local environment, could be seen to omit cumulative impacts of similar activity. We will look more thoroughly at the implication of these policies in chapter 5.

We should also mention the development of the resilience perspective in environmental conservation that has gotten increased attention after the introduction of the concept planetary boundaries (Holling, 1973; Steffen et al, 2015). Resilience theory is focusing on environmental integrity, but within states with some plasticity; although with clear, but not always known boundaries.

### **The human right to water**

The human right to water is stated by the UN Resolution A/RES/64/292 adopted by the General Assembly in 2010 (UNGA, 2010). The resolution clarifies the absolutely necessary role water has as a precondition for all human rights “Acknowledging the importance of equitable access to safe and clean drinking water and sanitation as an integral component of the realization of all human rights” (2010, p. 2). The human right to water is based upon the human need for consumption and sanitation, but also domestic uses as enshrined in the human right to subsistence. The human right to water could be defined as the social part of sustainable development; to state the explicit human right nonetheless is of importance when analysing businesses responsibility to protect and respect human rights.

### **Water resource management**

The more recent UN Sustainable Development Goals (SDGs) have goals for water, ending hunger, and sustainable use of terrestrial ecosystems among its 17 goals, all relevant to the development of avocado farming in Chile. SDG 6 on water has a broad range of targets encompassing topics such as: Water use efficiency, water access and water quality. But also implementation of integrated water resource management and to protect and restore water-related ecosystems (UNGA, 2015).

The Integrated water resource management (IWRM) is the preferred system by the UN and World Bank for water management and has been promoted since the World summit on Sustainable development in 1992. The system is intended to handle both social and environmental needs as well as facilitate economic utilization within a water catchment. (UN, 2014) There are however challenges to the equity and effectiveness of the IWRM (eg. Van Eeden, 2014; Allouche, 2016).

The SDG target on water related ecosystems and the assigned indicators are focused on biophysical aspects often associated with environmental protection. It is recommended by UN Water to include ecosystem health when following up SDG 6, and points to the situation before large-scale impacts were experienced by the ecosystem as a baseline. (UN Water, n.d.)

When it comes to sustainable water management as it relates to avocado farming in Chile, the consideration of water availability in the catchment is an important factor. However, within the limited scope of this master thesis we will not go in depth into analysing the metrics or definitions of catchment sustainability, beyond the overall observations on water stress below. In the catchment, multiple human uses, upstream and downstream, depend on the same water within a catchment, and these uses impinge on the water left for ecological purposes.

### **Water stress and environmental flows**

A basic and widely used metric for water stress is total annual runoff as m<sup>3</sup> water available per capita. This can be used to define the categories: no stress, stress, scarcity and absolute scarcity (Brown & Matlock, 2011). Another standard listed by Brown and Matlock in their 2011 review is the Water stress indicator developed by Smakhtin et al (2005). The Water Stress Indicator recognises environmental water requirements and subtracts environmental water requirements from the available runoff.

In a review considering scarcity metrics and the SDG for water, Vanham et al (2018) underline the need for a water stress indicator to not only incorporate environmental flow requirements, but to have a relevant temporal and spatial disaggregation. The authors also problematize that the SDG indicator 6.4.2 on water stress, although incorporating environmental flow requirements, only measures blue water scarcity. Vanham et al go on to differentiate population driven water shortage and consumption driven water stress.

Environmental flow is defined by Vörosmary et al as “the water requirements needed to sustain freshwater ecosystems” (2005, p. 169). The impact on ecosystems by lacking surface water is an important sustainability impact of agricultural consumption.

### **Water footprinting**

Water footprinting is a concept developed by Arjen Hoekstra in 2002 that has since proliferated. Hoekstra and colleagues has outlined the Water Footprint approach in several publications (Eg. Hoekstra et al, 2011). Water footprint assessments, or water footprinting, is a method to analyse water consumption on a more detailed level than counting of withdrawals. Water footprinting is intended to measure the consumption of water by product, or by consumer, and is integrated into the work by Hoekstra and Chapagain on virtual water (2008).

Water footprinting is assessing consumption of both blue water, water withdrawn from surface sources or pumped from groundwater, and of green water, the natural occurring precipitation. Hoekstra also outline grey water consumption, as the amount of water affected by, or needed to dissolve runoff pollutants (Hoekstra et al, 2011). The focus on water footprinting rather than withdrawals means that water returned to the catchment could be subtracted from the blue water footprint. The addition of a green water footprint to the water withdrawals opens up for consideration of alternate uses of the naturally-occurring rainfall. Additionally relative changes to recharge, an increase or decrease of water returning to surface streams or groundwater aquifers is a part of the water footprint. The focus on grey water underlines the important fact that also non-consumptive uses can limit the future use of water, for both ecosystems and socio-economic uses.

### **Watersheds, groundwater and wells**

Water resources are often treated as a volume available within a water shed, or a catchment, the spatial area that drains into the same waterway descending towards the coast. The watersheds can consist of one or several separate or partly connected aquifers. Aquifers are geological strata underground that hold water. Water from aquifers can reappear as discharge on the surface and surface streams can be hydraulically connected to the aquifer. Water from aquifers can be extracted

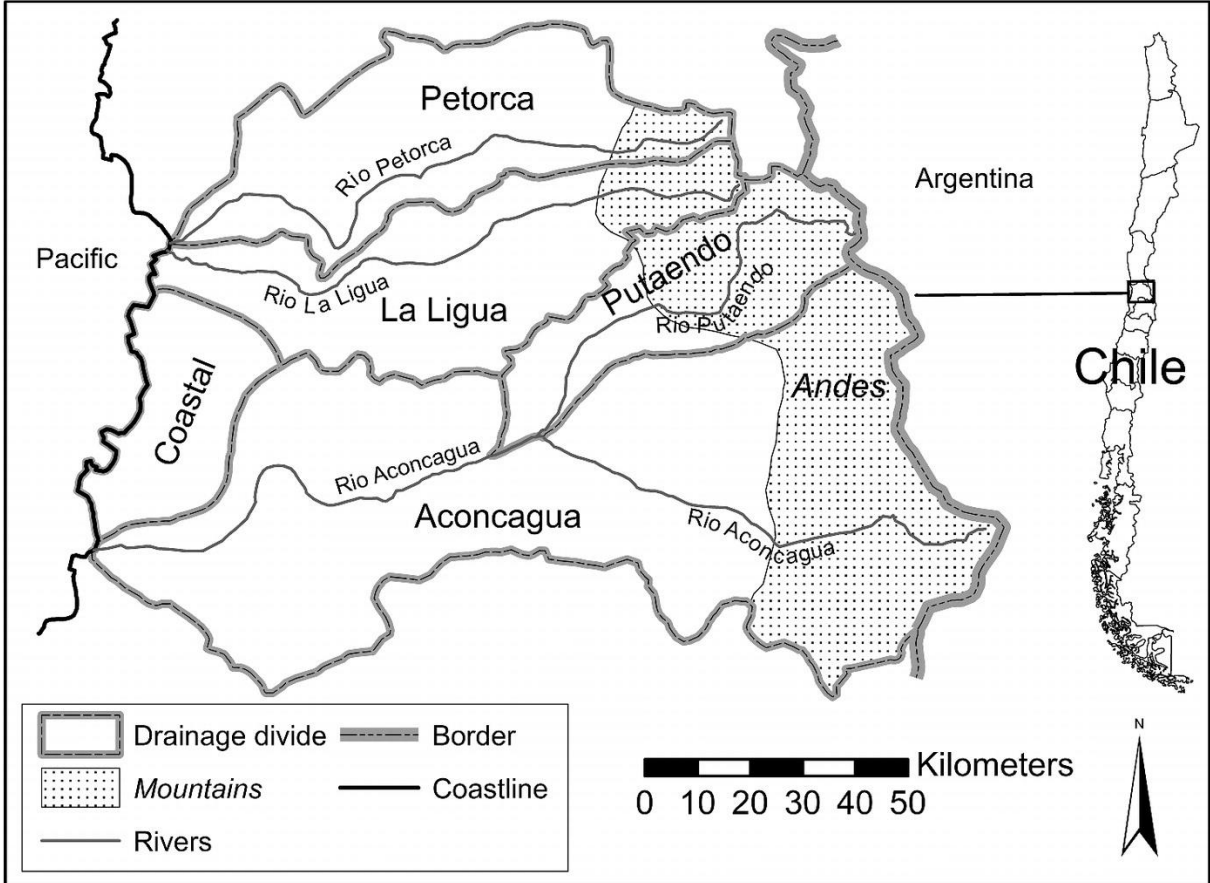
also through wells. The extraction of groundwater will reduce discharge from the aquifer. (Wada et al, 2012; National geographic society, 2019).

Groundwater is recharged by precipitation. Aquifers can become depleted if used at a faster rate than it recharges (National geographic society, 2019). Vörösmarty et al (2005) differentiate between renewable groundwater use and non-renewable, or non-sustainable, groundwater use.

# Chapter 4 The Chilean water management regime and prior empirical literature

## 4.1 Legal and administrative conditions water governance, Chile

The National legal and administrative regulation of water for farming in Chile  
 In this section we will outline the legal and administrative framework for water management in Chile. The section is primarily based on research presented by Margot Hill in her volume on climate change and water governance in Chile and Switzerland (Hill, 2013a), and Jessica Budds’ seminal articles on water management in Chile (Budds, 2004; 2017; 2020). When discussing the water management regime the writers focus on the watersheds Petorca, La Ligua and Aconcagua. Hill is writing on the latter, southernmost, while Budds’ articles are describing the two northernmost.



MAP 4.1: The watersheds for the rivers Petorca, La Ligua and Aconcagua, in Valparaíso region, north of Santiago, are important avocado growing valleys. (source: Frederiksen, 2016)

### Legal regime

The Chilean state is relatively well developed and has strong regulation of water rights and other environmental legislation. Chile is a party to the Convention on biological diversity and adopted a national biodiversity strategy in 2010 (CBD, n.d.). However, the Chilean water law is based on the constitution inherited from the Pinochet era, and has a very strong focus on private ownership rights. Private water rights, in the form of concessions allowing exclusive use, have in fact existed since the colonial era. The current water code is mostly unchanged from the 1981 Water code created by the Pinochet regime. The code is strongly neoliberal, in line with the overall political-economic framework of Pinochet’s regime (Bauer, 1997; Budds, 2004). Activists are now hoping that the constitutional process, prompted by the 2020 landslide referendum, will make way for a water code made on a different basis (Heinrich Böll foundation, interview, 2020).

Water rights apply to all flowing surface water and some groundwater resources (Budds, 2004). The Drawing rights is divided into various categories such as continuous- and non-continuous, and consumptive and non-consumptive. Further there are provisional water rights which are handed out when water volumes are deemed scarce (Hill, 2013 a). In the Chilean law drawing rights for water are defined as private property that is owned and can be sold independent of the land. The Water rights are supposed to be registered in the land registry by the rights holders. (Budds, 2004)

Environmental Law in Chile does provide for the protection of water, however the general legislation is scattered. Environmental Impact Assessment (EIA) is the main tool for protection of water. The EIA system is criticised as enforcement practices are nearly non-existent. Additionally, ecological flows are now included in the water code, but only with effect for new rights, which there in many regions are none of. The Chilean legal framework does not take account of IWRM (Hill, 2013 b).

In an assessment published by the OECD in 2015 the organisation concludes that the obligation to consider environmental aspects on new drawing rights are of marginal importance. Parallel to this it is stated that there are no requirements for freshwater biodiversity or terrestrial biodiversity when defining available water resources. (OECD, 2015)

A review of the the water code in 2005 obliged the *Direcion General de Aguas* (DGA) to consider environmental aspects in the process of establishing new drawing rights. The reform sought to balance the public interests and the rights of private individuals (Pedersen, 2006). The obligation to consider environmental aspects on new drawing rights can appear to be of marginal importance given the extent of existing drawing rights. Contrary to this new obligation the OECD in their country profile on water resource management in 2015 states that there are no requirements for freshwater biodiversity nor terrestrial biodiversity when the DGA is defining the available water resources (OECD, 2015).

The Chilean water law and management are highly contested. The articles by Budds (eg. 2004, 2020) is clearly critical of the Chilean water regulation, and the effects of the market based approach. Hill (2013 b) is also describing clear limitations of the implementation of the system. The neoliberal market approach is also applauded by some scholars such as Bauer who sees the Chilean privatisation as a model for international reform in the face of water scarcity (Bauer, 2004). Jessica Budds' work on water in Chile was a cornerstone in the Danwatch Exposé that will be presented towards the end of this chapter (Danwatch, 2017).

### **Administrative bodies**

Water management is scattered through several government bodies and ministries. Both the Ministry of mining, the Ministry of energy and the Ministry of public works are holding part of the responsibility, as well as the environmental ministry. The *Direcion General de Aguas*, The General Directorate of Water, is the main administrative body for water rights. The *Direcion de Obras Hidraulicas* , Directorate of hydraulic works, is responsible for aquatic infrastructure. (Hill 2013 B)

As a means of deregulation water management is to a large extent delegated to the water rights owners through the local vigilance committees. The law provides for organisation of vigilance committees where more than two users share the same watercourse. The committee is responsible for policing water extraction. If no committee is formed the responsibility formally rests with the DGA (Hill, 2013 b). Hill (ibid) state that water management is intended to happen in the private sphere and driven by private interests. In some instances supervision and monitoring of availability is also delegated to the vigilance committees (Budds, 2017).

The DGA is responsible for assigning water rights upon application. The rights are given freely if there is available water to assign. The DGA is also tasked with keeping a consolidated oversight of the

water drawing rights. However registry of water drawing rights are kept at local property registers, but only formalised and relatively new rights are recorded here, meaning that there was no record of all existing rights when Jessica Budds in 2004 wrote 'The political ecology of water in Chile'.

The DGA is responsible for defining available water and monitoring water availability. When calculating water use the DGA is applying a 'usage factor' to water rights which is an internally estimated approximation. According to the assessment by Hill the DGA is also criticized for setting the baseline based on a single very wet year. (Hill, 2013 b)

Both reserachers Budds and Hill find the performance of the DGA to be wanting. Their perspectives will be expanded upon in the section on current empirical literature below.

### Water rights administration

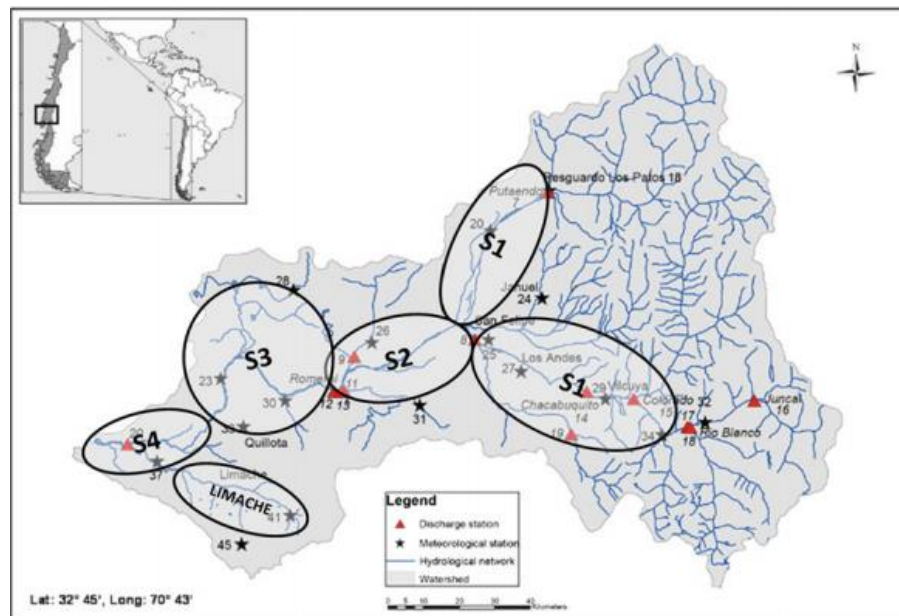
There is no payment for water once you hold a water right. There might be payments due for water infrastructure to a canal association or other body, but generally, there is no fee for the use of water once the right is acquired (Hill, 2013 a). As for the case with avocado plantations, many hold their own water infrastructure.

According to Budds (2004) nearly all available water in the dry season had already been allocated by 2004, and as much as 95 % of available surface water rights had been allocated. Due to the exhaustion of surface water rights the use of groundwater rights has increased since the 1990s.

In scarce or depleted zones determined to be 'restricted' there is still a possibility of assigning 'provisional' rights. Provisional rights may turn permanent after five years if demonstrated to not impact the aquifer. (Hill, 2013)

Budds state in an interview with Danwatch that the DGA started handing out temporary licenses to groundwater as the rivers of La Ligua and Petorca became empty in the late 90s and early 00's (Danwatch, 2017).

Vigilance committees are intended to coordinate users across the watershed. Budds (2017) described these committees as formal constructs with little interaction from the water users. The Aconcagua watershed is divided into four vigilance committees (see map 4.2). The vigilance committee is responsible for coordination on a section of the waterway. Non-agricultural users are not required to take part in the committee (Hill, 2013 b).



Map 4.2 Aconcagua Basin, Valparaiso, Chile, showing the divisions covered by the different Vigilance committees. ( Map reference DGA 1996, in Ribbe and Gaese 2002)

### Regulative capacity

Under-financing of public institutions for water management like the DGA and the transfer of responsibilities to the Vigilance Committees have left the DGA with weak capacity. Along with the weak capacity there are issues of lacking transparency and accountability according to the review by Hill (2013 b). Hill states bluntly that “the weakness of enforcement and capacity in the DGA means that provisions relating to protection of aquatic ecosystems can effectively be ignored at the basin level” (2013, p. 141). Hill also takes note of criticism directed at the lack of regular monitoring in her assessment of the water management regime in Aconcagua.

After the controversies of overconsumption in Petorca the DGA carried out extensive inspections in the region in June 2018. An official of the DGA stated that it could be necessary to revoke some provisional water rights after these inspections (Vásquez, 2018).

The avocado industry is an important industrial actor in Chile and the plantation owners are considered to have considerable political influence (Heinrich Böll foundation, interview, 2020). As a contrast to the constitutional equality before the law Hill (2013b) points to the fact that some individual’s or company’s bargaining power could outweigh the rule of law. The number of fines given for over extraction, and the view that the plantation owners rather pay the fines if caught, than alter their illegal extraction (Heinrich Böll foundation, interview, 2020) alludes to the same power imbalance.

### Industry standards on water management

The national association for avocado producers in Chile, named the ‘Comitee de Paltas’, is branding Chilean avocado as environmentally friendly and recommending the *Globalgap standard* be used (Comitee de paltas, n.d.). The Globalgap Integrated Farm Assurance (Globalgap IFA) is a industry standard for farming practices developed by the Globalgap company. The company uses the form GlobalG.A.P. as company name and trademark, throughout this thesis the company and its standards is referred with only the initial letter capitalised. The Globalgap IFA is also the standard Nature’s Pride is requiring their suppliers to be certified through. The standard has provisions for a wide array of aspects on farming, including water management. Nature’s Pride has an additional pilot introducing the water management extension to the Globalgap IFA, named SPRING, short for Sustainable program for irrigation and groundwater use. We will go into detail about the Globalgap IFA and SPRING in chapter 5.

Nature’s Pride also have requirements on environmental performance and water in contractual documents, these however are less detailed than the third party standards. Outside of the Globalgap framework the Norwegian downstream companies have supplier codes of conduct that hold relevance for water management of the suppliers. This is however not communicated outside the standards communicated by Nature’s Pride, which is the buyer in Chile. The control regimes of the companies in the value chain and how they are applied will be discussed in chapter 4.

Due diligence expectations based on the UN Guiding Principles and OECD guidelines for multinational enterprises also hold relevance in terms of consideration of risks for the human right to water and other environmental adverse impacts that are expected under these frameworks.

### 4.2 Prior empirical literature (alternate heading?)

In the following I will present material from three academic articles on water management and sustainability to present the state of empirical research relevant to the field of study. The three studies are Jessica Budds’ (2017) *What water market? Responses to drought in La Ligua, Chile*, Margot Hill’s (2013a) *‘Water governance in the context of IWRM: Chile’*, and Katherine Christ’s (2014) *‘Water management accounting and the wine supply chain: Empirical evidence from Australia’*. The two former have the field of governance and interaction in Chilean water

management as their field of study and the latter has the actions of business organisations as its field of study. Budds and Hill represent complementary views on the Chilean water management.

I find Christ's approach illuminating also for my case in the way she extracts hypotheses from the academic literature on environmental business management and test them towards the Australian sample. The focus on water management accounting also adds a new facet to corporate water governance from what have been presented in section 3.4, in the previous chapter.

### What Water Market?

Budds' article *What water market? Responses to drought in La Ligua, Chile (2017)* is showing how the legal and institutional framework for water management in Chile has formed the response to the water challenges.

Presenting La Ligua, a small valley at the foothills of the Andes, in the Petorca province, Budds describes how the agriculture of the valley have developed into export oriented agriculture dominated by avocado plantations from the 1990s onwards. The article, which mainly focus at the legal ramifications and institutional response, highlight the droughts in 2008 and 2014-2015 as events that forced responses from the state. She also clearly states how the situation deteriorated as La Ligua river dried up in 2009 and water levels in wells dropped to 80-120 meters in 2013 from previous relative shallow 5-20 meters in the 1990's.

Budds' conclusion in the article, as insinuated in the title, is that the ideal situation of a market solving challenges of shortage, did not materialize under the sustained period of water shortage and scarcity. Budds hold that the neoliberal water law is assumed to solve challenges of scarcity through interactions in a market, and report that there was very little trading of water rights. There was some trading of water volumes, but the author does not consider these to constitute a level of trade relevant for the situation.

Parallel to this low or lacking response by private actors Budds show how the state had built down its capacities to monitor and manage water resources, corresponding to the same neoliberal ideal of slim government. Supervision had been attributed to water user organisations, and in the case of La Ligua valley the Vigilance committee never existed prior to DGA's mandating of one in 2011. Under the Vigilance committee, seven groundwater committees were mandated, responsible for monitoring legal wells. Prior to this DGA had in 1996 carried out a hydrological study which showed that the aquifers available water volumes were already too small to meet the demands, the conclusion of the study was therefore manipulated. Groundwater permits were handed out until 2004, however the illegal extractions happening were estimated to a similar amount as the legal extractions, according to Budds' research from 2009.

The year after the establishment of the Vigilance committee and the groundwater committees the valley was declared a disaster zone in 2012, lasting until 2014. The entire Petorca province has been declared a drought zone with minor holdups from 2010 to 2016.

The drought have of course not only affected agriculture, with several avocado farms reducing productive area partly or even fully, also local communities wells have run dry. As a response to the lack of household water and drinking water the state have supplied water trucks to maintain the right to water. In line with this Budds points to the states reaction to be based on short-term relief measures rather than addressing the causes of the water deficiency. The state-led response also introduced infrastructure measures, but solely to increase supply, rather than to manage demand. Importantly Budds also reports that no of the persons she interviewed considered the state's expropriation and compensation for water rights to be a viable alternative. Budds points to the discursive role of the law as well as its strict legal function, in forming what solutions are possible to



discuss and how the road ahead is envisaged. The author conclude that the current paradigm is driving attention away from the human causes to drought and support a system of agricultural development which is inequitable and unsustainable.

#### Water Governance in the Context of IWRM: Chile

Hill's Water governance in the context of IWRM: Chile (Hill, 2013 b) was published as a chapter in the monography Climate Change and Water Governance (Hill, 2013 a). The volume describes and compares water management systems in a canton in Switzerland and in the Aconcagua watershed in Chile. As well as physical descriptions of the watershed and hydrological conditions in previous chapters in the book the assessment is infused by stakeholder perspectives and expert interviews referenced throughout the text. The volume focuses on adaptive capacity and water governance in two regions where water availability is influenced by climate change.

The chapter 'Water governance in the context of IWRM: Chile' is dense with description of the Chilean water management and has generously contributed to the section on the Chilean legal regime above. The chapter is the result of work in the ACQWA<sup>1</sup> project coordinated by the University of Geneva. Highly relevant in the context of this thesis is the fact that the case area is the Aconcagua river watershed.

The text is built up of a short background with the development of water rights in Chile before the main part constituting of the assessment. After conclusions from the assessment there is also a summary of Chilean and Swiss governance in the IWRM context. Mirroring the original text I will devote the lion's share of attention to the description of the regime in Chile. Some of the information presented here is naturally closely linked to the information presented in the section above about the legal and administrative regime in Chile, I have tried to minimize duplication while still giving a fair presentation of the assessment done in the original text.

Hill is already in the introduction to the chapter clear about the shortcomings in governance: lack of transparency, lack of accountability and weak capacity of the DGA are listed and foretell the main lines in her assessment. She is in line with Budds' latter article pointing to the market focus in water management as a reason for limited capacity in public institutions.

The first section of the chapter outlines briefly the historical background of today's situation, pointing to agrarian reform in the 1960's and the fact that most landowners in the Aconcagua originate from this period. The land and the water rights that came along with it were already held when the 1981 water law was established. The fact that there were no obligation to register water rights in this period has contributed to the lack in local and central registries. The section also list and explain the different forms of water rights that exists in the regime, the most relevant of these are listed in section 4.1 above.

#### **The assessment**

The main part of the chapter, the section titled 'Chilean assessment' is divided into four subsections, which of the last, IWRM, again has subsections. The first subsection goes to state that even with the constitution enshrining equality before the law there is unequal access to justice. Discussing accountability the subsection goes on to state that instances of corruption had been reported by stakeholders. An example of the circumvention of the EIA of a motorway project in Aconcagua, resulting in damaging impacts on the Aconcagua River is succinctly chosen. The lack of capacity by the DGA to stop illegal water extraction and the referencing of previous studies concluding that some

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<sup>1</sup> The **ACQWA** project (Assessing Climate Impacts on the Quantity and quality of WAter) is a large-scale integrating project, with 35 partners and a budget of EURO 6.5 million. The project, initiated and coordinated by the University of Geneva, Switzerland, began formally on October 1, 2008

firms or individuals bargaining power outweighs legal norms are further strains to accountability and the equitable application of law in water governance in Aconcagua.

The subsection addressing transparency lists the formal responsibility of the land registry and the DGA in holding and compiling registries of water rights. Hill is not here listing any of the above mentioned shortcomings of this regime but cite stakeholders referring to the water market as a 'dark market'. The author also conveys stakeholders' criticism of lacking transparency by the land registry and even by judges in legal processes concerning water rights.

The subsection on participation informs that the EIA process is the main principle for participation. Hill points to the subversion of civic participation in Chile by consecutive regimes, but state that there is a seeming upturn in civic participation. She rounds off by pointing to a new public participation law opening for more participation in a wide field of plans and policies. She is by this excluding all interaction between rights holders in the Vigilance committees from the discussion on participation, possibly alluding to a divide or stratification between the general population and the land owners and water rights holders. With the significant criticism EIAs have gotten these subsections are severely compacting the critique of the governance regime for water management in Chile, with the new participation law as a rare exception, pointing to some possibility for improvement in the situation.

Discussing IWRM in the last and most expansive subsection of the assessment Hill states that "the legislative framework in Chile does not take account of IWRM or even water resources management" (2013b:149). With a caveat mentioning a bilateral agreement with Argentina Hill makes clear that IWRM is not present in the Chilean regime, adding that even water resource management seems left out of the legal framework.

The IWRM subsection on water allocation and prioritisation list details on the water rights regime. Hill explains that the formal rights and markets system precludes any political or externally defined prioritisation of water, the exception being official periods of drought. In situations with a drought there is legal mandate to make an intervention in the river basin. However as we saw from Budds' (2017) probing of the drought response in La Ligua the state's legal ability to intervene does not prescribe an environmental or even equitable outcome. Hill also reference interviewees stating there is little incentive for farmers to reduce water consumption in situations of scarcity, rather to keep the use rights for years when there is proportional reduction.

The IWRM subsection on protection of ecosystems bluntly state that environmental and ecological impacts mostly are not considered. Ecological flows are now mentioned in the water law, but this is only relevant for new water rights. And there are no new water rights in central and northern Chile, including the Aconcagua. The environmental law is covering ecosystem protection, but the main pillar is the EIA which is a hugely flawed instrument in Chile.

The next IWRM subsection explains how the institutional fragmenting, and power imbalances, are hampering water management in Chile. She also details how the splitting of the Aconcagua basin into four vigilance committees complicates the issue, and the splitting of groundwater and surface water into different regimes, where the vigilance committee is only covering the surface water.

### **Conclusion and comparison**

The final two sections are a conclusion of the assessment and a brief comparison of the Swiss and Chilean assessment. Hill points to how water in the Chilean case is considered an economic good and how the system is impaired from considering water outside its function as an economic input. This is precluding any actual water resource management. Water management happens in the private sphere, driven by private interests. The system is producing blind spots such as the ecological impact

of the water consumption, and a lack of awareness to the challenge posed by climate change. Hill wrote about the lack of awareness of climate impacts when investments was being made, foreseeing in 2013 the huge challenges that the avocado industry faced in the latter half of the decade.

In times of extreme drought, in other locations water extraction is limited –according to Hill – while in Chile it is being increased. The DGA is expected to do hands on management in crisis situations, from a position of low capacity and partial information. Hill is very clear on the poor track record this has produced, and the institutional challenges to improvement.

The chapter also puts the Chilean case into context by the final comparison with the Swiss case. It states that even if the legislative frameworks in the two cases, Chile and Switzerland, are highly contrasting, they present some similar challenges. Institutional fragmentation and lacking implementation of policy locally persist. She is however clear that Chile performs less well according to the indicators: transparency, accountability, participation and IWRM. In addition, the governance challenges are likely to increase with the impact of climate change.

[Water management accounting and the wine supply chain: Empirical evidence from Australia](#) Christ' 2014 article is aiming to find drivers for what she dubs water management accounting. The article is presenting a study testing hypotheses towards data gathered among Australian wine producers. Christ is juxtaposing contingency theory, which hold that the company form its strategy to maximise performance, and new institutional sociology, which hold that the company is influenced from extra-organisational pressures.

The article introduces the challenge posed by climate change on water management, and surveys among businesses pointing to the high importance given to the issue of water management. Christ also points to an increase in tools addressing this. The article goes on to describe the importance of water as an input in the wine industry and expands on the structure of the sector. Christ holds that since long run water viability is in the vital interest of the wine producers it is likely that these are inherently interested in securing the long term sustainability of water resources.

### **Theory and hypotheses**

The article presents water management accounting (WMA) as a sub-form of environmental management accounting (EMA). She explains WMA as any water related EMA-information. EMA is presented as a field concerned primarily with business internal management that seek to extend traditional accounting management through the explicit recognition of environmental information. She further holds that EMA is instrumentally including both the physical environment and monetary aspects. From this starting point Christ asks “How do different contingent and institutional factors affect the use of WMA in the context of the frequency with which long term supply chain water management is evaluated by Australian wine organisations?” (2014, p. 381)

Christ underscores that the long-term focus is required in sustainability thinking, and that the potential of EMA with long-term focus also is found in academic EMA literature. The article discuss the difference between EMA and various tools for water accounting. She holds that several of the water accounting tools recurring in the literature are criticised for various limiting traits such as a purely volumetric focus, disregard for overall environmental impact, or a past orientation and other factors she suggest makes them less suitable for achieving long-term sustainability.

Christ puts forward the argument that EMA is a critical step required to improve supply chain sustainability, and underline that EMAs incorporation of a physical and a monetary facet differentiates it from other approaches within corporate water management. Christ also holds that “Sustainable water management within the supply chain necessarily requires the collection and communication of water specific EMA data (WMA)” (2014:382).

Based on the theoretical framework Christ construct seven hypotheses with different independent variables. The variables defined are: (1) organisational size, (2) corporate environmental strategy, (3) percentage of grapes self-grown, (4) existence of certified environmental management systems, (5) level of industry involvement, (6) export orientation and (7) regulatory pressure.

The Hypotheses H1-H7 test the influence of the independent variable on “the use of EMA information for evaluating long-run supply chain water management in Australian wineries” (Christ 2014:385). Christ is testing the hypotheses against data gathered through a telephone survey of 2486 wine producing organisations in Australia. The response rate of 14.6 % gave a set of 363 usable responses. In the study three models were used to test the hypotheses

When combining results from the three models virtually all the independent variables were found to produce significant results, exceptions were percentage of grapes self-grown (H3) and export orientation (H6) that were not supported by significant p values in any of the models. ‘Organisational size’, ‘environmental strategy’, and ‘regulatory pressure’ were found to give significant results in all models. The independent variable ‘proactive corporate environmental strategy’ (H4) only gave significant results in model 1 and 3, while ‘winery managers involvement with industry’ (H5) only gave significant results with model 2 and 3. Model 1 tested the hypotheses with regard to physical WMA information. Model 2 tested the hypotheses and the use of monetary WMA information. In regression model 3 the two EMA measures are combined.

Model 3 is the only that were found to be significant for all five imputations. Christ write that the two most significant predictors were corporate environmental strategy and regulatory pressure. In line with theory, organizational size was found to be significant, confirming that large organisations are more likely to engage with EMA.

### **Discussion and conclusion**

Christ writes that the findings imply that the Australian wine organisations move beyond mere reporting to actually considering potential impact of their business on water related matters. The most surprising aspect, given the assumed extra organisational pressure in export value chains, is that export orientation were not found to be significantly correlated with WMA. The theoretically prescribed pressure from overseas markets and from large multinational customers were not traced in the sample of Australian wine producers.

Christ holds the results have clear implications for policy and that government should choose to impose a regulatory regime enforcing the use of WMA. Stating that “This would safeguard the industry's position as well as national water supplies in which the Government has an especial interest.” (Christ 2014:392). However, she infers that the result showing that small producers to a lesser extent is using WMA means that the available tools for WMA is not tailored to small and medium sized businesses, and that this should be investigated further. Christ suggests as a second option to encourage the acknowledgement of water as a strategic resource. However, she does not suggest how a realisation of waters strategic importance should or could lead to coordinated action.

Further she is leaning on EMA literature when stating that collection of physical data is necessary before the assessment of monetary implications, and thus a promotion of EMA could focus on this first step and then at later stages expand the scope. She goes on to state “[d]rawing on the results it can be argued a well-designed EMS that is subject to audit and certification by an independent third-party provides an appropriate means by which this can be achieved” (Christ 2014:392).

Bearing in mind that Christ is differentiating EMS or WMS as internal management of water resources from tools focused on external reporting these findings could be highly relevant also in other settings. I would hold that one of the key motivators for external reporting requirements or

accountability schemes on water management is to cause or ensure preferential internal management, and given well intentioned implementation a sound reporting is indicative of sound internal management.

Symptomatic for a field perhaps too focused on internal business management or value chain management, Christ concludes with significant potential for impact, assuming coordination:

*In conclusion, this study demonstrates significant potential for sustainability accounting, and more specifically water management accounting, to assist the Australian wine sector towards a more sustainable future. However, while improved economic and environmental performance via water management in wine supply chains can be achieved, it will require a concerted effort.* (Christ 2014, p 394)

Christ assumes that producers are inherently interested in sustainability of water resources. And the article has found involvement in the industry by managers and regulation to be predictors of WMA. However, the study does not test the assumption of interest in sustainability and she does not discuss the drivers or hindrances to coordination.

## Chapter 5 Avocado production and the value chain

In Chapter five I will first present an overview of the avocado industry in Chile and then a brief section on recent developments in the sector. Thirdly, I will present the value chain and situate the actors in the Norwegian market. A fourth section will discuss the control regime of the Norwegian business organisations in the value chain. The fifth section contains a document analysis of Natures Pride's standards and a discussion of these vis a vis the Norwegian and Chilean business links. Ultimately the sixth section will present perspectives of non-value-chain actors.

### 5.1 The avocado industry in Chile

The avocado industry is an important agricultural industry in Chile, and the country is one of the top international exporters. It is tightly integrated in the export-oriented economy of Chile, and the steep growth in the period from 2002-2008 is aligned with the rising demand in the export markets. The planted area has increased from around 8000 ha in the 90's to around 30 000 in the 2010's according to environmental organisation Fundación Terram (Salinas et al, 2020). With an export value of 301 million USD in 2019 (USDA, 2020) it however still does not rival the value of exports such as wine or salmon at 5 and 15 times the value (The World bank, n.d.). Agricultural products are an important export for Chile, but this is heavily outweighed by the export of copper which constitutes almost half of the export value at approximately 36 billion USD annually (The World Bank, n.d).

144 620 metric tonnes (MT) of the avocado production was exported in 2019, this is approximately 70 % of the total grown volume. Europe is by far the biggest importer with the Netherlands alone importing 64 649 MT (USDA, 2020).

There are several varieties of avocado grown in Chile, but the Hass variety is the most economically important as it is grown on nearly 90 % of the 30 143 hectares (ha) under cultivation. According to official data reported by the US Foreign agriculture services the planted area has remained relatively stable from 2015 after shrinking back from the peak at above 36 000 ha in the three years 2011-2013 (USDA, 2020). However, Budds (2020) and local news report that parallel to laying fields bare due to the lack of water, many fields have avocado trees cut back to the stem, to preserve the trees for a possible improvement in water availability. It is therefore possible that the reduction in productive volume is bigger than the officially reported reduction. The trade promoting webpage of Chilean Fruit exporters association (ASOEX) is still listing the maximum hectares of above 36 000 seven years after the initial reduction (ASOEX, 2020).

Valparaiso is the main avocado producing region with 20 318 ha, and is together with the regions Metropolitana and Coquimbo bordering it to the south and north holding close to 95 % of the avocado planted area. The US Foreign agriculture service writes that the planted area has increased in Valparaiso while decreasing in Metropolitana and Coquimbo since 2015, based on reporting from the Chilean Ministry of Agriculture's Office of Studies and Policy. The exports of avocado peak between October and December, as the avocados are being harvested. (USDA, 2020)

Avocado has a significant demand for irrigation water, estimates are frequently in the range of 750 litres per kg product, a study published by the Swedish University of Agricultural Sciences finds water consumption close to 2900 litres per kg for avocado produced in Chile when combining green, blue and grey water footprint (Potter et al, 2020). The industry association is claiming a water footprint of 389 litres of water per kg avocado produced in Chile (Poggio, 2018).

There is a reported strong overlap of political power and economical power amongst avocado plantation owners (Budds, 2017; Christ, 2013), some sources indicate this could be a factor reducing regulative pressure (Heinrich Böll foundation, interview, 2020). There are reports of some presence of migrant workers with weak judicial protection working on plantations, interviews with workers

citing lacking health and safety practices and union busting have been reported by civil society in Chile (Seitwerth, 2020). The organization Modatima was established 2012 in Petorca by local peasants and peasant leaders as a reaction to the growth of large scale avocado plantations, the organization has been one of several voices arguing that the avocado industry is draining the land (Budds, 2017). The 2017 report by Danwatch focusing on the drought in Petorca and avocado production gained large international attention, a reportage by Deutsche Welle (Ebert, 2018) focusing on the environmental disaster in Petorca is also indicating rising problems in the Aconcagua valley. Conversely to the data on reduced precipitation reported by researchers a plantation owner in the Aconcagua interviewed by DW (ibid) questioned by whether there actually was water shortage.

#### Developments in water availability:

The overall situation with water drawing rights being exhausted, and possibly overstating the available water, were described in Chapter 3. There is also a described mega-drought occurring in central Chile occurring since 2010. The period has had rainfall deficits of 20 – 40 % in this entire period (Garreaud et al, 2019). The water situation in Petorca is described by many as the most dire, a communication from the UN special rapporteur to the Chilean government is quoted in the next section. However the reduction in precipitation has impacted all of central Chile. The area around Santiago, including Valparaiso has seen reductions of over 80 % in rainfall. The reduced precipitation is also influencing the snow-melt run off that has been important for waterflow in dry seasons (Korosec, 2020).

The Aconcagua river catchment starts in the Andean mountains unlike the Petorca river. Meltwater from glaciers and high altitude snowfall is crucial in the dry and warm season. Glacial contribution to the water flow in the Aconcagua up to 67 % in dry periods have been observed prior to year 2000 (Bown et al, 2008). A recent study carried out in 2018-2019 of water sources for the Aconcagua river shows that the aquifers in the area is largely over exploited and that the area will experience water scarcity in 34 % of years going forward. The study shows that snowfall has varied between 250 % and 5 % of the annual historical average. The writers also point to the gradual shrinkage of glacial cover in the Andean watershed and the gradual increase of temperature recorded over the past 7 decades (Crespo et al, 2020). The glacial influx creates a buffer for the Aconcagua river, but it is dependent on the recharge through snowfall. With long periods with snowfalls less than historical averages the contribution from glacial melting will be reduced.

An avocado plantation owner in Llay Llay interviewed by DW in 2018 has bored 120 meters to extract groundwater for his avocados (Ebert, 2018). In September 2019 a 12-month disaster zone was declared for all inland communities in Valparaiso region due to the prolonged drought, including the avocado producing areas along the Aconcagua. (EFE, 2019) Local media interviewing the head of the Vigilance committee of the first section (upstream) of the Aconcagua river, Javier Crasemann, in June 2020 stated that they now have only 17 % of their normal water resource available. Stating that the entire Aconcagua river from the mountain to the sea is suffering from the worst drought in 50 years. Although there were some rains in this period Crasemann state that this is not enough to fill up the reservoirs of snow and groundwater that have been used in recent years. (Cruz, 2020) Garreaud et al (2019) analyse climate systems and anthropogenic impact and anticipate only a partial recovery of the central Chile precipitation over the decades to come.

## 5.2 Current updates

On the 20<sup>th</sup> of August 2020 The UN Special rapporteur for the human right to safe drinking water and sanitation criticized the Chilean state for prioritizing water to the Avocado plantations and electricity generation over the rights of health and water of its people. The special rapporteur Leo Heller is quoted as saying “The Chilean Government would not be fulfilling its international human rights obligations if it prioritises economic development projects over the human rights to water and

health” (OHCHR, 2020, p. 1). As well as the Alto Maipo hydroelectric project it is the arduous situation in Petorca that is stated as the reason for the criticism. The low volumes of water made available to the residents are especially worrying due to the covid 19 pandemic (OHCHR, 2020).

A referendum in Chile in October 2020 started a process for writing a new constitution (Sherwood & Miranda, 2020). Activists are hoping that the new constitution will open up possibilities for altering the water management regime (Heinrich Böll foundation, interview, 2020).

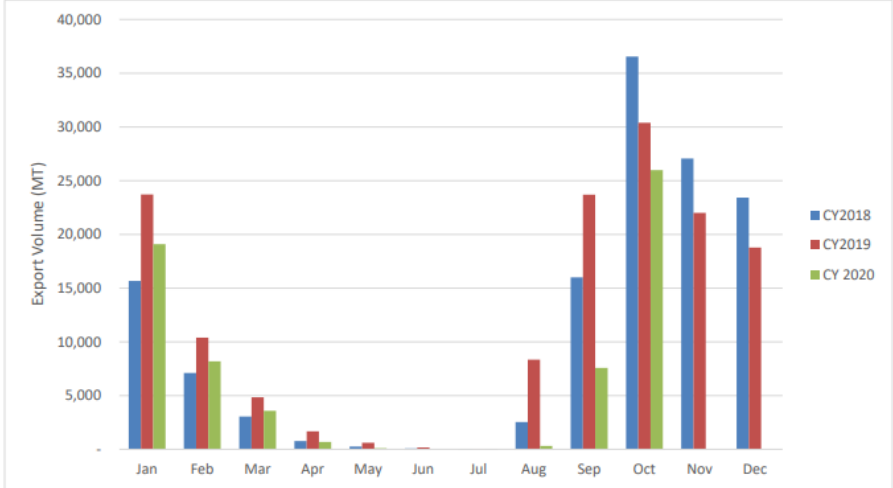


Figure 5.1 Exported volumes of avocado from Chile per month, 2018-2020. (USDA, 2020)

A preliminary report from export sales in 2020 indicates a significant reduction in exported volumes in 2020, these reports were however made before the peak export period October to December were through. The period January to September had a 46 % reduction compared to the same period in 2019. Imports of avocado from Peru to Chile is up to 41 million USD so far in 2020 from 33 million and 24 million in the full years 2018 and 2019 respectively (USDA, 2020). The increased imports are however not necessarily fully reflecting a drop in national production as the production peak in Peru is overlapping with the low season in Chile. The representative from US Foreign agricultural service in Santiago is expecting the exports to pick up in the end of 2020 and result in similar exported volumes for 2020 as for 2019 (USDA, 2020). This might be overly optimistic.

### 5.3 The value chain

The commodity chain of the Chilean avocados retailed by Rema 1000 consists of four distinct steps, the growers, the Dutch importer/exporter Nature’s Pride, the Norwegian wholesaler Bama and the retailer Rema 1000 (Rema 1000, interview, 2020; Bama, interview, 2020).

Rema 1000 and Bama hold significant influence in the Norwegian grocery retail sector. Rema 1000 is belonging to the consortium *Reitangruppen* holding just over 20 % of the Norwegian grocery market. Bama is the main supplier of fruits and vegetables to both *Reitangruppen* and *Norgesgruppen* and as such effectively covering 2/3 of the retail market. In addition, Bama has a significant role as supplier to the commercial kitchen sector (Valvik, 2019). The last of the three consortia dominating the Norwegian retail market is *Coop* who hold approximately a third of the market and has their own value chain for fruit and vegetables (Hopland & Haugan, 2018). *Reitangruppen* is owning 19.8 % of Bama (*Reitangruppen*, 2020). As well as holding significant influence in the Norwegian market Bama is the majority owner of Nature’s Pride (Bama, interview, 2020), which supply avocados to Bama.

Rema 1000 is buying virtually all produce from Bama (interview, 2020), including all avocado. Bama is buying all avocados, including the avocados from Chile, from Nature’s Pride in Holland.

Nature’s Pride is importing avocado from Chile, and is reportedly importing from four or five specific plantations (Nature’s Pride, Personal communication, 20.01.20). Nature’s Pride is according to their



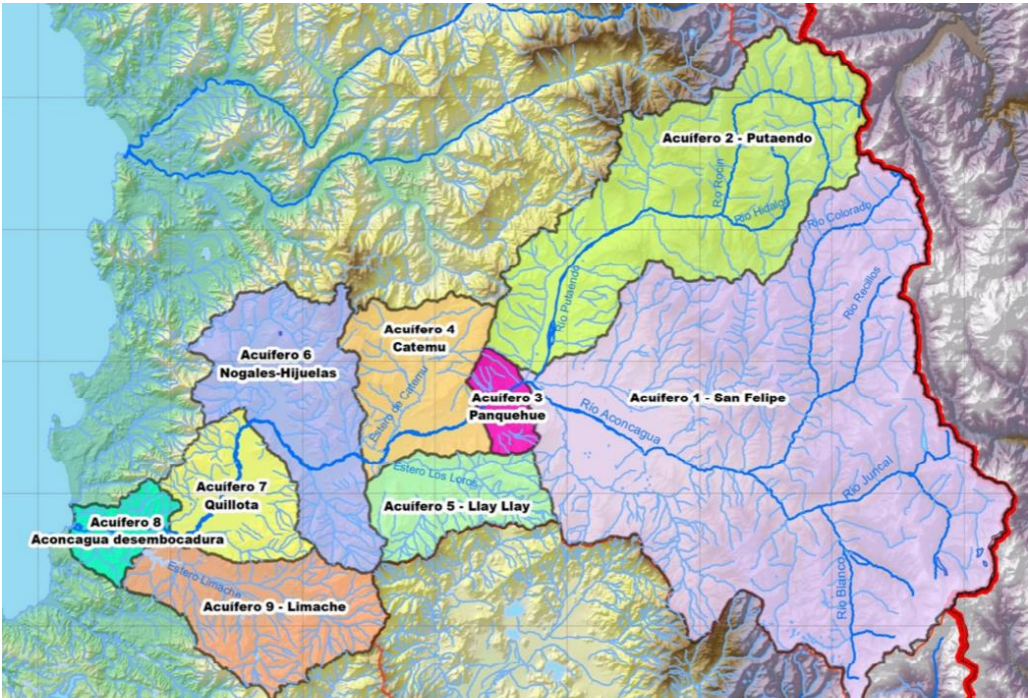
communications (Personal communication, 06.02.20) importing from plantations mainly in Aconcagua and in the area south of Santiago. The main import from Aconcagua is coming from the Panquehue area. According to Nature's Pride all their suppliers are Globalgap certified.

Nature's Pride is categorically stating that they are not importing avocados from Petorca due to the water situation (Nature's Pride, personal communication, 06.02.20). Neither Nature's Pride nor

the Norwegian parties have been willing to inform about what specific plantations avocados are imported from. Globalgap certified avocado plantations in Chile are listed on Globalgaps webpages, and the database lists 11 plantations certified in Valparaíso region, four of which are registered to the city Hijuelas just east of Panquehue. (Globalgap, n.d.) I have however not attempted to verify if these are suppliers to Nature's Pride. For the Metropolitan region there are far more producers registered in the Globalgap Database.

The Netherlands reportedly import 317 000 MT of avocados (CBI, n.d.), while the Chilean export to the Netherlands was approximately 64 000 MT, making Chile solely responsible for about 1/6<sup>th</sup> of the Avocado imports. The Netherlands is the largest importing country in Europe and has a significant re-export to other European countries (CBI, n.d.).

According to data from Rema 1000 Avocados from Chile are imported from September through May with the main season stretching from October to March. Countries like Peru and South Africa are important for import in the period from May through September. (Rema 1000, personal communication, 11.10.18)



Map 5.1 of Aconcagua watershed in Valparaíso state. Source: Nature's Pride

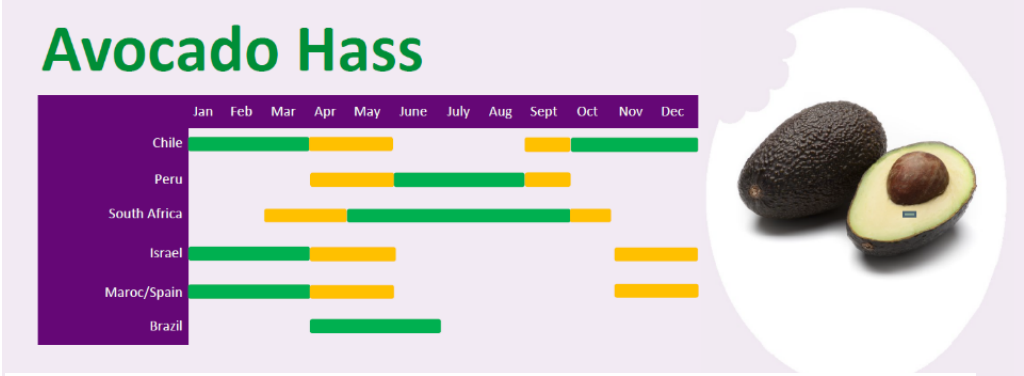


Table 5.2 Import periods for avocado. (Source: Rema 1000, personal communication, 11.10.18)

## 5.4 Control regime of Rema 1000 and Bama

The control regime for sustainability factors in Rema 1000 is based on universal criteria in the framework agreement for all suppliers (*rammeavtalen*) (Rema 1000, n.d. c) and a Suppliers code of conduct (SCOC), which is an appendix to all contracts, including the one with Bama (Rema 1000, n.d. b; Rema 1000, interview, 2020). The framework agreement covers issues such as product labelling and HMS, and barring the use of genetically modified products and palm oil. The supplier is also contractually bound to follow the SCOC which has relevant language on water management in the supply chain. In addition to the SCOC Rema 1000 has a quality assurance department that monitors suppliers on a broad range of issues, including the SCOC. The CSR section also has a hands on role, and risk mapping and due diligence are underlined as a continuous undertaking in Rema 1000's responsibility report (Rema 1000, 2020).

The control regime of Bama is similarly based upon a code of conduct for suppliers titled Bama's ethical guidelines for acquisition. Both Bama and Rema 1000 are members of the Norwegian organisation *Etisk handel Norge*, Ethical trading Norway, and state to follow the principles recommended by Ethical trading. The two have similar language on sustainability in their COCs, the two also underline that the COCs are mandatory for subcontractors. Bama has control functions organized in their product lines, and support functions as well as hands on assessments by the CSR Director.

Nature's Pride' (NP) control regime is employed through various mechanisms, many of which are tied to a suppliers' agreement, which covers many of the same aspects as the codes of conduct of Rema 1000 and Bama.

In section 5.4 I will describe the control regime and risk assessment, as relevant to due diligence, for these two Norwegian business organisations. The Control regime of Natures Pride is described in 5.5. The descriptions are based on expert interviews with the representatives from the two organisations and publicly available documents. The description will not be limited to water sustainability and the avocado value chain, but will also include contextual information.

Table 5.3 at the end of section 5.4 lists the most important operational standards and tools referenced by the value chain actors. The table categorize which of the tools/documents are rule sets/standards and which are indexes or rankings along with four other distinguishing criteria and who are applying the different standards/tools.

### Rema 1000

Rema 1000 carries out general risk assessments. Avocado is labelled as a risk product because of its water consumption, but the follow-up takes place at Bama (Rema 1000, communication 2021). Due diligence is a part of the company's policy, the source clearly indicate that Rema 1000 carry out a due diligence, simultaneously it is indicated that at least part of the six steps in a due diligence process is considered to be carried out by Bama. It is also unclear to what extent relevant information is available along the value chain.

### Control regime

Rema 1000 state in their annual responsible business report, *ansvarsrapport*, that risk mapping and due diligence is an important and continuous work (Rema 1000, 2019).

*In 2018 we bought goods from close to 500 suppliers in more than 30 countries. Many of these goods are produced in countries with high risks for corruption, indecent working conditions and lack of freedom of association. Risk mapping, due diligence assessments and follow-up of our suppliers are therefore a continuous and important work."* (My translation. Rema 1000, 2019, p. 84)

The report further clarifies that risk exposed products, countries and producers were in focus. Additionally, all product countries were screened for risk on corruption, freedom of association, child labour, forced labour, discrimination and minimum wage. This formulation is also repeated in the consecutive 2019 version of the responsible business report (Rema 1000, 2020).

For Rema 1000 the question about water sustainability in the production of avocado imported sorts under the topic 'responsible trading' (Rema 1000, interview, 2020). On responsible trading Rema 1000 state that it is their responsibility that all goods they purchase maintain high standards for working conditions and environmental considerations (my translation. Rema 1000, 2020, p. 72) The main focus according to Rema 1000 is that all suppliers follow the demands set by Rema 1000, in the supplier code of conduct. However, it is the person sourcing the product that is in charge of the dialogue with the supplier, and primarily responsible for ensuring that the supplier is adhering to Rema 1000 policy, including the Supplier code of conduct (SCOC) (Rema 1000, interview, 2020).

Additionally Rema 1000 has a quality assurance department that controls compliance with contracts, including all contractual CSR obligations. The CSR head and head of responsible sourcing is taking part of some compliance checks but is mainly contributing to CSR aspects, including sustainability, of controls by defining the terms up front. The quality assurance department is then working to assure that these terms are complied with. However, fruit and vegetables are a special case as BAMA has a lot of the follow-up within this field. Rema 1000 has previously done some compliance inspections together with Bama. (Rema 1000, interview, 2020)

Rema 1000 report to have carried out 28 visits to production sites in 2019 to follow up on ethical guidelines and other issues (Rema 1000, 2020 b).

Rema 1000 is working on a pilot to pre-screen producers through self-reporting. This is however still in an early phase and not applied to avocado. Rema 1000 is also using the third-party assurance provider Sedex that gathers and stores data on suppliers. Rema 1000 are obliging all suppliers outside of the Nordic countries to register relevant information with Sedex, but this does not apply to products sourced through Bama, as Bama itself is based in Norway. (Rema 1000, interview, 2020)

Rema 1000 also reports to the Global Reporting Initiative (GRI) on indicators for responsible trade. In 2019, 28 producers were assessed for environmental risk, and the years before 65 and 131. For all three years Rema 1000 report 0 instances of violations of environmental guidelines. (Rema 1000, 2020 b) While giving the impression of a tight control in the value chain one could also ask if this means the assessments are insufficiently exacting. Nonetheless we have no information on GRI indicators reported for the avocado value chain.

### Code of conduct

Rema 1000 is contractually obliging Bama through the SCOC that is attached to their contract for avocado (Rema 1000, interview, 2020). Rema 1000' SCOC is obliging the contracted party, Bama, to ensure implementation of the SCOC also by subcontractors.

The Rema 1000 SCOC Article 11 on environment states in 11.1 that "measures to minimize adverse impacts on human health and the environment shall be taken throughout the value chain. This includes [...] sustainable use of resources, including [...] water. The local environment at the production site shall not be exploited or degraded." (Rema 1000, n.d. b, p. 16) And in 11.2 that: "National and international environmental legislation and regulations shall be respected and relevant discharge permits obtained." (ibid, p. 16)

This language is clear in the protection of nature and possibly also in the social aspects of sustainability as they pertain to water. Since the SCOC is an attachment to all contracts, lacking compliance could lead to the termination of contracts. It is clear however that once a supplier is contracted and perceived to have met the requirements any future discovery of lacking compliance is

attempted solved through dialogue and rectifying measures, only in very grave situations are violations leading to a direct termination of contracts. However it is unclear at what frequency these points of the SCOC are audited for suppliers and subcontractors. The implementation is therefore largely trust based.

#### Due diligence in avocado supply chain

Rema 1000's membership in Ethical trading Norway comes with an obligation to work actively with due diligence for sustainable business practice. The source confirm that Rema 1000 has a due diligence and follow the guidance from Ethical trading Norway. The due diligence for avocado is however situated with Bama (Rema 1000, interview, 2020).

For its product lines Rema 1000 has a country-based screening with six risk factors: corruption, freedom of association, forced labour, child labour, environment, and gender equality. This screening is based on six different publicly available international rankings. The Environmental Performance Index of Yale University is used for the environment screening. Rema 1000 have marked Chile as red with a score below 60 on environment in the risk assessment (Rema 1000, Personal communication, 11.10.18). Follow up of risk assessments is at times done by contracting external consultants to summarize risk based on select sources. Reportedly sources chosen for such detailed risk screenings are all in line with recommendations from Ethical trading Norway. Water management is a flagged risk, the follow up of which happens with the suppliers. However there is frequent dialogue between Rema 1000 and Bama on flagged issues. Currently Rema 1000 has no formal procedure for requiring information on risk assessments from Bama. (Rema 1000, interview, 2020)

There are event-based dialogues following up specific risks like the criminal elements involved in the avocado economy in Mexico. Rema 1000 is in such instances in close contact with Bama to assess risk of adverse impacts in their value chain. The Rema 1000 representative admit that they possibly should have had more interaction with Bama to assess potential adverse impacts related to the water situation in Chile. (Rema 1000, interview, 2020) Rema 1000 does not seem to assess actual or potential human rights impacts of the avocado value chain in Chile independently, but trust that Bama adheres to the contractual obligations (Rema 1000, Personal communication, 22.02.21). There is no indication that Rema 1000 has concluded that the avocado production in their value chain from Chile is in violation of their environmental demands. There is a reported dialogue on flagged issues between Rema and Bama. However there seem to be a very limited amount of information on risks assessed and measures to prevent or mitigate adverse impacts flowing from Bama to Rema 1000. Furthermore Rema 1000 does not communicate publicly or report on risk assessment outside general and aggregate reporting in the annual responsible business report.

#### BAMA

##### Control regime

The director of CSR state that when Bama first approached CSR work systematically they chose to focus on the producer level. And they chose to have presence on that level. The CSR director is singlehandedly responsible for a significant part of that presence. Director of CSR states that the Sustainability strategy and the COC together comprise the due diligence, and that they have chosen to perform it in the field, at the producer level. It is illustrative that the CSR director has visited all four producers of avocado in Chile. (Bama, interview, 2020)

Normally a group of product lines have a category manager responsible for the trade within that category, and as such the primary responsibility for monitoring compliance with all Bama's standards, including those on sustainability. The CSR director is especially involved if specific considerations or follow-up is needed on issues of the code of conduct. And in establishing new relations Bama executive vice president for trading is the one with the final word, he is also informed

on all CSR issues. However as avocado is traded through Nature's Pride there are no category manager with this clear responsibility (Bama, interview, 2020).

On avocado, there is direct dialogue between the CSR director and Nature's Pride. There are no defined procedures for communication on risk assessments or other CSR issues between Nature's Pride and Bama, but there is frequent contact. There is also close contact and interaction following specific episodes or incidents indicating increased risk, such as the increased attention on avocado in Mexico in the beginning of 2020. The source also describes the relation to Nature's Pride as in transition, Bama have increased their ownership stake in the company and are likely to streamline the organisations more in the time coming (Bama, interview, 2020).

#### Code of conduct/ Ethical guidelines

Bama has a code of conduct called suppliers' agreement (Bama, n.d. a), and ethical guidelines (Bama, n.d. b) for acquisition, that extends to all suppliers, including Nature's Pride. The supplier's agreement presupposes that the ethical guidelines are signed by the supplier.

The COC demands that the primary producers shall work in compliance with the Norwegian *Kvalitetssystem I landbruket*, on farm assurance, or Globalgap, and that primary producers must have systems for monitoring and control of irrigation water. Further they oblige the suppliers of fruit and vegetables to be able to, upon request, give strict information on traceability within two hours. There are also questions if the supplier is approved by the Norwegian Food Safety Authority (*Mattilsynet*) and if the supplier has a so called HACCP-system, a hazard analytics critical control point system. The COC also oblige the supplier to follow the SA 8000 standard that address the Human rights of workers.

The ethical guidelines for acquisition state that "as a general rule suppliers and transporters must ensure that their subcontractors also comply with these standards" (my translation. Bama, n.d. b). The ethical guidelines have the following formulation on environment, that is functionally identical to the text in Rema 1000' SCOC:

##### *Environment:*

*The production and utilization of raw materials shall not be in conflict with national or international legislation and regulation with regard to the environment. The supplier shall be based on the principles of sustainability as an integral part of the daily work. This means that the needs of the current generation must be covered without reducing the opportunities for future generations. Relevant discharge permits must be obtained where necessary. The supplier shall implement measures to reduce negative effects on health and the environment throughout the value chain. This includes minimizing emissions, promoting efficient and sustainable use of resources (including water and energy) and minimizing greenhouse gas emissions in production and transport. The local environment at the production site shall not be exploited in a predatory manner or damaged by pollution.*

*\*My translation. Bama (n.d. b, p. 4)*

The paragraph references both national and international law and regulations on environment and goes on to state measures to ensure sustainable resource use, including water use. By this provision also Bama is using contractual documents to transfer responsibility for, or at least management of, sustainability towards the producer. Lacking a uniform reporting system Bama's certainty of compliance with these criteria are reliant on the voluntary information flow from their suppliers or on rigorous control by Bama. A due diligence approach could prescribe a reasonable level of verification of risk management carried out by business relations. We will discuss the due diligence approach of Bama below.

### Due diligence in the avocado supply chain

While Bama state explicitly that they do not carry out a textbook due diligence they explicitly state to assess and manage risk in their value chains. The Bama CSR director is a central part of the control regime, and even though Bama has formalised documents and other parallel processes the CSR director's hands on assessment is very central in their control regime. Bama has a clear assessment of potential human rights impact, as detailed below. However it is less than clear if other aspects of due diligence such as monitoring, reporting and consulting are present in Bama's control regime. There is no indication that Bama has considered the practice in the Chilean avocado plantations to be in violation of their contractual tenets on environment (Bama, interview, 2020).

In a presumed scenario where Bama were assessing new producers of Avocado in Chile to contract, one of the first checkpoints would be that they were not from areas with water scarcity. The source in Bama state that this is also the situation now for established suppliers, that they are not situated in areas with water deficiency (Bama, interview, 2020). The source is clear that water is the predominant risk in the avocado supply chain in Chile:

“Chile is not a high-risk country, generally, when it comes to CSR. The only issues that have been controversial now is this about water and avocado. This is of course not only relevant for Chile, but it is a peculiar situation because of the privatisation of water done by the Pinochet regime. Some cynical producers cut off the water access for people. They don't have a water deficiency as such. When owning the water they have prioritised to water the avocado trees instead of giving water to people. It is this risk we assess especially in Chile.”  
(Bama, interview, 2020, my translation)

However with this clear assessment of what the biggest risk is Bama has not contacted Chilean environmental authorities when doing a risk assessment for avocado producers in Chile (Bama, interview, 2020). Bama does not buy information or use databases in their CSR work but rely upon the knowledge of the CSR director, especially for Chile. The source underlines that good information is available through the network of research institutions and universities. (ibid) I however have no information that Bama has requested information on the water situation and avocado production in Chile, or in parts of Chile such as Valparaiso from their network, outside the information attained through their value chain. The source informs that the CSR director has visited all avocado producers in Chile supplying Bama. (ibid) The CSR Director has visited the plantation in Aconcagua and attests to its responsible water use and water monitoring systems (Bama, Personal communication, 13.1.21). When these visits have taken place or any details of the water monitoring system however is not known. It is also uncertain if any consultation of potential affected peoples has been undertaken. It seems also that there is no publicly available information on the risk assessment or risks assessed.

It appears Bama, when considering risk in the avocado value chain, have not found risk of adverse human rights impacts that requires prevention or mitigation. This conclusion by Bama is based upon the explicitly stated claim that their avocado producers are all located in areas *without water deficiency* (Bama, interview, 2020). The source explicitly states that Bama is not as deeply involved on the producer level with avocado, since they buy through Nature's Pride, as with other product lines (ibid). It is unclear how much information on risk assessment or monitoring is passed on from Nature's Pride to Bama. We will discuss Nature's Pride's approach in the next section 5.5.

Table 5.3 Standards and tools applied in this value chain

	<b>Rule set/ auditable standard or Indexing/ranking</b>	<b>Range and topic</b>	<b>Including a reference of baseline</b>	<b>Requiring sustainable use of water/resources</b>	<b>Defining and controlling sustainable use</b>	<b>Applied by</b>
<b>REMA 1000 suppliers code of conduct (environment section)</b>	Rule set (partially audited)	Producer level, wide ESG	No baseline	Yes	No	Rema 1000
<b>BAMA Ethical guidelines (environment section)</b>	Rule set (non-institutionalised control)	Producer level, wide ESG	No baseline	Yes	No	Bama
<b>Nature's Pride Suppliers agreement (water mgmt. section)</b>	Rule set (monitoring system under development)	Value chain, water mgmt.	No baseline	No, but recommended	No	Nature's Pride
<b>Globalgap IFA</b>	Auditable standards (audited)	(prod. level) Farm specific, wide ESG	No baseline	"enhance habitats and maintain biodiversity"	Partly	Producers required by Nature's Pride
<b>Globalgap SPRING</b>	Auditable standard (audited)	(prod. level) Farm specific, water mgmt.	No baseline	Yes	Requiring controlled party to define sustainable objectives.	Producers required by Nature's Pride pilot.
<b>WWF Water risk filter</b>	Index/ranking	Area specific, water risk	Yes *	No (risk focused)	No	Nature's Pride
<b>Environmental Performance index</b>	Index/ranking	State specific, broad environment	Yearly listings	Applying environmental thresholds	Yes	Rema 1000

Wide ESG implies that the standard is covering a wide range of environmental-, social- and business governance issues. The comments in this form are specific to the Rema-Bama-Nature's Pride value chain for avocado coming from Chile.

\*WWF water risk filter draws on multiple data sets for baseline data (including data from World Resources Institute and Mekonnen & Hoekstra, 2016)

## 5.5 Nature's Pride's Standards and control regime

Nature's Pride is the business organisation with contractual relations to the avocado producers, how their policies are attuned to sustainable water management and how they are implemented in the control regime is therefore a central aspect in answering the research question of my thesis. Furthermore information flow in the value chain upwards and downwards from Nature's Pride is of the essence. The third party monitoring standard GLOBALG.A.P Integrated Farm Assurance, hereinafter Globalgap IFA, is central to Nature's Pride's control regime, the analysis of this standard therefore have a significant place in this section. Section 5.5 consists of three sub-sections; the first one will introduce and describe the overall characteristics of Nature's Pride's control regime as it is relevant to the avocado value chain from Chile, the second sub-section is a document analysis of the two Globalgap-standards Nature's Pride is applying. The third subsection is a brief review of due diligence elements present in Nature's Pride's control regime for avocado production in Chile and water management.

### Nature's Pride's control regime

Nature's pride has not given us insight into their code of conduct or general contractual obligations imposed on the growers, however the company has given detailed insight into the control mechanisms used in water management through interviews and written communication. Similar to Rema 1000 and Bama, Nature's Pride has a contractual document, the 'Suppliers agreement', outlining obligations by the contractee, including environmental aspects (Nature's Pride, Personal communication, 06.02.20). During 2020 Nature's Pride has also published a water policy (Nature's Pride, 2020 a).

Nature's Pride states that relations to growers in their network is in the form of long term partnerships (Nature's Pride, n.d. b), and all their growers are working with the Globalgap IFA certification. (Nature's Pride, n.d. c). Their Supplier's agreement entered into by all suppliers also contains specific language on water.

### Supplier's agreement

The Supplier's agreement references Water Stewardship, stating that NP expects suppliers to get acquainted with the concept and provides a link to the Water Stewardship Alliance. The tenets highlighted mention optimal planning of use of the water resources, but does not highlight sustainability. (Nature's Pride, Personal communication, 30.04.20)

The supplier's agreement holds clear recommendations pointing towards sustainability, but the language is suggestive rather than binding outside three fundamental demands. The Suppliers agreement obliges the producers to have (1) the appropriate water licenses, (2) knowledge about what water sources they use (type of source), and (3) irrigation plans and associated information. (Nature's Pride, Personal communication, 30.04.20). This covers basic legality and knowledge, but is far from a consideration of environmental impact. The supplier's agreement also encourages suppliers to "Review how your water balance relates to the total water availability in the catchment" (ibid, p. 1). This could be a part of a strong mechanism, but without further monitoring and binding language it hardly contributes to better knowledge of the sustainability of water management in the value chain. The section "we expect suppliers to prioritize the well-being of communities and the environment in business decisions related to water" (ibid, p. 1) is probably the strongest obligation laid on the suppliers, however this also is of little value unless further specified and monitored. The Suppliers agreement could clearly contribute to more environmental awareness and better water management, as well as information flow from producers to Nature's Pride; this however is



dependent on implementation complying with all suggestions, not only legally binding criteria by producers, as the few contractual binding elements are insufficiently considering sustainability.

### **Nature's Pride water policy**

Nature's Pride's water policy published in June 2020 is primarily focusing on incremental environmental effort rather than thresholds for sustainability. The policy however also state that the growers in their value chains have undertaken considerable effort:

“Since 2017, responsible water use has been added to these efforts. Over the past years, our growers have gone to great lengths to advance sustainable water use within their sphere of influence. This includes adequate water permits; state-of-the-art irrigation technology; intelligent soil and farm management; construction of reservoirs to use natural water flows (rivers) to irrigate and to re-charge aquifers instead of using groundwater; building infrastructure to treat waste water of nearby cities and using this for irrigation instead of groundwater; not using the total amount of water they are entitled to according to their permits; and not planting parts of their land, precisely because they are aware of the broader socio-economic context.” (Nature's Pride, 2020 a, p. 1-2)

If the latter of these efforts are implemented by the avocado growers in Chile they are considerably reducing their impact. We however have no information on whether some or all of these are implemented in avocado plantations in Chile. Noteworthy the Water policy acknowledges that sustainability audits are inadequate to resolve the water challenges. This is a contrast to the efforts put into introducing a new auditable water sustainability standard by Nature's Pride. Nature's Pride also outline efforts on catchment level and in procurement in their water policy.

The water policy reference a 2019-2023 sustainable business framework. This framework (Nature's Pride, n.d. a) lists sustainable water management in sourcing areas as a goal for 2023. The pegging of sustainable water management as a goal at the end of the 4 year period indicates that the enterprise consider some of their sourcing areas to not have sustainable water management today.

### **GLOBALG.A.P standards**

The applied standards provided by GLOBALG.A.P however are more concrete and fill out some of the gaps in the Supplier's agreement. The Globalgap IFA standard is a standard owned by the GLOBALG.A.P company, also referred to as the Integrated farm assurance, or IFA. As well as demanding that all suppliers are Globalgap certified Nature's Pride is undertaking a pilot where producers are using the SPRING standard (hereinafter Spring standard) which is an add on to the Globalgap standard (Nature's Pride, 2020 b). The Spring standard is specifically directed at sustainable water management and is similar to the Globalgap IFA standard issue to revision by certified third party controllers (Globalgap, 2018 b, 2019 b). The details of these standards and how they contribute to the control regime of Nature's Pride in assuring sustainable water management is analysed in the document analysis subsection below.

### **Water policy and cooperation**

Nature's Pride have been working actively with their water policy and water management in the period 2019-2020 (Nature's Pride, 2020 a). Part of this work has been to pilot the Spring standard which is one of the first implementations of this standard. According to Nature's Pride 25 fields, covering various crops, in Chile and Peru were assessed and certified in 2019 (Nature's Pride, 2020 b).

Nature's Pride also inform that they are conducting trainings for staff in 2020 on water sustainability, and a process to embed water risk assessments in procurement decisions. The company inform that

they together with water experts have developed a water protocol detailing procedures to be undertaken by buyers when water risk is determined (Nature's Pride, Personal communication, 06.02.20). This protocol was however not implemented when the interviews for this thesis was done.

Nature's Pride have informed that platforms such as the Water stewardship alliance and WWF water risk filter have been used when assessing water risk. Nature's Pride has a specific cooperation in Chile with WWF and use their framework for water stress (Nature's Pride, Personal communication, 20.01.20). The WWF water risk filter is a free online tool that gives granular information about water risks in Chile. The overall risk indicated by the tool is medium to high medium for Chile's central region (WWF, n.d.). This clearly indicates a need for a more detailed water risk analysis.

While clearly stating to use the WWF Water risk filter Nature's Pride has not stated how the Water Stewardship alliance is involved in their risk assessment. The alliance for Water Stewardship has developed an implementable

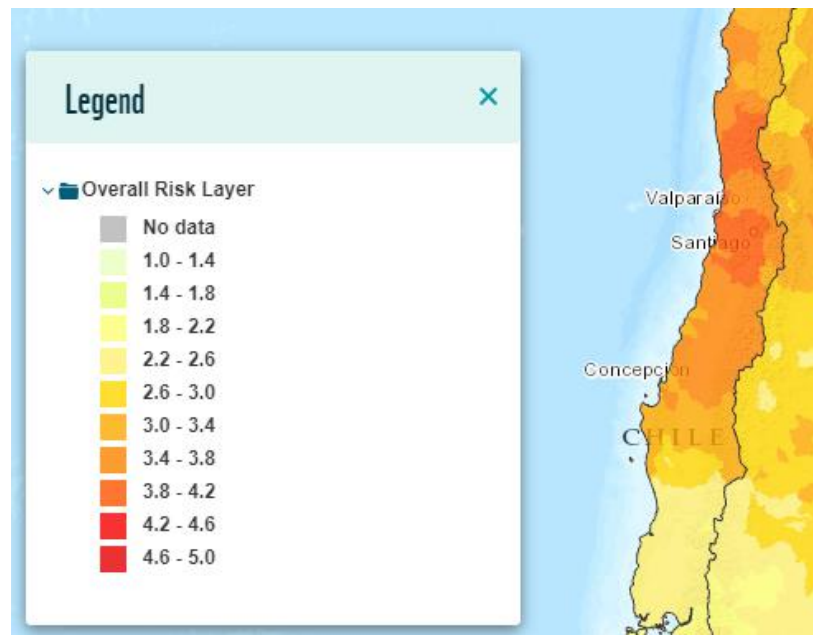
and auditable standard for water stewardship on catchment level that is referred to by Nature's Pride (Personal communication, 06.02.20) it is unclear if this has been applied by Nature's Pride.

#### Document analysis Nature's Pride's standards

In this section I will present the document analysis and discuss the implications of the findings. After discussing some formal aspects in the subsection below I will turn to the analysis of the two standards in two consecutive sections. In the last section I will discuss implications of the findings and point forward to discussion on Nature's Pride's control regime.

The documents GlobalG.A.P Integrated Farm Assurance (IFA) standard version 5.2 and SPRING checklist version 1.1 were chosen for document analysis, hereafter referenced as the Globalgap IFA standard and Spring standard. These documents represent certification standards and are developed by the private company Globalgap. According to the company it is the world's largest farm assurance program. Authenticity, credibility, representativeness and meaning are important to assess when documents are subjected to document analysis according to Bryman (2012). As the documents are downloaded from the company's website [globalgap.org](http://globalgap.org) and clearly identified by the company name I find little reason to question their authenticity. As far as credibility goes there is no reason to believe that the documents provide evidence with error or distortion. It is of course necessary to discuss the purpose of the document and what the data in reality can tell us, but I have not found this to be challenging the credibility of the text presented by the document.

The documents representativeness is clear, as the documents represent the standards chosen by Nature's Pride and not a selection of multiple standards, the evidence drawn from these will be directly relevant to the discussion of the research topic. As this is a case study of a specific value chain where these standards are applied their likeness to other potential standards are of less direct relevance.



Map 5.2 Facimile WWF Water risk filter Map of Chile (Source: WWF, n.d.)

The meaning of the documents is clearly stated and I find all aspects to be comprehensible to the extent that they are deliberated. This does not entail that the material is without ambiguity or closed to differing interpretations of operative terms; this will be addressed in the analysis as we progress. The two document texts are briefly formulated and only the Globalgap IFA standard has guidelines annexed in the document. I have therefore referred to definitions and explanations from the General rules documents for the two standards published by Globalgap. The Spring standard is focused on sustainable water management and takes its name from the abbreviation of the full “title” Sustainable program for irrigation and groundwater use. The Spring standard is intended implemented as an extension to the Globalgap IFA standard, and as such the two could be described as one standard when applied together. However in reflecting the fact that only a selection of Nature’s Pride’s producers have applied Spring in a pilot as well as the Globalgap IFA I will analyse the two standards as separate documents, with the concession that the Spring standard is based on implementation of the Globalgap IFA standard.

The intention of the documents could be stated to be to provide foundation for an audit or internal control, leading to the approval as a ‘certified’ producer. Another possible interpretation is that the intention of the document is to sell a label, creating profit for the standard owner, and improving the public reputation of the producer’s product. It is clear that both the audits and the market interactions are events taking place, and to choose one of the interpretations exclusively would be naïve. The balance between strict standard and mercantile grease will be addressed in the analysis.

#### *The Globalgap IFA standard*

The Globalgap IFA standard is a set of demands or control criteria to be met by the producer covering food safety, workers health and safety, pre harvest issues such as soil management and plant protection and environmental issues such as water and energy use. The document analysis of the IFA standard is written in five sections including this introduction. This introduction is outlining some structural aspects, thereafter I will introduce the themes and the questions I pose the text. The three next sections are devoted to answering those questions. The two first reflect the answers to a question about sustainability analysis in the two parts of the standards, while the last is reflecting the answers to two procedural questions. The findings of the document analysis is partly reflected throughout this text and will also be carried over to the section Due diligence in Nature’s Prides approach which is following the document analysis.

The document consists mainly of Control Points and corresponding Compliance Criteria, abbreviated CPCC. The control point is a question on the form of “Is there a risk assessment available at all sites [...]” (Globalgap, 2019 a, p. 8) followed by some specification. The compliance criteria then briefly outline what needs to be in place in a risk assessment. The auditor could thus check the plantation towards the compliance criteria. The standard is built up by CPCCs on three levels, one general named All Farms Base, one intermediate named Crops Base, and one so-called specific module ‘fruit and vegetables’. This stratification stems from the need to specify the standard to different agricultural, livestock and aquaculture industries. The Globalgap IFA standard document is 151 pages and consist of more than 200 CPCCs. According to information from Globalgap 69 of these are covering environment (Globalgap, 2018 c).

The CPCCs are graded from major musts via minor musts to recommendations. Major musts are obligatory to obtain certification, while the minor musts only require 95 % compliance. This means it is possible to fail 4 of the 98 minor musts and still attain certification. The recommendations are all subject to audit and comments must be given in the instance of non-compliance of recommendations or minor musts. Certification is however not dependent on any level of compliance with the recommendations.

According to the Globalgap guidance given in the general regulations document to become a registered Globalgap producer the producer must apply via a third party consultancy approved as certification body. The certification body must undertake an inspection of all production sites and a fee must be paid to the GLOBALG.A.P company. The certification requires a self assessment and an announced inspection by the certification body must be completed and found in compliance. Additionally, as a control measure, there shall be a minimum of 10 % unannounced inspections (meaning announced not more than 48 hours prior) by the certification body over all certified producers per 12 months. (Globalgap, 2019 b)

The general regulations also have guidance on how non-compliance should be followed up. To be certified the producer must be found to meet all major musts and 95 % of the minor musts, if this is not the case the status is changed to “open non-conformance”. Non-conformances must be closed within a period of 28 days or shorter. The failure to do so will lead to the suspension of the certificate. All non-compliant minor musts (i.e. less than 5 %), that are still present, should be commented in the checklist. (Globalgap, 2019 b)

### **Interviewing the text**

The identified themes due diligence, water management, ecology, and efficiency were all represented in the text. The pre-defined theme ‘flow of information’ was not in any significant way represented in the text.

The first questions posed when “interviewing” the text are on due diligence process. The Globalgap IFA standard only briefly mentions the concept, but has several passages on risk assessment relevant to due diligence. The risk assessments as they relate to environmental threats will be discussed below. Relevant to due diligence is also the consistent referencing of compliance with host state legal regulations. The standard requires broad compliance with national law, regulations, and conditions given in permits. This however only ensures enforcement of the current national laws and regulations, for our case focusing on Chile we have seen that the host state does not provide a framework sufficiently reducing water risk.

Flow of information on perceived risks and due diligence is important for the ability of downstream actors in the value chain, including end retailer and intermediaries, to carry out their own due diligence risk assessment. The text does however not give any evidence that providing such information is required by the producers. The buyer can know however that compliance with the standard implies compliance with the water related criteria to the extent specified per the rules for certification. How the flow of information is working must therefore be deduced from the functioning of the standard and other mechanics in the value chain.

There is considerable amounts of text in the document related to the water management and ecology theme. The chief question to pose the text is if and how there are provisions for sustainability analysis. The three modules ‘All farms base’, ‘Crops base’ and ‘Fruit and vegetables’ together compose the standard for avocado farming. The latter holds little relevant text on sustainability, apart from a referencing of risk assessment listed in ‘All farms base’, below I will therefore analyse the content from the ‘All farms base’ and ‘Crops base’ modules as they pose answers to the question on sustainability analysis.

### **Sustainability analysis and water in the All Farms Base module**

There is no explicit listing of sustainability analysis or environmental impact assessment in All Farms Base, but there are several aspects relevant to sustainability analyses throughout the text. The standard begins with a section on site history and site management, hereinafter ‘site management’, and in the chapeau of this section sustainable farming is held up as an aim, together with protection

of the environment. The Globalgap IFA standard requires a multifaceted risk assessment that include the impact on the adjacent environment. The standard mandates a management plan handling the risks identified, but it is stated that environmental risks do not need to be part of this mandatory management plan. The environmental risks are delegated to the section on conservation. The risk assessment is further elaborated upon in annexes, these annexes however are guidelines and not mandatory (Globalgap, 2019 b).

The conservation section lists a wildlife management and conservation plan (Globalgap, 2019 a, p. 18). The plan shall aim to enhance habitats and maintain biodiversity on the farm. Further the plan should have particular focus on “areas of environmental interest being protected” (ibid, p. 18).

This wildlife management and conservation plan, hereinafter ‘conservation plan’, together with the environmental risk assessment goes a long way towards answering the question for a sustainability analysis on the issues of water management and ecological impact. The risk assessment mentions impact on the environment, and does not explicitly mention water, but it is highly likely that most environmental impact assessments would include aspects of water. The section also distinctly asks for the listing of all water sources, underlining the importance of water management. Sustainability however is not only dependent on mapping of the risks, but also the countering of risk through active management. There is no risk management for environmental risks mandated under the ‘site management’ section, this is referred to the conservation section. The section under conservation however does not have an explicit reference to the risk assessment mandated under ‘site management’. The ‘conservation plan’ is supposed to (Globalgap, 2019 a, p. 18) “acknowledge the impact of farming”, including “knowledge of [...]conservation sites, water management, the impact on other users, etc.” however the aim of the plan is stated as “enhance habitats and maintain biodiversity on the farm”. These aims for the plan are very broad and not necessarily overlapping with managing the risks identified in the prior risk assessment. The broad formulation is ambitious, while simultaneously being ambiguous. There is an immediate question of baseline arising. It is unclear if the aim to enhance habitats are intended to include habitats outside the farm, or if this is limited to the farm like the aim of maintaining biodiversity. Maintaining biodiversity on a farm if the baseline is intended to be based on the situation prior to industrial farming is very ambitious, while if the baseline is intended as from the first assessment towards the standard, or another situation after introduction of large scale agriculture it is a rather unambitious goal. While the goal of improving habitats similarly is ambiguous, if the duty could be fulfilled by standalone projects improving specific parts of local habitats, for instance on farm habitats for birds by planting buffer zone vegetation, the goal is beneficial but most probably not sufficient for overall sustainability. To reduce or completely balance the farm’s sustainability impact on habitats the full range of impacts also outside the farm plot must be considered and mediated. As the standard does not mention any demands for a baseline or give an indication of spatial scope it is possible to fulfil the criteria on a minimum interpretation.

To be fair impacts outside the farm plot are probably most efficiently countered in a regional plan, rather than in individual plans by each farm, and the criteria also opens up the possibility to comply by taking part in regional plans. This CPCC on conservation plan is only a minor must, while the overall risk assessment is obligatory. Additionally there is a CPCC under ‘Conservation’ that goes further asking “Is this policy compatible with sustainable commercial agricultural production and does it strive to minimize environmental impact of the agricultural activity?” (Globalgap, 2019 b, p. 18) and also stating that there should be a plan for carrying out baseline audit. This point is however only a recommendation, and compliance will be monitored but has no impact on certification.

In sum total this points to a good possibility to aid the producers in carrying out work similar to sustainability analysis if the ambitious nature is followed up by well-intentioned work to acknowledge the impact of farming broadly. However there is ample room for lesser practices being carried out and still found sufficient for compliance with the CPCCs on site management and conservation. Also the CPCC is a minor must, which means there is still some room to be certified with non-compliance on this criterion.

There is also a considerable part of the text that concerns the avoidance of pollution or contamination by pesticides, fertilizer and soil erosion. The standard mandates considerable effort in reducing grey water footprint. Similarly there are several points suggesting implementation of water conserving technology and irrigation management to the same aim. These CPCCs will most probably have an impact in reducing the water consumption, especially if the relative cost is not too high. However, reduced impact is not the same as sustainability.

### **Sustainability analysis and water in the Crops Base module**

In the module titled 'Crops Base' the most relevant text is found in the section titled 'Water management'. The chapeau states that "Water is a scarce natural resource" (Globalgap, 2019 b, p. 45). And directs the reader to more information on responsible water use in the corresponding annex. In the guidance to this point, found in the annex, it is suggested that the producer assess if there will be water shortages. This however is framed as an issue of irrigation, and not as an environmental or human rights issue. Guidance on irrigation management however asks if downstream water shortages is a possible consequence, an issue that is clearly both environmental and social in its nature.

The 'water management' section requires a risk assessment that evaluates environmental issues stemming from the use of the farm's water sources. Furthermore, the criteria state that environmental impact off farm should be considered "where information is known to be available" (Globalgap, 2019 a, p. 46). The section has several criteria linked to legal documents and regulations on water. The guidance given in the annex 'Responsible on-farm water management for crops' states that the water risk assessment should identify risks concerning pollution and over use of water. Parallel to the text in the all farms base module there are control points on limiting or controlling pollution and run off, and on using water in an efficient and planned manner. There is a consecutive CPCC requiring the producer to keep and implement a water management plan, there is however no reference to environmental impacts or the risk assessment in the requirements for this water management plan. This risk assessment is an important and fundamental part of sustainable water management, but as discussed above identified risk must be managed.

The annex with guidance on 'water management' states "Unsustainable (over)extraction of water from groundwater aquifers can cause a drop in the groundwater table." (Globalgap, 2019 a, p. 66). Water quantity has a separate section in the annex, the first point of which mandates the complying with national and international legislation concerning water quantity management. This section also states "When using groundwater for irrigation, use it sustainably. This means not extracting more than the yearly recharge rate to avoid drop in the groundwater table." (ibid, p. 68) There is however no requirement on information gathering on recharge rate. To get advice from local water management authorities however is listed, concerning water availability.

The example risk assessment in the guidance lists water scarcity as a physical risk, constituting a risk to farm activity. It also poses the question "does the producer contribute significantly to water scarcity in the river basin or area or might the producer do so in the future?" (Globalgap, 2019 a, p. 83). The example risk assessment also mentions droughts and possible impacts thereof, and asks if

the regulatory scheme is adequately considering environmental, social and cultural issues. Under the category “reputational risk” water conflict and environmental issues are also mentioned.

The Crops base module in total has the most explicit text on water management and sustainability, however most of the text is in the annexed guidelines which has an ambiguous status. The General regulations (Globalgap, 2019 b) specify that the Annexes are not part of the ‘normative documents’ and as such the producer can only be held to the text in the CPCCs and not the supporting guidance. The text is only pointing to risk assessments and does not explicitly require actions to mediate or reduce risks to the environment once they are known. This again supports the conclusion that producers *could* use the Globalgap IFA standard to carry out sustainability analysis with regards to water, and sustainable water management, but this is contingent upon their well-intentioned effort to fully comply with the criteria and the overall aim of responsible water use.

### **Information gathering and risk integration**

From the interview guide I draw consecutive questions on information gathering for the sustainability analysis and how it is integrated in the company and value chain. These questions are to a lesser extent answered, but I find it informative to include analysis also on these points to better inform the coming discussions (chapter 6). Asking the text what sources of information is used in the risk assessment? It provides few explicit answers. Yearly recharge rate is mentioned as a factual input. Advice from local water management authorities is alluded to. And it is mentioned to take environmental impacts off farm into consideration, but only where information is available. This means that information gathering and the quality of the factual basis of the risk assessment by and large is up to the producer to decide.

How the risk assessment is integrated into the decision model is another important question that can give information on the probability of sustainable water management by the producers. It could be objected that a certification standard is not the tool for prescribing decision models for the producer. Independent of this normative question I assert that how decisions are taken influence the outcome. While the text on several instances mention how important it is that risk assessments are approved by and even reviewed recurrently by management it does not give us insight into decision models of the producers. We therefore do not have any indication of whether environmental risk is included in for instance decisions about expansion of the plantations.

### *The Spring standard*

In this section analysing the Spring Standard I have applied similar questions to the ones used to analyse the Globalgap IFA standard. As the standards have different foci the material relevant to the different questions vary and the structuring of the analysis and the text is therefore adjusted accordingly. I will in the following start by presenting some formal traits of the document before interviewing the text and describing the themes subsequently.

The Spring standard, in full titled Sustainable program for irrigation and groundwater use, is an add on to the Globalgap IFA standard, it is therefore intended to be implemented as an addition to the larger Globalgap IFA standard. It is a much shorter document of only 13 pages consisting of 44 pairs of control points and compliance criteria, and does not contain the detailed annexed guidance that the Globalgap IFA standard does. As mentioned above the Spring general rules document is used to support the analysis of the Spring standard.

The rules for compliance in the Spring standard is different from the Globalgap IFA standard in that all the CPCCs must be complied with to some extent. Compliance is scored from 0-3 where a score of 0 or 1 indicates non-compliance. On minor criteria the producer must submit a corrective action plan within 28 days. On major criteria the producer must take immediate action to correct non-

compliance and submit proof of correction within 28 days. If non-compliance is found on critical criteria no certification will be given. Additionally if more than 25 % of minor criteria are not met on audit day certification will not be given. Any documentation on follow up requested after non-compliance must be submitted before certification can be given (Globalgap, 2018 b).

Certification with the Spring standard can, as for the Globalgap IFA Standard, only be done through a third party company approved as a 'certification body'. To be certified by the Spring standard the producer must be certified by the Globalgap IFA standard. Before inspection leading to certification the producer must have records of implementation of the requirements in the standard spanning at least three months (Globalgap, 2018 b).

The Spring standard has five sections titled: 'Assessment of water risks and objectives', 'Assessment of legal conformity', 'Management and use of water resources', 'Environmental management. Protecting water sources', and 'Traceability'. All the identified themes due diligence, flow of information, water management, ecology, and efficiency are represented in the text.

### **Interviewing the text**

The four themes due diligence, flow of information, water management, and ecology/environmentalism reflect the questions drawn from the interview guide. Similar to the analysis of the Globalgap IFA the theme efficiency is evident in the text. The more granular questions from the interview guide related to sustainable water management that we seek to find answer to are on baseline, stated thresholds, cumulative impacts, and integration in the decision model of risk assessments. The following four subsections are treating these five themes consecutively, combining sustainable water management and ecology in the final subsection. The findings will be summarized and discussed in the section 'implications of document analysis findings' below.

### **Due diligence**

There is a considerable focus on legal conformity in the text, with the entire second section focused on this. The producer is required to show documentation of the zoning of the land for agricultural purposes, and documents showing all water sources are duly recorded and their use authorized. Additionally the standard requires that legal documents state flow rates and maximum quantity for drawing water.

There are also several different risk analysis mandated. The broader risk assessments expected in a due diligence are embedded in the Globalgap IFA, and therefore the risk assessments in the Spring standard are more specific. The risk assessments will be analysed under the themes water management and ecology below.

### **Flow of information**

As with the Globalgap IFA Standard flow of information in the value chain is not significantly elaborated in the text. The text is only referring internal flow of information to hands-on personnel.

### **Efficiency**

Similar to the Globalgap IFA Standard there is a considerable amount of text addressing water use efficiency. More specifically it is required that the farmer is making plans for irrigation and gathering information on necessary water use through measuring soil moisture and other improvements aimed at lowering water use for irrigation. The sum of these CPCCs is undoubtedly the reduction in water used per hectare irrigated, but the reduction in itself does not meet sustainability criteria if the disparity between existing practice and sustainable water consumption is too big.

### **Sustainable water management**

The first section mandates a water risk assessment. This water risk assessment is expected to cover



how the farm operations influence watershed sustainability. Watershed sustainability is however not specified further in this CPCC. The next subsection mandates a mapping of water stakeholders in the watershed and their risks and challenges. In the subsection 'Aims and objectives' the standard obliges management to create objectives and procedures that answers to the risks of the water risk assessment "compatible with the protection of the natural environment and to ensure appropriate and sustainable use of water" (Globalgap, 2018 a, p. 3). While the objectives are clearly expected to be in place on audit the implementation through the water management plan will not necessarily be in place based on the audit criteria. However deadlines and responsible personnel are expected and there is a specific CPCC on evaluating achievement of objectives. Continued lack of progress towards the objectives would therefore likely lead to non-compliance as a new audit is needed yearly to retain the certificate.

Section three of the standard is titled 'Water management'. The lion's share of this section is focusing on water efficiency. On sustainability and ecology it is notable that the producers are asked to "participate positively in the governance of the watershed and engage in collective actions to tackle shared water challenges" (Globalgap, 2018 a, p. 10). A positive participation with the vigilance committees in the Aconcagua could be interpreted as proactively addressing the 'shared water challenge' posed by water scarcity, but how the 'positive interaction' is interpreted is largely up to the plantation owner and the auditor.

The next section 'Environmental management. Protecting water sources' is mainly focused on activities by producers to avoid contamination or pollution of water. It also mentions promoting biodiversity in buffer zones on their land.

#### *Implications of document analysis findings*

The two standards Globalgap IFA and Spring are not always applied together. Applying only the Globalgap IFA could entail processes corresponding to a sustainability analysis for water management, however this is not a necessary implication of following the contractual obligations created by the standard. There are also significant shortcomings in the description of procedures stemming from a lacking definition of baseline and little reference to information gathering, there is therefore no indication that impact and risk analysis carried out would be exhaustive or even covering the most significant risks. The water risk management entailed in the Globalgap IFA standard could have been improved significantly by upgrading more of the language to mandatory deliverables, especially if accompanied by supporting language on information gathering and risk management and mediation.

In sum the measures described in the Spring standard, especially if seen in connection with the language from the Globalgap IFA Standard specifying sustainable drawing of groundwater, constitute risk assessment and management that could be summed up as sustainable water management. There are however several of the more granular questions on how a sustainable water management is built up that are not answered by the standard and therefore will be up to the producer to define.

The spring standard as the Globalgap standard lacks referencing of baseline. The standard references watershed sustainability, an issue that could be objectively defined and as such provide a measuring stick independent of a site-based or watershed based environmental baseline. The topic watershed sustainability or what information gathering necessary for analysing this is however not exacted, the quality of analysis is therefore largely up to the producer to define. Cumulative impacts of water users are not explicitly mentioned either; however, the assessment of impacts in the watershed and the participation in the governance of the watershed would be expected to take into consideration at least some aspects of cumulative impacts. It is clearly a weakness that neither a baseline nor

information gathering on sustainable water volumes is explicitly mentioned, some at least implicit ecological baseline should however be expected in the assessment of watershed sustainability.

As with the Globalgap IFA standard there is no text relevant to integration in the decision model. Sustainable water management hinges to a large extent on risk assessments done by the producer, like the mandated water risk assessment, and is therefore dependent on what information sources the producer use in this work. Key terms like 'watershed sustainability' and 'participate positively' is not clearly defined and is therefore up to the producer and the auditor to evaluate. Some room is therefore still left for variation between well-intentioned full implementation and token least cost implementation; the Spring standard is as such not sufficiently covering the omissions of the Globalgap IFA when it comes to ensuring water risk management. As the Spring standard has more language on risk assessment in the CPCCs and stronger referencing of purely environmental concerns in the auditable text there is a far stronger role possible for the auditing body in ensuring environmentally friendly practices than in the Globalgap IFA Standard alone.

While themes like legality, efficiency, water management and environmental conservation, or ecology, are all present the integration of these issues into business decisions or information flow in the value chain is weak. There is a possibility for insight into the audit forms through the Globalgap database, but this is a very limited form of information sharing on sustainability issues. Assuming a low level of attention to the external environment the standards would increase the necessary level of attention. I find it reasonable to state that the implementation of the standards are strengthening the probability that the outcome of water management is closer to sustainable practices.. However as this is not guaranteed by the standards this is also dependent on other factors like the physical and legal context the farming is happening in. The standards could alone therefore not guarantee the buyer that the avocado produced has a sustainable water footprint. A wider due diligence procedure could improve on the shortcomings of the standards. We will address how elements of due diligence are present in Nature's Pride's risk management in the following section.

#### Due diligence in Nature's Pride's approach

We have seen from both Rema 1000 and Bama that they are delegating at least part of the risk assessment to Nature's Pride. Bama has some parallel activity, but state to have less monitoring than with other product lines, as this is Nature's Pride responsibility. Therefore, the due diligence process in Nature's Pride is crucial to the probability of sustainable water management in the avocado production. In the following section I will discuss how the due diligence elements assessing risk, acting upon findings, and reporting are handled.

As described above Nature's Pride have a risk assessment process that has established water scarcity as a key topic for avocado production in Chile. Among other tools used is the WWF water risk tool that has granular data for avocado production regions in Chile. This tool identifies a moderate to high risk in Valparaiso, a finding that indicates the need for further action (Nature's Pride, Personal communication, 06.02.20).

Nature's Pride inform that they consider the Aconcagua area to generally have a lot of water. But that the water availability is influenced by climate change, a growing population and growth in economic activity (Nature's Pride, Personal communication, 06.02.20). The source in Nature's Pride also report that "we made water risk maps for all our growers with external water experts. I discussed the results with all our growers during various visits to Chile." (ibid, p:1) It is however unclear if this uncovered risks that could lead to (or perpetuate) adverse impacts or unsustainable practices. There are also no stated actions to follow up water risk assessments outside the mentioned dialogue. Nature's Pride is in their communication pointing to a generally good water

availability in the Aconcagua area while simultaneously recognizing the pressures from climate change, population growth and increased commercial agricultural activity. Nature's Pride state that there is a need for close monitoring of the water situation in Aconcagua and a need to balance different needs. And that they are in dialogue with their growers about this. Nature's Pride inform that the growers work with local water boards and national authorities on the matter (Personal communication, 06.02.20).

This is indicating that Nature's Pride have identified water as a key risk for the avocado production in Aconcagua and are using their leverage to address risk management with the producers. This is activity that goes beyond the contractual obligations of the Supplier's agreement and the implementation of the standards. Pointing to the need for monitoring of the situation could also indicate that Nature's Pride intend to stay in touch with producers or other organizations to retain information. The implementation of the Spring standard could also be seen as a potential measure to strengthen the risk assessment and information basis. It is however unclear how Nature's Pride or their producers will address the problems arising from cumulative impact.

The introduction of the Spring standard will, going forward, contribute to managing the water risk through its mandating of a plan to follow up the water risk assessment. This is of course dependent on implementation outside of the pilot. Nature's Pride have also started training of personnel in water sustainability and that they will include water risk assessment in future procurement decisions. Both of these are potentially efficient measures to reduce adverse impact through the value chain going forward. There is however a question on whether individual risk assessments and expectations directed at single producers can render the avocado farming in Chile sustainable. We will return to this question in chapter 6.

The reporting of risk assessment and how impacts are addressed is not readily available to stakeholders or interested consumers. The information provided here is to a very large extent retained from direct communications from Nature's Pride not available to the public. The Spring pilot is mentioned in Nature's Prides annual sustainability report for 2019 (Nature's Pride, 2020 b), but this is far from giving information on risk assessment and reporting on environmental performance.

## 5.6 Perspectives of non-value chain actors

### Danwatch Expose

In 2017 a report written by investigative journalists from the Danish NGO Danwatch (Danwatch, 2017) unrolled a spiral of media attention on the water impacts of avocado production. The report gave rise to coverage about the avocado industry and drought in Petorca in numerous European news outlets (Facchini & Laville, 2018; Gullbrandsen, 2017 a; Senneset, 2017), and an ensuing extensive campaign by the Chilean export promoting agencies (Heinrich Böll foundation, interview, 2020). The report showed that avocado plantations used so much water that the local communities were faced with acute water shortage. Not only are the local population dependent upon government water trucks for sustenance, but the water has become unavailable for a lot of smallholder farmers according to the report (Danwatch, 2017). After contributing to the report Chilean activists Rodrigo Mundaca and Veronica Vilches of Modatima received death threats (Business and human rights resource centre, 2017). Norwegian retailer group Norgesgruppen informed that they had an agreement with Bama to only source avocados from sustainable producers in a comment to the report. Director of communications at Bama confirms that they bought Avocados from the Aconcagua area, and not from Petorca in 2017 (Gullbrandsen, 2017 b).

## Modatima

Rodrigo Mundaca, agricultural engineer and founder of Modatima is interviewed together with other Modatima activists by Deutsche Welle in a reportage from May 2018 (Ebert, 2018). Mundaca says Modatima is working for the smallholders and local population on Petorca, fighting for the human right to drinking water. Standing in the dry riverbed of the Petorca river he reminisces the days of the past where they were swimming and playing in the river. He says that before the big avocado boom there was enough water for everyone. The shortages began when the first big plantations moved in. The entire ecosystem dies when a river dries up, the big avocado exporters are damaging the water cycle, and the damage to the ecosystem is irreversible Mundaca holds (Ebert, 2018).

Mundaca holds that the hoarding of private water rights is the cause of the water shortage for the local population. Veronica Vilches, another Modatima activist, explains that she hopes some day a new politician that is not corrupt can come along and change the constitution. That without a change in the constitution the problem cannot be fixed. Water should be public property and belong to everybody she holds (Ebert, 2018). The Modatima activists tell that the threat level towards the activists is high. The industry put pressure on the activists and they are called eco terrorists in the media (ibid). Rodrigo Mundaca has also been charged and convicted with defamation because he stated that the avocado plantation owners had been fined for breaking the law. The plantation owners claimed only to have paid administrative fines and got the support of the court (Gullbrandsen, 2017 b).

## Heinrich Böll foundation

The director of the Heinrich Böll foundation in Chile (Heinrich Böll foundation, interview, 2020) clearly states that there are environmental problems related to the avocado industry throughout Chile, not only in Petorca province. The plantations are not compatible with maintaining ecosystems, and not compatible with climate change. The director is very clear that water is the most severe issue for the avocado industry.

The water problems in the avocado industry is a systemic issue according to the director. The problem is not that a kilo of avocado requires 700 litres of water, or 385 litres of water, the problem is that there are too many plantation fields. She deems it impossible for an importer to change the overconsumption happening in the avocado industry. The system with privatized water rights is flawed to an extent where we need a change on the national level. She also states that there is a need for a systematic change in government capacity to tackle the issue of unsustainable overconsumption. Right now the DGA only has information about approximately 30 % of the water rights held. Without proper information a proper water policy law is impossible she holds. (Heinrich Böll foundation, interview, 2020)

In the fall of 2020 the institute published two articles about the avocado industry in the Aconcagua valley. One of these is addressing the situation for water deprived farmers and households in Llay Llay, 20 km downstream of Panquehue. The article is clearly addressing the responsibility to the avocado monoculture (Salinas et al, 2020). The other article, also addressing decreasing groundwater levels is addressing the massive use of pesticides sprayed from the air, and the repercussions against workers trying to unionize. (Seitwerth, 2020). The director states that they do not anymore direct their main focus on water as they do not think this will bring any new information. The problem is already known. (Heinrich Böll foundation, interview, 2020)

The director does hope that producers like European Nature's Pride can bring change. She holds that the company is doing good as they have a due diligence policy, and they are interested in Human Rights and environmental standards. However also owners of the plantations have to be involved for

the practices to change. The director also holds that claims about sustainable avocado farming should be backed up with independent reports; she has not so far seen any such reports from universities or other sources in Chile. In passing, she states that Aconcagua is becoming a new Petorca. The statement is not made less relevant by the disaster zone declared in 2019-2020. (Heinrich Böll foundation, interview, 2020)

The foundation has also done significant work documenting labour conditions, but they are very reluctant to publish controversial material. The foundation and their local counterparts have faced menacing behaviour from the avocado industry according to the director. The companies send scores of lawyers to try to find mistakes in their publications, but they are not interested in meeting for public debate. According to the director the industry even went out of its way to get the Chilean foreign minister Herald Muñoz to call his Danish counterpart to attempt to stop the work by Danwatch. The Danish minister reportedly contacted Danwatch, but had to report back to the Chilean minister that he would not interfere with the freedom of the press in Denmark. The director is attesting to extremely long working hours, lacking protective equipment when handling pesticides and harsh repercussions for organizing as some of the problems they have encountered when interviewing workers. The precarious situation for migrant workers from Haiti and Venezuela with unclear legal situations is also alarming. The director state that the government clearly is not monitoring the situation (Heinrich Böll foundation, interview, 2020).

The Director clarified that no foreign companies, as part of their due diligence or otherwise, had contacted them to ask the institute about their views or experiences with the avocado industry (Heinrich Böll foundation, interview, 2020).

## Chapter 6 Discussion

In the following three sections (6.1-6.3) I will discuss the presented material to illicit answers to the three main research questions. The sections consist of several sub sections allowing for a structuring of the discussion that relates to the subordinate research questions. As conclusions and inferences from some of the discussions hold relevance for later research questions there are some references made to previous subsections of the discussion, but these are generally limited to avoid repetition. For the same reasons the subsections does not uniformly state answers to the research questions. The conclusions as they relate to the research questions are summarised in chapter 7.

### 6.1 Analysing sustainability & Rema 1000' information systems

#### 6.1.1 Sustainability of avocado production in Aconcagua

In answering research question 1a I have considered available information about water and water consumption for the relevant area. The information available in academic studies, media reports and gathered through interviews for this thesis point to a clear answer.

There is a severe and long lasting drought affecting Chile and the Aconcagua area. The avocado is water intensive, and the expansive planting of new fields have resulted in a very high water demand by the avocado plantations. According to reports, the Aconcagua River is laid dry for stretches in the dry season. A precipitation reduction of more than 80 % and reported water flow at 17 % of pervious normal upstream of Aconcagua illustrates the severity of the shortfall. With the water rights regime where normal water flow is fully allocated and possibly over-allocated there is very little probability that any surface water is left to maintain environmental flow. The depletion of water available for environmental flow is degrading riverine habitats and is clearly unsustainable.

The reports about excessively deep wells indicate that the shortfall in riverflow is made up from extracting groundwater from wells. A well depth of over 100 meters indicates the groundwater level has already sunk considerably and is contributing to the drying out of the river. The lasting reduction in precipitation and modelled climatic forecasts also indicate that there have been very little recharge of the aquifers, and a low probability of improvement. The use of groundwater must therefore clearly be seen as non-renewable and unsustainable.

It does not appear possible to produce avocado at industrial scale with a sustainable use of water resources in the Aconcagua valley, with the present and modelled precipitation patterns. There are no clear indications that the Panquehue area of the Aconcagua valley where the majority of Nature's Prides suppliers are located is an exception.

#### 6.1.2 Does Rema 1000' information system give them insight into the sustainability of production?

As indicated in chapter five Rema 1000 does not appear to have information indicating that the water consumption is unsustainable and as such not compliant with their supplier code of conduct. A brief answer to research question 1b is therefore 'no'.

Rema 1000 have identified water management as a general risk for Chile, both through their overall risk screening and probably by the media attention extended to the issue in 2017. The source expressly states that water risk is addressed with Bama. What information Rema 1000 has about the specific supply chain seems to largely depend on information communicated through Bama.

Information systems like the third party reporting and verification through SEDEX and audits by Rema 1000's quality assurance have not been used for the avocado supply chain.

As a consequence of Rema 1000's reliance on the information flow in the value chain they do not have sustainability information about the avocado production in Chile that could indicate a violation of their environmental tenets.

### 6.1.3 Can the control regime ensure sustainable water consumption?

In the current situation with very limited precipitation and low probability of increased precipitation and groundwater recharge, the only option for sustainable water consumption seems to be a significant scale back of the avocado production. With a reduction of precipitation of at least 80 % there might be a need to scale back the production to maybe 10-20 %, maybe more, including a halt to groundwater extraction, to reach a sustainable water footprint. This is a decision about downscaling that cannot be enforced by the buyers, but must be done by producers. The question of ensuring sustainability is therefore not one of assuring, but one of creating, conditions for sustainability. The control regime of the downstream value chain may influence the choice of producers, and holds the power to stop purchasing the avocados, and by that ending their contribution to a continued unsustainable practice. The issue of shifting the value chain to different producers for sustainability reasons will be discussed under value chain challenges (6.2.2) below.

According to the classification by Gereffi et al (2005) the avocado value chain could be described as relational, giving the buyers a relatively high influence over the producers. In the relations that are built up over time the challenges posed by unaligned strategic targets for the different actors could be reduced. Conversely, however Christ' (2014) empirical study found that pressure from overseas markets did not influence implementation of WMA among Australian wine producers. This leaves the issue of producer permeability for environmental management an issue needing further empirical research. The room for value chain influence is further discussed in the section Value chain challenges (6.2.2).

The control regime of Rema 1000 cannot influence the producers directly, but could potentially exercise influence through Bama and Nature's Pride. The practice is clearly in violation of the supplier code of conduct criteria on sustainable use of water, and on non-degradation of the environment on the production site. If Rema 1000 had the proper sustainability information this could be addressed through the supply chain to seek to bring the practice in compliance with their demands on sustainability and environmental conservation. The violation of the Supplier code of conduct is highly unlikely to cause Rema 1000 to end the business relationship with Bama, but most probably also give Rema 1000 the opportunity to stop purchasing avocados produced at the plantations in Aconcagua. Mol (2015) point to transparency as instrumental for achieving just results for victims of environmental degradation. A key weakness in the Rema 1000 control regime is the lack of information flow, practically barring Rema 1000 from corrective action.

The control regime in Bama gives functional similar opportunities vis-à-vis Nature's Pride. The ownership stake in Nature's Pride likely also gives more direct influence. Similar to Rema 1000 Bama's lack of sustainability information, or possibly a lacking analysis of the available information, leading to the conclusion that the water management is compliant is barring such follow up. Utting (2008) state that codes of conduct often ignore macro impacts. This is also the case for Bama's environmental criteria where macro impacts are not explicitly listed. Without such an omission, the failure to address the overall impact of groundwater extraction by Bama would be less likely.

The control regime of Nature's Pride is not as clearly demanding sustainability of their suppliers and there might therefore be less opportunity to end contractual obligations with the avocado producers based on non-sustainable water management. It is however quite likely that Nature's Pride could change the contracts or exit the business relation within a reasonable timeframe. In line with Gereffi

et al (2015) we can conclude that the possibilities for influence through the value chain are strong. Christ (2014) however indicate that non-binding recommendations runs the risk of low penetration.

The efforts with joint water risk mapping and introduction of a new third party standard indicate that Nature's Pride hold significant leverage over the producers and could influence the practices to a certain extent. Nature's Pride has stated to be working towards sustainable water management in 2023, and must consider that they have the appropriate leverage to change their suppliers practices, or the means to exit contracts with unsustainable producers.

I do not find it likely that the avocado producers would reduce their volumes by 4/5 for environmental goals, as the economic impact for most would be very high. For the water consumption to be sustainable the action has to be taken collectively by all users, agricultural and other, in the watershed. Previous experiences from Petorca show that this demanding collective action was made almost impossible by the lacking formal structures, the cultural perceptions around water and water rights, and a lacking knowledge of impacts of climate change. An intervention by the Chilean state reducing the water consumption is also highly unlikely. If the avocado producers do not collectively with other plantation owners reduce their consumption there is no avenue to change the production into a sustainable production. Whether stopping to buy the avocados, and ending the business relation to avocado producers in Aconcagua is a sustainable choice will be addressed in the section on due diligence below.

A probing into the question of whether the control regime would be effective in a similar situation that did not suffer severe reductions in precipitation due to climate change could be valuable for comparison. The value chain control regime could in an alternative legal scenario strengthen the adherence to an insufficiently enforced water management regulation. In lieu of a sufficient legal structure the fact that expansion of agriculture frequently lead to the over extraction of groundwater would be a challenge for the control regime. The regimes inability to address this unsustainable practice indicates that the control regime could face challenges also in other contexts with stable water supply and expanding agricultural sector.



## 6.2 Problems in the control regime

### 6.2.1 Producer level challenges

#### *Beliefs about viability and knowledge of climate change effects*

Christ (2014) assume that the producers of wine grapes consider the long run viability of the water sources to be in their self interest. A similar assumption would be natural to make about the avocado producers in the Aconcagua. The increase in planted area is indicative of a belief that the groundwater will not be depleted or become prohibitively expensive to use.

The converse scenario, where plantation owners are aware that the irrigation of avocado plantations are approaching an end, is difficult to support. It is possible that plantation owners have data on aquifer capacity and make estimations about prospective extraction and profitability. This would however indicate some degree of deception either by producers or by Nature's Pride. It is probably more likely than plantation owners having data not accessible to others that the plantation owners have not considered the possibility of a reduction in precipitation lasting several decades, and therefore do not envisage an end to the current practice.

Christ (2014) holds that the collection of physical data is necessary before producers can assess monetary implications. She also concludes that regulative pressures are one of the determinants making such data collection by producers more likely. As we have seen the legislative context is not constituting a high regulative pressure on the water users. The water management regime described for Chile and Aconcagua also indicates that good granular data are not readily available for the producers. A lack of access to data and low regulatory pressure likely both contribute to a low uptake for methods for including environmental factors in monetary considerations.

#### *Producer-level risk assessment versus overall risks*

Nature's Pride reports to have done some water availability assessment for the catchment. It is unclear however if this is done in the form of a risk assessment, their conclusion that the water availability in the Aconcagua is generally good seem to some degree to side-line the need for a risk assessment related to water management. There is some contradiction therefore between this statement and the fact that Nature's Pride has carried out water risk mapping with all the avocado producers.

This is perhaps indicative of a stronger focus on producer level risk than on catchment level sustainability risk. By encouraging their suppliers to contribute in the coordination done by local water boards Nature's Pride appear to attempt to counteract the negative aspects of the Chilean water management regime. This effort, however low scale, is an indication that Nature's Pride is aware of overall risk. Simultaneously it is clear that their main effort is directed towards the producer level risk.

Bama has a similar acknowledgement of overall risk, but seem to conclude based on a producer level assessment of water management. Rema 1000 has a risk screening covering an overall risk by country, and for more detailed risk assessments rely on information from the value chain.

This focus on producer level risk is possibly reducing information uptake on watershed risk. In line with the fields of visibility concept (Spence & Rinaldi, 2012) focusing on what seems to be a stable situation with groundwater extraction at producer level obscures the overall water deficiency in the catchment. As discussed this failure to bring about crucial sustainability information has influenced the course of action.

#### *Limitations of the third party standards*

As shown in chapter 5 the third party standard focused at the actions of the single producer do not have the capacity to demand or assure sustainable practices.

The Spring standard including its risk assessment constitute a framework for sustainable water management. The shaping of the risk assessment and other aspects of the standard that are up to the producer to define is however critical to the outcome. Within the framework of the standard, it is possible to carry out a risk assessment without addressing the long-term viability of the groundwater sources. Failing to address the over extraction of groundwater could falsely lead to a conclusion that farm level water risks are handled.

The standard also expects the producers to assess impacts in the watershed and participate in the governance of the watershed. The Aconcagua vigilance committees however does not have as their mandate to secure environmental flow. The vigilance committees also have no jurisdiction over groundwater. The limited function of the participatory regulative body is rendering the recommendation ineffectual.

The Globalgap IFA has similar functions with similar deficiencies. A well-informed implementation would have produced a risk assessment illuminating the unsustainable use of groundwater, and could possibly have led to a management plan to tackle said shortage. A sustainable solution is unlikely to be reached by a single producer however. Moreover, the certification standards hold no clear solution to the lack of a collective conservation effort.

### 6.2.2 Value chain challenges

#### *Retail as change agent: impact of strict standards downstream*

Chikanova & Mont (2015) describe retail as a change agent. In this case, it is symptomatic to see that the enterprises closer to the consumer has stricter environmental standards, at least in letter, than the upstream Nature's Pride. The effectiveness of retail as a change agent is however challenged by the lacking consistency of environmental criteria throughout the value chain.

As discussed above the limitation presented by weak legal environmental regulations is also affecting the functioning of the control regime. The interactions and interdependencies of private standards and state environmental regulation is a topic touched upon in this thesis that warrants further research.

Consumer pressures, positioning in the market and price premiums are mentioned as drivers for retail as a change agent (Chiknaova and Mont, 2015). The current situation where there is a clear policy not to import avocados produced in Petorca due to unsustainable water use, but no such policy for unsustainable avocados from Aconcagua is a peculiar situation. Chikanova and Mont (2015) explain that consumer lack of interest in sustainability is one of the main barriers to more sustainable practices. It seems probable that the decision to not sell avocados from Petorca stems from Nature's Pride upstream the value chain, and that their policy not to do so contribute to a positioning of Nature's Pride in the market, allowing Rema 1000 and Bama to keep confidence in the control regime after the 2017 exposure. The fact that Rema 1000 has not surveyed the issue of water sustainability more thoroughly is likely to be a reflection of their perception of the upstream enterprises and weak consumer pressure on the issue.

In Rema 1000's approach to ensure sustainability there seems to be an attempted balance between assuming contractual compliance, and applying control and information gathering mechanisms. Both Rema 1000 and Bama are de jure passing on responsibility for sustainability upstream by their contractual criteria. This approach is however combined with a certain amount of information gathering and dialogue aimed at assurance or improvement. As we have seen, this balance has not yet ensured sustainable production.

As mentioned above (in 6.1.3) there is a misalignment in policies that are likely to have contributed to the outcome. This will be discussed further in the next section 'The failure of CSR'.

### *The failure of CSR*

Several academic writers (Utting, 2008; Pahle, 2010; Bruner & Sjøfjell, 2019) on the topic of CSR have concluded that voluntary approaches are not sufficient and have largely produced instruments incapable of tackling sustainability challenges. It certainly is a conundrum that with increasing attention to sustainability and water management in the value chain the practices are still found to be unsustainable and there is insufficient flow of environmental information to detect violation of the enterprises environmental criteria.

The balance struck by Rema 1000 could also be seen as a result of a cost-benefit analysis. The formation of policies and codes of conduct covering environmental aspects throughout the value chain are likely also a manifestation of sincere goals aiming at improved environmental impacts, what we could call true altruism. The existence of the control regimes and scaling of the effort should none the less be considered as commercial undertakings where cost and benefit are considered. As alluded to above there are certain benefits to hold environmental policies and to avoid negative publicity from value chains with negative environmental impact. These are costs that Rema 1000 would like to avoid and who therefore justify the control regimes purely commercially.

When audits and other information gathering and control measures are not applied by Rema 1000 on the avocado value chain it must be seen as a result of a cost-benefit analysis. The capacity of the control regime has been used to other ends than to reduce risk at the avocado supply chain. It is a reasonable assumption that a cost-benefit considerations have an important impact on the size and capacity of said control regime. This implies that Rema 1000 accepts some risk for unsustainable practices within their value chain, contrary to their strict policy on non-degradation of the environment.

The failure of creating change through the control regime on environmental impact could be labelled a failure of CSR. This failure is partly caused by the mismatch of environmental policy between Rema 1000 and Bama and upstream Nature's Pride. Rema 1000 and Bama are clearly demanding non-degradation and sustainable water use. Nature's Pride does not include these aspects as clear criteria in their policy, and are also unable to deliver on them.

Mol (2013) point to a propensity for disclosing procedures rather than outcomes. The reporting by Nature's Pride, who is the downstream enterprise closest to the production impacts seem to verify this. Their information is clearly stating what activities are undertaken, but are less clear on the outcomes.

There are few indications as to why this mismatch in policies between Nature's Pride and Bama (and Rema 1000) is allowed. The focus on a 'hands on' approach rather than desk policies by Bama could be part of the explanation. The transition happening from being a supplier to becoming a more integrated subsidiary could be another reason why the environmental policies are not aligned, the contractual criteria still apply however. A lacking expertise on the implication of the differences in environmental policy as they pertain to water is also a possible factor in the explanation. Further investigation is however needed to conclude what are the core explanations.

### *The value chain and competition*

It is not straightforward whether to define the avocado value chain as producer driven or buyer driven value chain. The considerable growth in Chilean lands producing avocado is parallel to a European growth in consumption. Without the growth in consumption in Europe and USA the growth would likely have been limited. The Chilean effort to increase imports and consumption of avocado is however also relevant to the equation. Nature's Pride is but one of many European companies importing avocados from Chile, and has limited influence on the development of the industry. However, the capacity to trade avocados from Chile to Europe lies with Nature's Pride and it seems unlikely that the producers would take control of this crucial part of the value chain, this indicates that it is ultimately Nature's Pride as the buyer who controls the value chain.

Switching costs is an issue related to cost-benefit when designing CSR measures. The mega drought in Chile and Chile's unique placement as avocado producer in the global market makes the prospects for Nature's Pride replacement of unsustainable producers in Chile bleak. Any producers in Chile able to produce avocados with a long term sustainability of water sources could demand a considerable premium. Avocados grown in neighbouring Peru are harvested at a different period and cannot replace Chilean production. Producers in Spain and Israel partly producing in the relevant timeslot are not likely to produce avocados at comparable cost to the Chilean producers. Continued purchase of avocados from the producers in Chile therefore is likely a reflection of too high switching costs, relative to the potential benefit from terminating the exposure to risk stemming from the Chilean value chain.

As discussed above the relational value chain gives the buyer a reasonable degree of influence over the production. In the context of global value chains and environmental degradation, it seems pertinent to discuss whether this represents an aspect of the 'race to the bottom' dynamic. Central to the race to the bottom thesis is the pressure from international firms to lower prices or increase volumes leading to adverse social and environmental impacts. With the existing water regulation in Chile a business as usual in the avocado industry would have been difficult, but an expansion meeting a 10 year drought has been devastating. As the Chilean water regulation has remained relatively unchanged since the 1980s a downwards pressure from global value chains in produce can not be considered cause for the low environmental protection. It could be a factor that the environmental protection is kept low to facilitate increased export however. An analysis of this more complex interaction of domestic economic interest, political powers and European economic interests could bring instructive insights, but remain outside the scope of this thesis.

#### *Eco efficiency*

The environmental policy for water applied by Nature's Pride is focused on activities improving practice rather than stating substantive thresholds. This approach could be labelled Eco efficiency (Utting, 2008). The eco efficiency approach is clearly present in the interaction with the producers and in the standards that the producers are required to follow. The eco efficiency approach is an approach to natural resource management that focuses on reduction of resource input per produced unit. The fields of visibility mechanism described by Sepnce and Rinaldi (2012) show how an illumination of one aspect, like input efficiency, can obscure another aspect, such as absolute reductions.

The efficient use of water resources could reduce the impact of a plantation, and ASOEX is proudly boasting the avocado industry's use of advanced drip technology. While a Chilean avocado plantation may use less water than a less advanced avocado plantation the expansive growth of land under avocado cultivation is still causing a tremendous water footprint that is not sustainable. This could be seen as an example of Jevon's paradox, where a reduction of resources needed per unit lead to an increase in units produced, and in turn an increase in total resources needed.

Ansari and Kant (2017) point to examples of environmental resource efficiency also causing economic benefit by reducing costs. While being a mechanism making eco efficiency a more likely applied practice it does not seem sufficient to reduce the use of water resources to a sustainable threshold in this value chain.

Mol (2013) point to the frequent practice of focusing on procedures rather than outcomes in CSR. An approach focusing on increased water use efficiency rather than controlling water use towards substantive criteria is in line with this. The eco efficiency approach might be less costly for the downstream enterprises than establishing and controlling towards substantive criteria. One could also speculate that Nature's Pride have considered substantive criteria and concluded that the producers would not be able to meet such criteria. Upon that conclusion choosing an eco efficiency approach as the switching costs, if considering eco impact, are seen as prohibitively high.

### 6.3 Due diligence – shortcomings and prospective outcomes

The due diligence approach state that enterprises should consider, and mitigate, risks they are linked to through business links. In the approach also lies a responsibility to seek to avoid adverse impacts and to remediate adverse impacts caused by your business.

It is clear that the risks and manifest impacts of the production of avocado sold in Rema 1000 are linked to the enterprise through the business links in the value chain. As such Rema 1000 should carry out a due diligence for the value chain. The initial risk screening done by Rema 1000 indicating a red flag for water management also indicate the need for an enhanced due diligence.

It is considered as sufficient in the due diligence approach when risks are manifest upstream in the value chain to choose to assess the due diligence done by entities upstream rather than to carry out a full risk assessments of the upstream production independently. As such Rema 1000' delegation of due diligence to Bama is warranted as long as they are assessing Bama's due diligence and find it satisfactory.

A due diligence procedure should assess human rights impact, include a monitoring of human rights, act upon the findings and report about the process. Consulting with potentially affected groups is also upheld as a necessary practice by CSR researchers like Parella (2020). An enhanced due diligence similarly could entail consultations, and possibly monitoring by third parties or visits to farms according to the OECD/FAO guidance (OECD/FAO 2016).

Bama has reportedly assessed human rights impact, and prioritized the management of water resources as the most significant risk. It is however unclear to what extent they have monitored human rights outside the narrow assessments of water management. Bama has visited the producers and could as such be seen to have conducted enhanced due diligence. But it is likely that Bama's due diligence would have results indicating need for more mitigation and remediation if they had applied one of the two other recommended instruments consultations or monitoring by a third party such as civil society. While prioritizing water as the most salient risk Bama has also sidelined salient issues of human rights related to working conditions on the plantation, like the right to freedom of association. Following the observations done by civil society there is considerable risk for violation of such rights in the avocado plantations. The failure to acknowledge such risk seems like a critical omission for disk base human rights due diligence.

Bama has carried out risk assessments and activities in line with a due diligence procedure, but could likely strengthen their practice by applying a wider range of the suggested instruments. It is likely that the activities of Rema 1000 include an assessment of the due diligence carried out by Bama, they are therefore in line with the expectations on risk assessment of upstream production.

Rema 1000' practice as described in chapter 5 is largely also fitting the expectation from OECD/FAO (2016) for a strong management system, an identifying and prioritizing of risks, and a verification of supply chain due diligence. It is however unclear if there is a clear strategy on how to respond to identified risks or if the response is decided case by case. The failure to detect the blind spots of the Bama due diligence by Rema 1000 suggests that the enterprise could benefit from a formalization of their response to identified risks. Rema 1000 also lack in the fifth step of the framework as they are not transparently reporting about their supply chain due diligence procedures and identified risks. Transparent reporting could strengthen Rema 1000' control regime by facilitating more specific input by stakeholders.

### *Potential follow up of unsustainable practices identified through due diligence*

There is some relevance in addressing the question: What should Rema 1000 do if they identify adverse impacts of water management in the avocado supply chain? Identifying unsustainable water management and categorising it as an adverse impact would demand that Rema 1000 acts upon the finding. In the due diligence approach it is clear that you have a responsibility to remediate adverse impacts that you have caused, the issue of remediation is however less clear if you are only linked to the adverse impact. A linking to an adverse impact or a risk of adverse impact is clearly mandating an effort to reduce the risk through the leverage Rema 1000 has vis a vis the entity constituting the business link. Both the UNGP and the OECD guidelines are clearly stating that a business should consider ending the business relationship linking it to an adverse impact if one is unsuccessful in changing the conditions.

It could be argued that as the end retailer Rema 1000 is instrumental in marketing the avocados grown by the producers and thereby are part of the business model that create the impact, and is not merely linked to the impact, but in fact part of the business that is causing the adverse impact. Any influence over the situation at the production sites however has to occur through the business links and Rema 1000 should as such use their leverage to influence Bama and through them the upstream Nature's Pride and Chilean producers. As a considerable customer of Bama and part owner the Rema 1000 enterprise holds significant leverage over Bama.

A significant effort by Rema 1000 to mitigate and possibly remediate the situation would be expected if the due diligence approach was implemented as described by the UNGP and the OECD guidelines. There is also a clear case to seriously consider ending the business relation, which in this case would mean to stop selling avocados from Chile, if the conditions are not possible to change.

Due diligence guidance from the OECD also clarify that the effects of ending a business relation should be considered before taking such action. Negative effects for employment, for local communities or for the companies producing the avocado could be imagined if the business relation is ended. Such consequences should be weighed towards the possible effect of reducing the adverse impacts. As Nature's Pride is only one of several international traders of avocado the outcome could also be that the producers continue the production and enter into an other value chain. As the primary goal of ending the business relation is to remove the enterprise from a business causing adverse impacts this latter outcome is less relevant to the choice of ending a business relation within a due diligence framework.

## Chapter 7 Conclusion

By mapping the control regimes in the value chain and conducting a thorough document analysis of the third party standards applied at producer level I have been able to assess the functioning of the environmental policies. Through an exploratory desk research of water management and avocado farming in Chile I have been able to lay out a context influencing the effectiveness of these environmental policies in ensuring sustainable water management. This has produced clear answers to the overall research questions and points to some areas that could benefit from future research.

### Findings for main research questions

The industrial avocado production in Aconcagua has a water footprint that is unsustainably consuming groundwater. The surface water is also functionally depleted by agricultural activity in the area. Combined this has devastating effects for habitats and negatively affects non-industrial water users. Rema 1000 contractually obliges their suppliers to manage water resources sustainably, but the production is not in line with this criterion. Rema 1000 has flagged water management as a risk for the Chilean avocado value chain, their reliance on information from the value chain however has led to the enterprise lacking information about the contractual non-compliance the unsustainable water consumption constitutes.

We see also that the demanding situation with a legal and regulative regime in Chile not prioritizing environmental sustainability and the severe reductions in precipitation due to climatic changes means that the control regime of the downstream enterprises cannot ensure sustainability. The control regime seems dependent on functioning legal regulations to ensure sustainability. The control regime can however strengthen the implementation of a legal regime with weak enforcement mechanisms.

There are some significant challenges in the functioning of the control regime. Both at producer level and at value chain level. The consideration of climatic changes' impact on business seem wanting among producers. This could be improved by the actions initiated by the downstream value chain. It also seems like a limitation in the approach to water risk assessment that the main weight of considerations are done at producer level, rather than at catchment level. Similarly the third party Globalgap standards has deficiencies linked to both the lenient legal regime and the scope of risk assessments.

There are a significant amount of academics pointing to the limited effect of CSR approaches. The case of the avocado value chain from Chile seem to strengthen this position. Even with heightened attention and an expansion of efforts from value chain enterprises the outcome is not sustainable water consumption. The unsustainable water consumption is existing in a value chain where the value chain control regime has a mismatch of policies between the Norwegian Enterprises and the upstream Dutch Nature's Pride who do not contractually demand sustainable water consumption by their suppliers. The position of Nature's Pride may be interpreted as a pragmatic one, reached in the realization that purchasing comparable volumes from sustainable avocado production would not be commercially viable.

Following a full implementation of the due diligence approach Rema 1000 would not necessarily uncover the adverse impacts and trigger mitigation or remediation. Rema 1000' delegation of due diligence to Bama is warranted by their assessment of due diligence carried out upstream by Bama. The failure by Rema 1000 to detect the blind spots of Bama's risk assessment suggests that the enterprise would benefit from a formalization of their response to identified risks. Transparent reporting of due diligence procedures could also strengthen the control regime. The specific

challenge posed by industrial agriculture and groundwater extraction is likely to occur also in other agricultural value chains the enterprises are involved in.

A more thorough water risk assessment by Bama would likely have uncovered the unsustainable nature of the groundwater extraction and thereby contributed instrumental sustainability information into the control regime. Such information would require mitigation and possibly remediation by Rema 1000 and Bama as well as Nature's Pride. A possible action would be the halt of imports of all unsustainable avocado from Chile.

### Contributions to the research field

These findings can in sum hopefully lead to changes in the functioning in the value chain control regime. I hope to also contribute positively to the body of research on global value chains, CSR and environmental risk assessments through findings and conclusions that could hold relevance outside this specific case. This case has shown the limitation of some theoretical perspectives such as 'retail as a change agent' and 'eco efficiency'. The case also shows the need for proficient expertise in water risk assessments and the strong dependencies of private control regimes on host state legal regimes. This case also reiterates the instrumental nature of transparent flows of information for the due diligence approach to be effective at detecting and avoiding adverse impacts. Another contribution is the pinpointing of the increased challenges international value chains in agricultural products are facing due to climatic changes. These are of course differing over geographical contexts but as we see are already hitting countries like Chile hard, and are estimated to intensify in a plethora of geographic areas involved in global agricultural value chains.

The interactions of cost-benefit analysis to the scaling and choice of environmental policies and control regimes is an area that would be likely to benefit from more attention. Similarly can the analysis of the complex interaction of domestic economic interest and state regulations in exporting countries with international enterprises likely bring insights that are instructive to GVC research. Producer permeability for value chain environmental management is also an area in need of further investigation.

### Recommendations

Taking the assumption that the enterprises' control regimes are a reflection of altruist aims of environmental protection I find it pertinent to draw some recommendations from the observations I have made.

A full implementation of the UNGP and OECD due diligence regime would strengthen Rema 1000' control regime. While most functions are in place a formalization of response to identified risks would likely reduce the chance for misjudging upstream risk assessments. A strengthened transparency on due diligence procedures and identified risks would also close the gap with recommended practices and strengthen the regime.

For all enterprises, but most specific for Bama, an alignment of environmental policies in subsidiaries or a general strengthening of contractual compliance on environmental issues is recommended. The pressure from climatic changes and the crucial nature for water in agricultural value chains may also indicate that increased capacity in water risk assessments should be prioritised.

Nature's Pride should include the sustainability of groundwater sources in their water risk mapping, and act on the findings. In line with the conclusion of this thesis I hold that Nature's Pride in support of SDG 6 and their buyer's contract criteria should cease the purchase of avocados from producers with unsustainable water extraction practices, including the producers in Aconcagua.



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## Annexes

### Annex A – List of enterprise documents and correspondence

#### List of company documents providing data

Bama (n.d. a) Leverandørvtale.

Bama (n.d. b) Etske retningslinjer for innkjøp.

Globalgap. (2018c) Globalgap fruit and vegetable booklet.

Globalgap. (2018a) SPRING Checklist.

Globalgap. (2018b) SPRING General Rules.

Globalgap (2019a) Integrated Farm Assurance All Farm Base - Crops Base - Fruit and Vegetables. Control Points and Compliance Criteria. English Version 5.2.

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Rema 1000 (2019) Ansvarsrapport 2018.

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Rema 1000 (n.d. a) Etske retningslinjer for leverandører til Rema handel.

Rema 1000 (n.d. b) Rema 1000 Supplier Code of Conduct Guidance.

Rema 1000 (n.d. c) Krav til leverandører og produkter.

#### Correspondence and dialogue with Nature's Pride

29.12.18 Email confirming meeting to share information about the water management project.

15.2.19 Skype conversation with water expert in Nature's Pride. Access to producer level data declined.

6.1.20 Email from Nature's Pride replying to revised project proposal sent December 2019.

8.1.20 Email from Nature's Pride sharing Spring standard material

20.01.20 Skype with Nature's Pride

29.1.20 Email requesting scheduling of interview, stating main topics from interview guide.

10.02.20 Email declining interview providing a written reply by letter (personal communication 06.02.20) and excerpt of suppliers agreement titled "water in the suppliers agreement".



## Annex B – interview guides

### Interview guide Rema 1000

Information about the interview and the thesis. Informing of the voluntary nature and asking for consent.

Asking about title and responsibility for avocado and sustainability.

- **Do Rema 1000 have a procedure for due diligence<sup>2</sup> assessments of suppliers in the value chain?** Is water impacts part of this due diligence process?
  - What feedbacks are there in the DD process? Do Rema 1000 have formalised procedures for dialogue on risk factors?
  - How is social and environmental risk informing choice of suppliers? Is the risk assessment predominantly done when entering into new contractual relations, or through follow up dialogue?
  - Has Rema 1000 defined thresholds, legal or otherwise, that in DD would lead to termination of the contractual relation?
  - **What leverage do you consider Rema 1000 to have vis a vis the suppliers of avocado? (by leverage we mean EG possibility to ask for information gathering and information, and changing of policies and practices to accommodate environmental and other requests)**
    - Is the leverage influenced by the availability/demand of Avocado?
    - How is the leverage formed by the structure of wholesalers in the Norwegian market?
- **Rema 1000's participation in wider initiatives and direct contact with exporting countries**
  - Are there contacts between Rema 1000 and regulating authorities or environmental authorities in exporting countries, such as Chile?
  - Are Rema 1000 taking part in initiatives or hold informal conversations with growers associations, other importers or similar on water management or sustainability?
  - Do Rema 1000 buy information or services from other institutions with relevance for the due diligence/water policy work?
- **Broader DD/risk assessment on Avocado imports and Chile?**
  - What are the main elements highlighted in Rema's DD of Chile? (specify for Avocado if suitable)
  - What are the sources of information in this risk assessment?
  - Who are working with this risk assessment?
  - Are there dialogue or other initiatives taken with suppliers or other private interests in following up these DDs or as a consequence of these DDs?
  - How is it integrated into the decision processes in Rema 1000?
- **What is the nature of the relation between Bama and Rema 1000?**
  - How much of Rema's produce is coming from Bama? And approximately how much of Bama's turnover is Rema responsible for?
  - Is Rema 1000 requesting information from Bama on due diligence processes conducted by Bama?
  - On what level is the contact on sustainability issues between Rema and Bama most frequent?
  - Can you give an example of the contact and of its frequency?
  - Is Rema 1000 requesting information on environmental or social risks in the production chains of produce they buy from Bama (Such as Avocado)? – In what form is Rema asking (how frequent), and in which fields/pertaining to which products (if others than Avocado)

- **Questions on Miljøinformasjonsloven and the proposed 'Åpenhetsloven' on information on ethical issues and human rights. (5-10 min)**
  - Do Rema 1000 have a mapping of 'miljøinformasjon' of products?
  - Has Rema 1000 done a gap analysis of the requirements by 'Åpenhetsloven'?

### Interview guide Bama

Information about the interview and the thesis. Informing of the voluntary nature and asking for consent.

Asking about title and responsibility for avocado and sustainability.

#### **Questions on Bama's procedure for due diligence (DD) assessments of the suppliers.**

- **Do Bama have a procedure for due diligence<sup>2</sup> assessments of suppliers in the value chain?**
- Is water impacts part of this due diligence process?
- What feedbacks are there in the DD process? Do Rema 1000 have formalised procedures for dialogue on risk factors?
- How is social and environmental risk informing choice of suppliers? Is the risk assessment predominantly done when entering into new contractual relations, or through follow up dialogue?
- Has Bama defined thresholds, legal or otherwise, that in DD would lead to termination of the contractual relation?
- **What leverage do you consider BAMA to have vis a vis the suppliers of avocado? (by leverage we mean EG possibility to ask for information gathering and information, and changing of policies and practices to accommodate environmental and other requests)**
  - Is the leverage influenced by the availability/demand of Avocado?
  - How is the leverage formed by the structure of the value chain?

#### **Bama's relation to host state (Chile), wider coordinating initiatives and other commercial actors:**

- Are there contacts between BAMA and environmental regulating authorities in Chile (such as DGA)?
- Are Bama taking part in initiatives or hold informal conversations with growers' associations, other importers or similar on water management or sustainability?
- Do Bama buy information or services from other institutions with relevance for the due diligence/water policy work?

#### **Questions on broader DD/risk assessment on Chile?**

- What are the main elements highlighted in BAMA's DD of Chile? (specify for Avocado growers if suitable)
- What are the sources of information in this risk assessment?
- Who are working with this risk assessment?
- Are there dialogue or other initiatives taken with suppliers or other private interests in following up these DDs or as a consequence of these DDs?
- How is it integrated into the decision processes in BAMA?

#### **Questions on the nature of the relation between Bama and NP (formal description of relation)?**

- Bama is an owner of NP, by how much? What are the other owners?
  - How much of Bama's produce is coming through NP?

- Are Bama represented on the board? Are there other direct linkages except the AGM? (EG Bama employees in situ, formalised contact procedures)
- Could Bama be said to be the most important buyer from NP? (How much of NPs produce is bought by Bama?)

#### **Questions on the nature of the contact with NP on sustainability and due diligence issues**

- Is Bama involved in the formation of sustainability policy of NP?
- Is Bama requesting information on due diligence processes conducted in NP?
- On what level is the contact on sustainability issues between Bama and NP most frequent?
  - Can you give an example of the contact and of its frequency?
- Are Bama requesting information on environmental or social risks in the production chains of produce they buy from NP (Such as Avocado)? – In what form (how frequent), and in which fields/pertaining to which products (if others than Avocado)

#### **Questions on the nature of the contact with buyers (such as Rema) on sustainability and due diligence issues**

- How much of BAMA's produce is bought by Rema?
- Is Rema 1000 requesting information from Bama on due diligence processes conducted by Bama?
- On what level is the contact on sustainability issues between Rema and Bama most frequent?
  - Can you give an example of the contact and of its frequency?
- Is Rema 1000 requesting information on environmental or social risks in the production chains of produce they buy from Bama (Such as Avocado)? – In what form is Rema asking (how frequent), and in which fields/pertaining to which products (if others than Avocado)

#### **Questions on mapping of water risk/sustainable water mgmt. in Chile?**

- Do Bama have independent water sustainability assessments for produce such as Avocado from Chile?
  - Do Bama have insight into the producers' water-sustainability assessments?
  - Do Bama get information on water sustainability from third parties?

#### **Questions on Miljøinformasjonsloven and the proposed 'Åpenhetsloven' on information on ethical issues and human rights.**

- Do Bama have a mapping of 'miljøinformasjon' of products?
- Has Bama done a gap analysis of the requirements by 'Åpenhetsloven'?
- Do Nature Pride have a procedure for due diligence assessments of the suppliers?
  - Is the water policy part of this due diligence process?
  - What feedbacks are there in the DD process? Do NP have formalised procedures for dialogue on risk factors?
  - Is/would the water policy be used to decide whether to start up new contractual relations, or is it solely used as a tool within existing relations? – are there in the water policy set thresholds that would mean the ending of contractual relations if not amended (within set timeframes)? [I believe this to be yes]
  - What leverage do you consider NP to have vis a vis the suppliers of avocado in Chile? (by leverage we mean EG possibility to ask for information gathering and

information, and changing of policies and practices to accommodate environmental and other requests)

- Is the leverage influenced by the ability to deliver to other wholesalers? Or by the time frame of NP relations to suppliers?
- NP's relation to host state (Chile), wider coordinating initiatives and other commercial actors:
  - Are there contacts between NP and environmental regulating authorities in Chile (such as DGA)?
  - Are NP taking part in initiatives or hold informal conversations with growers associations, other importers or similar on water management or sustainability?
  - Do NP buy information or services from other institutions with relevance for the due diligence/water policy work?
- How was the water policy selected? Was the global Gap approach which it is part of used previously?
- Technical questions on the Spring standard:
  - IS the rating formulated with a threshold so that an may lead to a **non-approval**? (I believe yes)
  - What aspects can lead to non-approval? Is there a process of rectification after non-approval?
  - Is there a procedure or contractual clause describing termination of contractual obligations upon a non-approval?
- How has the water policy (Spring) been implemented?
  - How many producers (of Avocado)
  - Over what time
  - Comments on the implementation
    - Scoring?
    - Did any of the suppliers deliver scores that mandated improvement to be in line with the standard?
- Information from implementation of SPRING:
  - Sust analysis
    - Is there a basin wide water sustainability analysis, or does the SA take government drawing rights as a starting point?
    - Govt regulation
  - Involvement of stakeholders
    - What involvement of stakeholder have there been?
    - The weighting of stakeholder involvement is relatively low. What is NP view on this? Will NP encourage growers on this issue or take alternative approaches to get local stakeholder input?
- Broader DD/risk assessment on Chile?
  - What are the main elements highlighted in NPs DD of Chile? (specify for Avocado growers if suitable)
  - What are the sources of information in this risk assessment?
  - Who are working with this risk assessment?
  - Are there dialogue or other initiatives taken with suppliers or other private interests in following up these DDs or as a consequence of these DDs?
  - How is it integrated into the decision processes in NP?
- Brief description of the harvesting, selling, and transporting of avocado:
  - How is the nature of the transaction – do NP buy them directly from farms
  - How frequent are deliveries

- How are they transported
- What is the nature of the relation between NP and Bama?
  - Bama is an owner of NP, by how much? What are the other owners?
  - Are Bama represented on the board? Are there other direct linkages except the AGM? (EG Bama employees in situ, formalised contact procedures)
  - Could Bama be said to be the most important buyer from NP? (can NP state the approximate percentage of their sales going to Bama, in value or volume?)
  - Do NP on some occasions have contact with retailers buying from BAMA or is the contact solely with BAMA?
- What is the nature of the contact with BAMA on sustainability and due diligence issues?
  - Was Bama involved in the selection of the Spring water policy?
  - Is Bama requesting information on due diligence processes conducted in NP?
  - On what level is the contact on sustainability issues between NP and Bama most frequent?
    - Can you give an example of the contact and of its frequency?
  - Are Bama requesting information on environmental or social risks in the production chains of produce they buy from NP (Such as Avocado)? – In what form are they asking (how frequent), and in which fields/pertaining to which products (if others than Avocado)
- 

#### Interview guide Natures Pride

Interview not completed. Questions answered by email 06.02.20

- Do Nature Pride have a procedure for due diligence assessments of the suppliers?
  - Is the water policy part of this due diligence process?
  - What feedbacks are there in the DD process? Do NP have formalised procedures for dialogue on risk factors?
  - Is/would the water policy be used to decide whether to start up new contractual relations, or is it solely used as a tool within existing relations? – are there in the water policy set thresholds that would mean the ending of contractual relations if not amended (within set timeframes)? [I believe this to be yes]
  - What leverage do you consider NP to have vis a vis the suppliers of avocado in Chile?
    - Is the leverage influenced by the ability to deliver to other wholesalers? Or by the time frame of NP relations to suppliers?
- NP's relation to host state (Chile), wider coordinating initiatives and other commercial actors:
  - Are there contacts between NP and environmental regulating authorities in Chile (such as DGA)?
  - Are NP taking part in initiatives or hold informal conversations with growers associations, other importers or similar on water management or sustainability?
  - Do NP buy information or services from other institutions with relevance for the due diligence/water policy work?
- How was the water policy selected? Was the global Gap approach which it is part of used previously?
- Technical questions on the Spring standard:
  - IS the rating formulated with a threshold so that an may lead to a non-approval?
  - What aspects can lead to non-approval? Is there a process of rectification after non-approval?

- Is there a procedure or contractual clause describing termination of contractual obligations upon a non-approval?
- How has the water policy (Spring) been implemented?
  - How many producers (of Avocado)
  - Over what time
  - Comments on the implementation
    - Scoring?
    - Did any of the suppliers deliver scores that mandated improvement to be in line with the standard?
- Information from implementation of SPRING:
  - Sust analysis
    - Is there a basin wide water sustainability analysis, or does the SA take government drawing rights as a starting point?
    - Govt regulation
  - Involvement of stakeholders
    - What involvement of stakeholder have there been?
    - The weighting of stakeholder involvement is relatively low. What is NP view on this? Will NP encourage growers on this issue or take alternative approaches to get local stakeholder input?
- Broader DD/risk assessment on Chile?
  - What are the main elements highlighted in NPs DD of Chile? (specify for Avocado growers if suitable)
  - What are the sources of information in this risk assessment?
  - Who are working with this risk assessment?
  - Are there dialogue or other initiatives taken with suppliers or other private interests in following up these DDs or as a consequence of these DDs?
  - How is it integrated into the decision processes in NP?
- Brief description of the harvesting, selling, and transporting of avocado:
  - How is the nature of the transaction – do NP buy them directly from farms
  - How frequent are deliveries
  - How are they transported
- What is the nature of the relation between NP and Bama?
  - Bama is an owner of NP, by how much? What are the other owners?
  - Are Bama represented on the board? Are there other direct linkages except the AGM? (EG Bama employees in situ, formalised contact procedures)
  - Could Bama be said to be the most important buyer from NP? (can NP state the approximate percentage of their sales going to Bama, in value or volume?)
  - Do NP on some occasions have contact with retailers buying from BAMA or is the contact solely with BAMA?
- What is the nature of the contact with BAMA on sustainability and due diligence issues?
  - Was Bama involved in the selection of the Spring water policy?
  - Is Bama requesting information on due diligence processes conducted in NP?
  - On what level is the contact on sustainability issues between NP and Bama most frequent?
    - Can you give an example of the contact and of its frequency?
  - Are Bama requesting information on environmental or social risks in the production chains of produce they buy from NP (Such as Avocado)? – In what form are they

asking (how frequent), and in which fields/pertaining to which products (if others than Avocado)

#### Interview guide Heinrich Böll foundation

Information about the interview and the thesis. Informing of the voluntary nature and asking for consent.

Information on Norwegian import through Natures Pride

Nature's Pride state that they do not import avocados from Petorca. Do you think that is sufficient to avoid problematic water consumption? (do you think this to be true, that they do not import any avocados from Petorca?)

Boel have published two articles about avocado farming in the Aconcagua area. Covering the Llay Llay village and Valparaiso. These are stories of dispossession and intimidation. Land grabbing is a theme but water is not addressed. Do you have any indication that the plantations involved here are delivering to Nature's Pride or other European importers? Do you know how the water situation is for these plantations? ([22 september 2020](#) and [15 october 2020](#))

Nature's Pride state to have long term relationships with the plantations they buy from. All of these are supposed to be certified by GLOBALGAP. (They are now undertaking SPRING audit) They have indicated that the plantations are from areas south of Santiago, stating that these are areas with abundant water, and from the Aconcagua valley (Panquehue). Are there water shortage challenges also in these areas?

There is a study by DGA on water use in avocadoplantations in Chile from (which year?) – have you used this? Do you find it reliable?

It seems the DGA has gotten more resources and intensified their controls, especially in Petorca, since 2019. Do you have the impression that the extra attention has caused the government to better protect water sustainability?

Do you think the water situation is serious in other regions of Chile than Petorca? Which?

What is in your opinion necessary to do to make the situation (with avocado farming) sustainable?

Do you think the plantations and European importers can make avocado growing sustainable through certifications and standards by private companies such as Globalgap?

Is water in your view the biggest risk associated with avocado in Chile now or are there other negative consequences that are more or similarly important?



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