



**Bottom-up approaches to private voluntary standards for sustainability in South African agriculture: *Improving environmental governance using social learning***

Key words: Participatory guarantee systems, certification, private voluntary standards, South-Africa, bottom-up

Name: Yuri Gotoh  
Student nr: 4185234  
e-mail: [yuri.gotoh@student.uu.nl](mailto:yuri.gotoh@student.uu.nl)  
Supervisor: Dr. Walter J. V. Vermeulen  
Second Reader: Prof. Dr. Alfred Posch

Program: Sustainable Development (Joint Degree)  
Track: Environmental Governance  
Sustainable Business Management

Date: July 2015

## **Abstract:**

This Master thesis looks at bottom-up initiatives for the improvement of private voluntary standards for sustainability. Due to several reasons the use of sustainability standards has increased rapidly and they now exist in many different forms. Standards are an important tool for environmental governance and are seen as the main mechanism to make our agricultural products more sustainable. However the top-down approaches seem to fail to address the local needs and the impacts on the resilience of ecosystems and sustainability in general are ambiguous. To answer this concern new locally oriented bottom-up initiatives are emerging. Through a case study research such initiatives are evaluated according to a good governance framework and through the use of theories on social learning. Social learning looks at how social interactions influence behavior and whether certain norms and values can become situated in a wider social unit. It thus looks at the possibility to realize a transition towards sustainable agriculture that goes further than incremental changes. Many successful components of the initiatives seem to correspond with the literature and thus support a bottom-up approach. However there is also still much room for improvement. The analysis of different initiatives shows how each one makes a contribution to the development by addressing certain issues, but also shows the need for a better integration and exchange of information.

## Table of Contents

Abstract:.....	I
List of Figures .....	V
List of Tables .....	V
1. Introduction .....	1
1.1 Private Voluntary Standards and Certification .....	3
1.2 Sustainable Supply Chains.....	3
1.3 Bottom-up (Initiatives).....	3
1.4 Social Learning .....	4
1.5 Research context (South Africa) .....	4
1.6 Research Aim .....	5
1.7 Relevance .....	5
1.8 Research Questions .....	6
1.9 Thesis Structure .....	6
2. Theoretical Framework I: Sustainability Standards .....	8
2.1 Definition & Overview.....	8
Box 1: History and Context of Environmental (Sustainability) Standards .....	9
2.2 The Process Cycle.....	10
2.3 Diversity of Private Standards.....	11
2.4 Governance and Supply Chain Management.....	13
2.5 “Good Governance” Framework.....	15
2.6 Bottom-up Initiatives .....	16
2.7 South African Context.....	17
2.8 Conclusion.....	17
2.5.1 Accountability and legitimacy .....	17
2.5.2 Actors and roles .....	18
2.5.3 Fit, interplay and scale .....	18
3. Theoretical Framework II: Social Learning.....	19
3.1 Social Learning: The concept .....	19
3.2 Social Learning: The influences.....	22
3.3 System Science.....	23
3.3.1 Complex systems .....	23

3.3.2 Adaptive Management .....	23
3.3.3 System science .....	24
3.4 Policy studies.....	26
3.5 Research on learning.....	27
3.6 Empirical research on Social Learning .....	29
3.6.1 Challenges and points of critique.....	31
3.7 Summary of key variables .....	31
3.7.1 Adaptiveness, flexibility and learning .....	33
3.7.2 Evaluation and monitoring.....	33
3.7.3 Knowledge.....	34
4 Research Methodology .....	35
4.1 Case study approach .....	35
4.2 Research Framework .....	37
4.3 Assessment Framework .....	38
5. Description of the initiatives .....	40
5.1 Chingford Fruit Limited Sustainability Strategy .....	40
5.1.1 Historical time path.....	40
5.1.2 Actors involved.....	41
5.1.3 Main motivation for a sustainability strategy .....	41
5.1.4 Description of the “bottom-up” initiative.....	42
5.1.5 Innovative mechanisms .....	42
5.1.6 The Standards .....	43
5.2 Sustainable Fruit Initiative (SFI) .....	43
5.2.1 Historical time path.....	43
5.2.2 Actors involved.....	44
5.2.3 Main motivation for a sustainability strategy.....	45
5.2.4 Description of the “bottom-up” initiatives .....	45
5.2.5 Innovative mechanisms .....	46
5.2.6 The Standards .....	48
4.3 The Green road (PGS) .....	48
5.3.1 (Historical) time path .....	49
5.3.2 Actors involved.....	49

5.3.3 Main motivation for a sustainability strategy .....	50
5.3.4 Description of the “bottom-up” initiatives? .....	50
5.3.5 Innovative mechanisms .....	51
Box 2: Key Features of a PGS .....	51
5.3.6 The Standards .....	52
6. Assessment .....	53
6.1 Chingfords .....	53
6.1.1 Governance issues .....	53
6.1.2 Social Learning .....	54
6.2 Sustainable Fruit Initiative .....	55
6.2.1 Governance issues .....	56
6.2.2 Social Learning .....	56
5.3.1 Greenroad .....	61
5.3.1 Governance Issues .....	61
6.3.2 Social Learning .....	62
7. Cross Case Analysis .....	64
8. Discussion.....	68
8.1 What is bottom-up? .....	68
8.2 Social Learning .....	68
8.3 Reflection on research .....	69
9. Conclusion.....	71
Annex 1: List of Interviewees.....	73
References .....	74

## List of Figures

Figure 1: Process Cycle Standards.....	10
Figure 2: Social learning processes (Lebel et al. 2010). .....	20
Figure 3: Influences of social learning.....	22
Figure 4: The hard and soft systems stances .....	25
Figure 5: Research Framework.....	38
Figure 6: The working group process (Source: Farrell, 2011) .....	42
Figure 7: Principle, Criteria and Indicators hierarchical framework (Source: SFI (2014)).....	46
Figure 8: Different levels of sustainability .....	47
Figure 9: Participatory Guarantee Systems (Source: <a href="http://greenroad.co.za/Content/PGS">http://greenroad.co.za/Content/PGS</a> ) .....	48
Figure 10: Example results assessment SFI.....	58
Figure 11: Example Scoring SFI .....	59
Figure 12: Example spider diagrams SFI.....	60

## List of Tables

Table 1: Functions associated with systems and standards Source: (Henson & Humphrey 2010) .....	12
Table 2: Typologies for global standards (Source: Nadvi & Waltring, 2002) .....	12
Table 3: Core environmental governance issues or challenges (Plummer et al. 2013).....	15
Table 4: Key Variables for collaborative monitoring.....	30
Table 5: Outcome objectives for social learning.....	31
Table 6: Processes in social learning.....	32
Table 7: Scoring assessment framework .....	38
Table 8: Scoring Case Study .....	64

## 1. Introduction

The global challenges we face today ask for a transition towards a circular and fair global economy. Since the environmental issues of climate change and global warming have appeared on the political agenda in the 1970's the call for change has kept growing while the international community has repeatedly failed to take adequate measures. Out of the concern for the impacts of society on the environment and due to the growing number of global challenges related to the growing population and the scarcity of resources the field of sustainable development has emerged. The field of sustainable development researches how we can further develop our society while taking into account the social, economic and environmental impacts of our actions. While scientific knowledge is growing and solutions to decrease our negative impacts are developed rapidly, it is clear that in order to prevent possible catastrophic consequences we need to fasten the transition towards a sustainable society. This means that we cannot only rely on technical solutions and that more rigorous actions that change our behavior are needed.

When it comes to (environmental) governance in order to tackle the 'wicked' global challenges it has become apparent that governments, which traditionally had the most power, cannot succeed by themselves. As governments failed to agree upon international rules to deal with the global challenges, a growing call from consumers for sustainable products and practices has led to sustainability initiatives from the private sector. One of such initiatives was the 'greening' of supply chains using private voluntary certification, labels and standards. Many certification systems such as the FSC, MSC, Fairtrade and UTZ have established themselves in the international market in recent years (Potts et al. 2014). Many of these standards and certification schemes are related to a particular good, such as wood, coffee, tea and fruits and as they emerged individually they have their own standards and implementation strategies. With the growing interest of the global market in sustainable goods it is thus important that the performance and potential of certificates, labels and standards is investigated. The research in this field is growing rapidly which has led to literature reviews by several organizations such as the Steering committee of the State-of-Knowledge Assessment of Standards and certification, International Trade Center, FAO and International Institute for Sustainable Development (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012; International Trade Centre (ITC) 2011; Meybeck & Redfern 2014; Potts et al. 2014)

Research on the growing number of private voluntary standard organizations shows that they have contributed to making supply chains more sustainable in different ways and succeeded in addressing global problems such as poverty and climate change. The largest focus is on environmental issues and often positive changes are observed concerning the targeted indicators, while standards on economic and social issues are increasingly integrated but still lack research on the impacts (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). However as standards and certification systems are complex and dynamic, and many are relatively new, quantifying these impacts proves challenging (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). Certification as a tool to drive large-scale change has found little empirical evidence and very little is known about the durability of impacts (Steering Committee of the State-of-Knowledge

Assesment of Standards and Certification 2012). Consequently a large part of the new research is focused on the shortcomings of these systems.

Of special concern are the power relations between the North and the South and the exclusion of small-holders on the one hand and the effectiveness of globally applicable standards which lose depth and breadth. With the growth of the standard-setting organizations and the globalized trade market with powerful distributors and retailers, the concern is that private voluntary standards become another tool for them to exert their power instead of pursuing sustainability. The merging of sustainability standards with traditional health and safety standards is alarming in this sense, as they become market entry requirement and thus can exclude smallholders from the market. This is especially a problem because the actual farmers are often not involved in the standards setting processes and therefore the standards do not match their (sustainability) needs.

Additionally, as sustainability concerns complex and interdisciplinary problems which require a flexible approach and are highly context specific, the effectiveness of standards that are designed for a global market and thus widely applicable can be questioned. Ecosystems around the world differ considerably and even between farms in the same region large differences can be found due to its location and available resources (water, sun, soils, work force etc.). Yet each farm has to comply with the same standards which are often divided into measurable indicators. As such the standards are mainly designed to provide some count of accountability and measurable impacts for retailers and consumers but do not necessarily improve sustainability. At best it can tackle single issues, for instance child labor or the use of toxic materials, but when we look at broader issues such as climate change and biodiversity loss its impacts are unclear.

If we truly want to tackle the current global challenges a more holistic view is thus necessary in which farmers actively think about sustainability and what it means to them. Local knowledge should be combined with scientific knowledge to produce appropriate measures. To address the concerns stated above new approaches are being developed (in developing countries). Such bottom-up initiatives promote capacity building and learning through which the producers themselves become committed to sustainability and acquire the capability to set standards themselves that better fit the local conditions. In the past years different forms of bottom-up initiatives have evolved separately, with some focusing on international markets and others on the local markets. There is yet no general consensus of how such an initiative should look like and empirical studies on its impacts are case based in varying contexts. Thus a study on the existing initiatives and a comparison between different initiatives within the same region could shed light on requirments, challenges and possible benefits.

A special focus will be given to social learning in this research. Such learning could lead to transformation in norms, values and worldviews (Wals, 2007). Social learning can help deal with complexity and uncertainty and is seen as a process that supports participation, collective action and decision making. However as standards exist in many different forms, covering a wide array of topics and developed with different goals, it is one of the aims of this research to distinguish how these standards differ from existing ones and investigate if lessons can be learned from these practices.

In the following paragraphs the most important concepts of this research will be discussed briefly, the research question will be given and the structure of the thesis will be explained.

### **1.1 Private Voluntary Standards and Certification**

The topic of this research is private voluntary standards for sustainability. Whereas traditionally standards and regulations were mainly created and enforced by governments, these types of standards are not backed by formal legislation but created by private institutions. They have emerged as a result of globalization and growth in international trade which meant that governments in the North were no longer able to control production standards. The implementation of international regulations goes through supranational organizations such as the UN and OECD which have weak implementation powers and take a long time (Vermeulen 2010).

Private voluntary standards are thus an important component in the change from regulation by governments to governance by other parties. It represents a double shift in governance: from state to market and from national to global (Kersbergen & Waarden 2001 cited in Vermeulen 2010). Such a transition towards (interactive) governance demands a change in thinking about who does what in society, how decisions should be made, what kinds of knowledge will be used, who will be accountable, and how social and ecological systems are interconnected (Glasbergen, 1998 cited in Loë 2009, p.13).

### **1.2 Sustainable Supply Chains**

It is also important to understand the existence of supply chains in international commodity trade where there are multiple actors involved in the whole process from growing to the final consumer. Such supply chains can be organized in varying manners in which differences in power relations and motivation influence the outcomes. Vermeulen (2010) calls these systems sustainable supply chain governance systems which are characterized by: 1) a focus on environmental and socio-ethical goals, 2) varying modes of NGO involvement, 3) various forms of third party coordination and control.

Vermeulen (2010) distinguishes three types of sustainable supply chain governance systems: single firm approaches, joint product sector approaches, and cross sector approaches. Each system has its benefits and shortcomings related to legitimacy, accountability, costs etc. For the purpose of this research it is important to understand that these relationships influence the way that standards are organized and often form the main motivation behind the creation of an assurance system. From a supply chain management perspectives certification is a way to penetrate new markets and assure a certain quality for products.

### **1.3 Bottom-up (Initiatives)**

The case study research of this thesis is focused on “bottom-up initiatives”. Bottom-up refers to the inclusion of all stakeholders in the development of a program as opposed to a top-down approach where a certain (often elite or powerful) group designs the program and imposes it on its users. The focus is thus on participation and knowledge exchange between the different actors. Such approach is believed to better suit the needs of the producers, and as a great deal of the environmental impacts happen at the farms it seems logical to give them a more important role.

As the standards are the main means for increasing sustainable practices and they developed out of simple 'rules', these rules is what is often referred to when talking about standards but an effective standard is much more than the rule alone. The standard systems can often be better called programs or initiatives and farmers prefer this because traditional standard and certification systems are perceived as negative as they are costly and add little value to the business itself.

## **1.4 Social Learning**

In this thesis a special focus is given to the concept of social learning. As discussed briefly earlier current standards have proven to be effective in dealing with single issues, but it is unclear whether they can address sustainability in a holistic way and provide the context specific approach that is necessary. Some argue that a more radical transition is necessary in which adaptiveness is created. Social Learning is a concept that can help to realize this transition in practices.

Whereas the benefits of participation and bottom-up methodologies are often discussed in many contexts, for instance in the fields of governance (participatory governance) and environmental management (adaptive co-management) often research on the mechanisms and benefits is lacking. These approaches stress the importance of including different stakeholders and thus their norms and values and distinguish for instance different levels of participation: information (giving), consultation, joint development and collective decision making. Whereas it sounds logical that higher levels of participation can be beneficial the processes can also become messy and time consuming if not organized properly, and might not always be suitable.

The literature on social learning bridges this gap in knowledge by investigating how learning is influenced by the social environment and how learning can go beyond the individual and become situated in a wider group of people. It identifies different aspects and conditions which are necessary for such learning to happen. An analysis of the presence or lack of such conditions may shed a light on the success of the initiatives under investigation in this research and can lead to recommendations for further development.

## **1.5 Research context (South Africa)**

The focus of this research is on agricultural standards in South Africa. Three case studies have been performed. Of these two initiatives deal with fruit producers that mainly target the international market. The third case study is a locally oriented initiative and deals with small-scale organic farmers.

The agricultural sector in South Africa has two faces which are in large part a consequence of the Apartheid regime in the past century. On the one-hand there is the well-developed commercial farming, while in the former 'Homelands' subsistence-based, often communal, farming is mostly present. Although the production only consists of a small percentage in GDP the agricultural sector is important for South Africa as it remains a significant provider of employment and a major earner of foreign exchange through its exports (Scotcher 2009).

It is becoming evident that the increased use of pesticides, herbicides, fertilizers and water has consequences. Soil erosion, water pollution, water scarcity, declining soil health, ecosystem

degradation, species extinction and climate change are all problems that current farmers struggle with in South Africa (Scotcher 2009):

“In South Africa, annual soil loss through soil erosion is estimated at 400 million tonnes; surface and ground water resources are already almost fully utilized; water is often so polluted that it cannot even be used for irrigation; ecosystems and the services they provide are being degraded or used at unsustainable level; and a recent assessment found that almost 10% of the country’s birds and frogs, 20% of its mammals and 13% of its plants are threatened with extinction” (Scotcher 2009, p.2)

## **1.6 Research Aim**

The aim of this research is to get a better understanding of new bottom-up initiatives to promote sustainable agriculture. The focus will be mainly on the needs and wants of producers and how other actors try to address these issues. Getting a better understanding of the impacts of (sustainability) standards from a producer’s perspective is another goal. The analysis and comparison of different cases could shed light on characteristics that can be useful for sustainability standards in general.

Additionally the goal is to see if aspects as described in the concept of social learning are already included and whether they are useful for the promotion of sustainable practices. As will be explained in the third chapter a focus on social learning is given as this could help creating a more holistic approach that is deemed necessary.

## **1.7 Relevance**

The United Nations predicts that food production must rise 50% by 2030 to meet the increase in demand. Whereas rising use of pesticides, herbicides, fertilizers and water have enabled us to considerably increase the productivity of the land, we are now facing the negative consequences of these practices. Degradation of farmland leading to reduced productivity and increased sensitivity to changing circumstances are making the food production vulnerable. Finding ways to increase sustainable practices in agriculture is thus one of our main challenges for the future.

The findings from this study could contribute to the knowledge on the growing movements of bottom-up initiatives and provide first insights into its effectiveness. As there is yet no clear understanding or framework for voluntary standards that take into account the context specific standards and processes needed for addressing sustainability issues, the description of the multiple case studies can clarify necessary and useful characteristics. Additionally, by including a first qualitative assessment of the effectiveness, this study could provide leads for further research and recommendations for an improvement of these initiatives.

With the growing concerns on the effectiveness of globally oriented voluntary standards bottom-up initiatives could provide a solution for a further ‘greening’ of our supply chains and thus contribute to the transition towards a sustainable society. With the goal of such initiatives being sustainable development and through the inclusion of learning mechanisms to take into account the changing nature of knowledge and demands of sustainable development, it could prove to be a successful tool in addressing the interdisciplinary societal challenges related to sustainability.

## 1.8 Research Questions

The research question for this research thus is:

*What organizational features distinguish bottom-up initiatives of voluntary private standards from top-down globally oriented voluntary private standards and how do these practices compare to the literature on environmental governance and social learning?*

To answer the research question it will be divided up into the following sub-questions:

For the literature study:

- 1) What are private voluntary standards?
  - a. What are the relevant existing private voluntary standards, how do they work, and who are the standards-setting organizations?
  - b. What are the empirically found benefits and problems of private voluntary standards?
- 2) What is the context of private voluntary standards in South Africa?
- 3) What are characteristics of social learning that can be applied to enhance sustainable practices in agriculture?

For the case studies / field work:

- 4) How do the bottom-up initiatives work?
  - a. What are the standards?
    - i. What issues do they address?
    - ii. How do they deal with new entrants?
    - iii. Are they fixed or context-specific?
  - b. Who are the involved actors and what are their roles?
  - c. How is compliance to the standards assured?
    - i. How are the responsibilities distributed?
    - ii. How are the actors held accountable?
  - d. How are the standards set?
    - i. Who were involved?
    - ii. Are the standards adaptive? How?
- 5) How and why did these bottom-up initiatives of private voluntary standards evolve?
  - a. What are the vision, mission and goals of the actors?
    - i. Has this changed over time?
  - b. What is the historical pathway of the initiatives?
- 6) How do the bottom-up initiatives incorporate aspects of social learning?
  - a. In what way are these aspects described?
  - b. What are the obstacles for promoting social learning?

## 1.9 Thesis Structure

The first part of this thesis consists of two separate literature reviews that provide the theoretical framework for this research. Each chapter tries to distinguish variables that should be assessed in this

research. In Chapter 2 an overview of sustainability standards is given. The diversity in standards is explained and the relationships with environmental governance and supply chain management are discussed. There is a lot to say about what constitutes good governance and to analyse the cases an assessment framework is proposed. The focus will be more on organizational features and the fairness towards the different actors.

Chapter 3 is treats the effectiveness of standards in realizing change and increasing sustainable practices. The chapter provides a literature overview on social learning and describes how it relates to private voluntary standards. Again an assessment framework is presented to analyze the cases and see if social learning is taking place, and if so in what way and with which motivations.

The second part of this thesis is the empirical research that has been done and consists of three case studies. In Chapter 4 the methodology will be discussed and an assessment framework is presented based on the literature reviews in Chapter 2 and 3. The results are discussed in three parts: first the initiatives are described in detail; second each initiative is assessed according to the framework presented in Chapter 4 and; finally a cross-case analysis is made.

The thesis ends with a discussion and conclusion in Chapter 8 and 9.

## **2. Theoretical Framework I: Sustainability Standards**

In this chapter an overview of sustainability standards is given and an assessment framework for good governance will be discussed. The first sustainability standards were mainly related to the environment and only penetrated into a small niche market in the end of the last century. However in the last decade they have shown a great expansion in uptake and the scope has widened to also include social issues and other dimensions of sustainability. Through the growing scope and increased uptake they have increasingly become part of the traditional standard regimes that dealt with health, safety and quality issues.

As will be discussed in this chapter the implementation of standards involves many processes and actors which interact in a complex way. As such, standards have become a tool for environmental management and supply chain management. As a consequence they have become more than a tool to drive sustainability. We thus need to think and analyze carefully whose needs are being served by implementing standards.

First the definition of standards and its heterogeneity will be discussed. Next will be discussed how standards fit into environmental governance and supply chain management. Finally I will discuss why this calls for a different approach and what the context of this research is.

### **2.1 Definition & Overview**

Standards are agreed criteria by which a product or a service's performance, its technical and physical characteristic, and/or the process and conditions under which it has been produced can be assessed (Nadvi & Wältring 2002). "Standards reassure consumers about credence characteristics such as food safety, worker conditions and location authenticity which cannot be known to consumers through sensory inspection or observation in consumption" (Nadvi & Waltring 2004, p.1). Whereas traditionally the focus was on product standards, defining the products characteristic, increasingly the focus has been shifted towards process standards which deal with management practices and production processes (Nadvi & Wältring 2002).

As part of standards there are also labels and codes of conduct. Labels are consumer oriented and provide an easy way for them to acquire information on product characteristics and conditions of production. Codes of conduct are often firm-specific and are used to inform stakeholders on the criteria for accepted practices as adopted by an organization.

Traditionally standards for trade, especially concerning food and agricultural products, were related to health and safety issues, and quality assurance. The standards were often publicly set by national governments and compulsory for imports. On the other hand sustainability standards related to social and environmental issues have only emerged in the past decade and often had a philanthropic background and were voluntary. Now as the safety and quality assurance standards are increasingly moving to the private domain (Hatanaka & Busch 2008) and its interconnectedness between sustainability issues is becoming more apparent, this division between private and public regulation is blurring.

For standards to become operational there are several processes that need to be considered. Based on the purpose a standard needs to be set and it should be well-defined and measurable in order to allow for auditing compliance. Whether they are voluntary or legal standards, some degree of authority is necessary to ensure compliance and there need to be some sort of sanctions for non-compliance. Operationalizing standards therefore includes multiple processes which need to be considered. This will be discussed in greater depth in the next section.

### **Box 1: History and Context of Environmental (Sustainability) Standards**

The first real environmental standards were related to organic production and emerged out of local bottom-up initiatives and eventually led to the establishment of the International Federation of Organic Agriculture Movements (IFOAM) in 1972 to facilitate communication among the numerous organic agricultural movements (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). Then, possibly sparked by the findings of the 1992 Rio Earth Summit and the call for greater sustainability and responsible consumption, several initiatives started in the 1990's which have become the leading private voluntary standard organizations. Among them are Fairtrade (Agricultural commodities), Forest Stewardship Council (FSC), The Marine Stewardship Council (MSC), The Sustainable Agriculture Network (SAN) and the Rainforest Alliance (RA).

The goal of introducing environmental standards was to increase transparency, consistency and efficiency to address sustainability and it was made possible by the joint effort of many NGO's. The development of different standards happened separately and each addressed key sustainability issues or specific commodity supply chains. However since 2000 different standards systems started to see their similarities in activities and structure and realized they can learn from each other leading to the forming of the International Social and Environmental Accreditation and Labeling Alliance (ISEAL) in 2002 (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). Since then there has been a trend of sustainability initiatives explicitly targeting global mainstream markets.

Growth of standard-compliant products in past years is well over the average growth of the commodity markets and many initiatives have had annual growth rates of over 50 percent in the past 5 years (Potts et al. 2014). There are currently more than 450 consumer-facing eco-labels in 197 countries over 27 sectors (Big Room Inc. 2014). When looking at the product and sectors that adopt sustainability standards there is a high focus on agriculture and forestry, whereas biofuels might be an important upcoming sector (Potts et al. 2014). As of 2012 the forestry sector and coffee sector had the highest percentage of standards compliant products with a percentage of 9 and 8 respectively (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012), but as growth for some products is in triple digits these figures are changing rapidly.

Now the first system trends are being investigated and benchmarking and cross-initiative comparisons have started to emerge. However due to a constant development and changing of the existing standards and an increase in scope with the inclusion of social aspects, sustainability standards are difficult to research.

## 2.2 The Process Cycle

Five processes can be identified that are necessary to operationalize a standard system: Standard setting, adoption, implementation, conformity assessment and enforcement (Henson & Humphrey 2010). As explained in the previous section these standards are often accompanied by a consumer label, especially when it concerns environmental and social standards, but this is not always the case. There are many standards, often related to safety and quality assurance, which are business to business and do not necessarily have a label. Figure 2 shows the basic principle for consumer oriented standards with a label.



Figure 1: Process Cycle Standards (Source: (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012)

The rapid growth in the use of standards has led to the emergence of standards development organizations for standards setting and (national) accreditation bodies for accreditation. Some of the most influential standard development organizations are also discussed in Box 1 and often analysis of

sustainability standards focuses on them although many standards in the agrifood-sector are created by retailers or other big corporations as a form of supply chain management. Standards can be set in different ways and options range from management system standards to threshold standards and from continuous improvement models to “traffic light” systems (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). This will be discussed in more detail in this research as the way in which these are set can have great influence on the motivation, capability and efficiency of producers to engage in standards.

To assure compliance in a credible way accreditation bodies have become an important actor as they believed to be more ‘objective’ and thus legitimate and credible than other governance mechanisms because they are usually an independent third party. This has become the most prevailing assurance form as opposed to first-party assessment, or self-assessment, and second-party assessment where the assessment is performed by another involved party such as the buyer or a trade organization (Steering Committee of the State-of-Knowledge Assessment of Standards and Certification 2012). The audit can range from a simple checklist approach to a more in-depth assessment that includes interviews with management, workers, and local community members. Different forms of assurance are being combined with different audit types and create a wide range of assurance systems. For instance self-assessment can be verified by a third-party, or the third party could only do random check-ups to check the credibility of the self-assessment.

Thus the process of implementing a standard is much more than just the standard itself and includes many different actors and forms of execution. In this thesis often will be referred to ‘initiatives’ especially when it concerns the bottom-up case studies. Such naming is also used in other analyses of sustainability standards (Potts et al. 2014) and is often preferred by innovative projects as they better capture the broader scope of activities and standards are often perceived as negative. As briefly touched upon in the previous section, there has been a shift from publicly set and organized standards to private (voluntary / global) standards. As these standards still need legal (and thus publicly set) mandate for enforcement, and on the other side civil society (through NGOs) tries to influence the process, complex new relationships have evolved.

### **2.3 Diversity of Private Standards**

Within the literature private standards and voluntary standards are often used interchangeably. However a distinction can be made into 4 different types in which different processes are either public or private (See Table 1). The systems of standards can be named: regulation, public voluntary standards, legally-mandated private standards and voluntary private standards (Henson & Humphrey 2010). Non-commercial private bodies mostly refers to NGOs. Whereas voluntary private standards are not obligatory, the market power of the adopters may make the standard de facto obligatory for access to important markets (Henson & Humphrey 2010).

Function	Regulations	Public Voluntary Standards	Legally-Mandated Private Standards	Voluntary Private Standards
Standard-setting	Legislature and/or public regulator	Legislature and/or public regulator	Commercial or non-commercial private body	Commercial or non-commercial private body
Adoption	Legislature and/or public regulator	Legislature and/or public regulator Private firms or organisations	Legislature and/or public regulator	Private firms or organisations
Implementation	Private firms	Private firms	Private firms	Private firms
Conformity assessment	Official inspectorate	Public/private auditor	Private auditor	Private auditor
Enforcement	Criminal or administrative courts	Public/private certification body	Criminal or administrative courts	Private certification body

**Table 1: Functions associated with systems and standards**

Source: (Henson & Humphrey 2010)

Of importance to this distinction is the complex middle ground that exists between the private standards and public regulations. For instance private standards may be adopted by state-actors while the implementation and monitoring remains in the private sector. Another distinction can be made between individual firm standards (e.g. Tesco's Nature's Choice or Field-to-Fork by Marks & Spencer), collective national standards (e.g. Qualitat und Sicherheit) and collective international standards (e.g. GlobalGAP, FSC and IFOAM). Standards also differ in scope, geographic reach, function, key drivers, forms, coverage, and regulatory implications (Nadvi & Wältring 2002). An overview of the typologies is given in table 2. The realization of such diversity is important for this research as this shows how motivations and design can differ considerably between standards which will also impact the outcomes.

**Table 2: Typologies for global standards (Source: Nadvi & Waltring, 2002)**

Field of Application:	Form:	Coverage	Key Drivers	Certification Process	Regulatory Implication
Quality Assurance	Codes of conduct	Firm / Value-chain specific	International business	First-party	Legally mandatory
Environmental	Label		International NGOs	Second party	Market
Health		Sector Specific		Third party:	Competition Requirement
Labour	Standard	Generic	International Trade Unions	Private sector auditors	Voluntary
Social				NGOs	
Ethical			International Organisations	Government	

## 2.4 Governance and Supply Chain Management

Global standards, by providing a set of common and widely understood benchmarks, reduce the transaction costs in international trade and thus help to improve the efficiency of the market (Nadvi & Wältring 2002). However standards can also be seen as a barrier to trade, which replaces the traditional trade-quotas and trade-tariffs that have increasingly been abandoned in pursuit of the 'free market' (Kaplinsky 2010).

The growth in global standards (with more stringent criteria) implies an erosion of national standards and thus a loss of regulatory power by nations. Therefore the sovereignty over standard setting moves out of the public domain and are increasingly determined by private and public-private initiatives (Nadvi & Wältring 2002). To influence these standards civic society, often through NGO's, is increasingly becoming engaged in the process of setting and implementing standards, leading to new forms of complex institutional arrangements (Nadvi & Wältring 2002). This is also referred to as "the shift from government to governance" by many scholars, in which many tasks and responsibilities that were traditionally organized by nations are increasingly now governed by diverse institutions (Hatanaka & Busch 2008).

Thus standards have become an important instrument of (global) environmental governance. At the same time with the further globalization of product markets the demand for greater control over quality assurance through the supply chain has increased, creating a direct link between standards and supply chain management. Therefore an understanding of the concepts of environmental governance and supply chain management, and the impact it has on the development and outcomes of standards is necessary and can explain many of the challenges that we face.

Environmental governance refers to the broader processes and institutions through which societies make decisions that affect the environment. Armitage et al. (2012) explain how there are multiple definitions of governance and environmental governance, but for the purpose of this research only one will be highlighted: environmental governance is "The set of regulatory processes, mechanisms and organizations through which political actors influence environmental actions and outcomes (Lemos & Agrawal 2006: 298, in Armitage et al. 2012)". Important is the fact that "all styles or modes of governance are grounded in norms and desired objectives that reflect assumptions about how society should be organized, how problems should be addressed, and by whom" (Glasbergen, 1998 cited in Loë 2009, p.13). These questions should thus be taken into account when analyzing the ways in which standard initiatives are formed. To do so a framework for good governance will be discussed in the next section.

Many food products that are sold in the North are produced in the global South and there are multiple actors involved in the process of getting the product to the consumer. Global trade in food is dominated by focal companies that have direct contact with the consumers and govern the supply chain which includes suppliers (producers, packagers, etc.) and producers. With the growing attention on social and environmental issues these focal companies, for which the brand and public image are essential, need to control the whole supply chain to prevent scandal as they are held responsible by the public. Additionally a shift has taken place from standards to standardize to standards which are made to

differentiate (Busch 2007). Next to reducing transaction costs for commodity market participants, standards have become a strategic tool for market penetration, system coordination, quality and safety assurance, brand complementing, and product niche definition (Giovannucci & Ponte 2005).

We have to realize that whereas the roles of (public) standards were seen as mostly 'neutral market lubricants' designed to reduce transaction costs and improve market efficiency the roles of private standards are embedded in stakeholders' various goals (Hatanaka & Busch 2008). From a corporate perspective for instance the idea of supply chain management is to maximize efficiencies within the chain, to offload unprofitable and uncontrollable aspects to others, and (usually) to optimize the profits of the so-called supply chain captain (Busch 2007).

Similar problems of actors pursuing their own interest over what is best for the supply chain as a whole exist for other forms of standards, even when third party certification is used. In a critique on third-party certification Hatanaka & Busch (2008) identify four concerns: 1) as a result of high demand, controlling bodies may enter into new areas of third-party certification without adequate knowledge and training, 2) while acknowledging the importance of the harmonization of standards and audit practices many controlling bodies do not seek accreditation do to the high costs involved, 3) Due to the limited time for auditing and the complexity of the process assurance is mainly based on the internal records of those being audited regarding their own production practices, which in essence means that it is based on trust, and 4) their external position makes them impartial and objective but also limits their possibility for proper control and thus they cannot be held responsible. Therefore it is unrealistic to portray certification bodies as independent and one need to acknowledge that they are embedded in political, social and economic networks (Hatanaka & Busch 2008).

When we look at the impacts on producers in the South there are additional concerns. The source for changing standards on sustainability and quality are often changing consumer demand or strategic choices by management in the North. However such improvements often require the acquisition of new knowledge which can be more challenging for actors in developing countries and especially for small and medium sized enterprises (Nadvi & Wältring 2002). Also the criteria used for standards can become contentious when it concerns ethical, social and environmental values that are not universally held and often the standards that are imposed to "help" the producers become sustainable do not match the actual local needs. More specifically Muller et al. (2009) did a study on the table grape export industry in South Africa and found that through NGO's pressure sustainability concerns by northern civil society are addressed and implemented using market power, but that influences by counterparts in the southern hemisphere are limited. They conclude that there is a gap between civil society perceptions in the North and the realities in the South and one could question whether governing from a distance is the right option.

Fortunately the scientific community has made great efforts to make sense of the complex relationship and processes that relate to (sustainability) standards and are expressed in good governance frameworks.

## 2.5 “Good Governance” Framework

“Decision making must now accommodate diverse views, networks and hybrid partnerships among state and non-state actors, and must include opportunities for shared learning.” (Armitage et al. 2012, p.247)

Armitage et al. (2012) and Plummer (et al. 2013) identify six core issues that must be considered in pursuing innovative ways of (environmental) governance. It should be noted that it is not always apparent what constitutes good governance and that the appropriate mechanisms, and the kinds of challenges faced, are highly dependent on context (Armitage et al. 2012). Despite the breadth of the perspectives these common concerns and challenges can be identified: 1) accountability and legitimacy, 2) actors and roles, 3) fit, interplay and scale, 4) adaptiveness, flexibility and learning, 5) evaluation and monitoring and 6) knowledge. A further elaboration on each key concern is given in Table 3 which is adopted from Plummer et al. (2013).

**Table 3: Core environmental governance issues or challenges (Plummer et al. 2013)**

Core issue or challenge	Description
Accountability and legitimacy	Accountability concerns the responsible exercise of power (through standards and systems) as entities (individuals, organizations, agencies) acknowledge and assume responsibilities of actions and determine outcomes. Legitimacy involves the power to influence others and approval of an institution or actor by an entity subject to its actions, encompassing procedural (how decisions are made) and substantive (morals, values, beliefs) dimensions within a socially constructed context. Broadening accountability and legitimacy from formal legal arrangements to reflect its pluralist forms and nonformal sources is stressed.
Actors and roles	Governance, as opposed to government, emphasizes participation by diverse non-state actors in decision making and prompts a range of potential roles for all actors. Role ambiguity is a concern and redundancy and layering of roles is beneficial in light of uncertainty. Incentivizing participation, a supportive policy framework, and connecting individuals/organizations are salient considerations.
Fit, interplay and scale	The interconnected and nested nature of social-ecological systems is paramount. Arrangements need to reflect the scale of the environmental concern (e.g., spatial fit) as well as acknowledge/respond to the dynamism of cross-scale and cross-level interactions (e.g., threshold behavior, cascading effects). Multilevel arrangements that involve multiple linkages stress connections among actors in a networked fashion. Although such arrangements confer adaptability and stability, they also may confront issues of interplay, constrain integration, and be cumbersome.
Adaptiveness, flexibility and learning	Adaptiveness responds to the uncertainty and change that characterize complex systems and catalyzes attention on fostering resilience and building adaptive capacity. Arrangements in structure and function need flexibility to counter uncertainty as well as platforms to learn from feedback. Learning takes place individually and collectively. It is a social process and outcome arrived at by the participation and interaction of diverse actors who learn by doing and modifying their actions based on feedback.

Core issue or challenge	Description
Evaluation and monitoring	Evaluation is concerned with systematically assessing the value of the goal-oriented deliberative intervention in regard to a social-ecological system. Assessment and monitoring that is participatory, interactive, and multiscale are required. Extending evaluation parameters beyond easily observable process elements and outcomes is highlighted. Diagnostic approaches direct attention to identifying and monitoring critical variables. Selecting and matching appropriate indicators to the scale of assessments is a challenge.
Knowledge	Environmental governance requires an intense amount of diverse information. The value of multiple knowledge sources, diverse types of knowledge, and means to facilitate exchange are stressed. In going beyond amalgamating information, emphasis is placed on the coproduction of knowledge as generated collaboratively through the interactions of diverse actors. Accepting the dynamism and contingency of knowledge is a notable challenge.

This six key concerns form the basis for assessing the case studies in this research. However a further focus will be given on the effectiveness of such standards, especially for the producers in the South in the next chapter through the concept of social learning. As social learning deals with the later three variables, the assessment of the governance mechanism will only focus on the first three core issues. A further discussion of these core issues and how they will be used in the assessment is given in 2.8.

## 2.6 Bottom-up Initiatives

As suits the new complex relationships with different actors, the research and development of standards is also happening in practice, in some cases led by civic society organizations or NGO's and in others by private companies. These initiatives are often referred to as "bottom-up" initiatives and emerged as a reaction to the growing concern of Northern influences and inadequate alignment of perceptions in the North and realities in the South. They will be under investigation in this research.

As opposed to the standards which are set by focal companies or standard setting bodies which are based in the North, new initiatives are developed in the South with the participation of local stakeholders. Bottom-up refers to the inclusion of these stakeholders in the process instead of a top-down approach where a select group at the top of an organization decides the rules that are then passed down the chain. As the degree of involvement of different stakeholders will differ considerably per initiative and there are no clear guidelines yet as to what is optimal, one of the aims of this research is to also identify what is meant by "bottom-up". The initiatives under investigation in this research are all being developed in South Africa with the inclusion of producers.

Research by the FAO stresses that bottom up approach, with a dialogue involving local stakeholders as well as the adaptation to local contexts is essential (Meybeck & Redfern 2014). The farmers should be involved in every stage, from the initial design stage to the implementation, and the capacity of the farmers to engage in a meaningful way in these processes is essential (Meybeck & Redfern 2014). Therefore appropriate training and capacity building for the relevant stakeholders is necessary.

PGS (Participatory guarantee systems) and SPP (small producers symbol) are two examples of locally oriented certification initiatives that are showing a growth in the South. These are mostly organized by civil society groups and NGOs without the influence of private companies. On the other end suppliers and producers that are part of large supply chains are also making efforts to address the issues named in this chapter. As these are all innovative forms of governance, a proper typology of these initiatives does not exist yet. It is thus one of the aims of this research to see if similarities can be found in these initiatives which could benefit the further development.

Some might argue that only initiatives such as the PGS and SPP are really bottom-up as there are no focal companies involved. However for the purpose of this research a broader definition is taken as the research is about the participation of the producers and the actors at the bottom of the supply chain and closest to the actual production and impacts. Moreover even in “pure” bottom-up initiatives that originate in civil society eventually an organizational body is often necessary that coordinates the process. When referring to bottom-up initiatives in this research it is about initiatives that actively try to involve the diverse range of actors (mainly producers, but it can also be consumers) and give them a higher influence in the market.

## **2.7 South African Context**

The well-developed commercial farms are all complying with certain standards and certification systems (GlobalGAP for instance) as these are necessary for the export to markets in developed countries. Some sustainability initiatives that managed to gain wide recognition in the past decade are the Sustainable Wine South Africa (SWSA), Sustainability Initiative of South Africa (SIZA) and the ‘Farming for the future’ initiative by Woolworth.

Bryanston organic market (<http://bryanstonorganicmarket.co.za/>) and Siyavuna (<http://www.siyavuna.org.za/>) are two running participatory guarantee systems (PGS) in South Africa.

Although many initiatives are being developed and the topic receives significant attention, there is a low national coordination and exact figures about sustainability in South African agriculture are missing. For instance there are no exact figures on the amount of organic or biodynamic farms in South Africa and many leading organizations such as the Biodynamic Agricultural Association South Africa (BDAASA) and South African Organization Sector Organization (SAOSO) are still in the process of establishing a stable organization with nationwide support and members.

## **2.8 Conclusion**

Here a description is given on how the theory of this chapter will be used in the case study.

### **2.5.1 Accountability and legitimacy**

Accountability concerns the responsible exercise of power (through standards and systems) as entities (individuals, organizations, agencies) acknowledge and assume responsibilities of actions and determine outcomes. In the assessment of the cases attention will be given to the power relations between different actors and whether the needs of the producers are adequately addressed.

Legitimacy involves the power to influence others and approval of an institution or actor by an entity subject to its actions, encompassing procedural (how decisions are made) and substantive (morals, values, beliefs) dimensions within a socially constructed context. A distinction can be made between input legitimacy and output legitimacy. Input legitimacy implies that a (political) system and specific policies are legitimated by the rules-of-the-game and the processes by which they have come about (Van Kersbergen & Van Waarden 2001). Output legitimacy implies that a (political) system and specific policies/standards are legitimated by their success (Van Kersbergen & Van Waarden 2001). Thus an analysis needs to be made on how the standard system is developed and whether certain requirements for producers can be justified.

### 2.5.2 Actors and roles

One of the main reasons for choosing a bottom-up approach is the improvement of participation by all actors in the decision-making process and development of the standard system. It will be analyzed whether they are part of all phases of the development process but also whether they can assume different roles. All the actors should be able not only to contribute by sharing their perspectives and knowledge, but also to judge arguments, challenge beliefs and meaningfully participate in the final decision-making. A further analysis of assuming the different roles is also given in the next chapter.

### 2.5.3 Fit, interplay and scale

The interconnected and nested nature of social-ecological systems is paramount. Arrangements need to reflect the scale of the environmental concern (e.g., spatial fit) as well as acknowledge/respond to the dynamism of cross-scale and cross-level interactions (e.g., threshold behavior, cascading effects). In the assessment a focus will be given to how the standard systems try to address the context-specific issues and how these standard systems fit into the current regime of existing standard systems.

### 3. Theoretical Framework II: Social Learning

#### Box 2: Social Learning

“In policy circles, but certainly outside these as well, ‘social learning’ is increasingly referred to as a manner in which to actively commit people to far-reaching processes of change. Social learning can be explained in a number of ways. In essence, it is about bringing people of different backgrounds together. The ensemble of perspectives, knowledge and experiences that is brought about in this way is necessary in order to come to a creative quest for answers to questions for which no ready-made solutions are available. It also provides insight into the significance and the role of social learning in realizing a society that is more sustainable than society today.” (Wals, 2007, p.5)

In this chapter an overview will be given of the literature and research on social learning. Within the system sciences, and especially natural resource management, social learning is increasingly becoming a topic of research as it is believed to be an important key in dealing with complex systems and “wicked problems”. Social learning is a concept that emerged from the shift towards adaptive management and the call for greater stakeholder engagement and looks at how the social environment influences learning and how a change in individuals can become situated in a wider social unit.

At the same time the concept has been addressed in many other fields as well, and it seems to be an interdisciplinary concept that addresses scientific gaps in multiple fields at the same time. Due to its wide influences and interdisciplinary character there has been a lot of boundary crossing, where concepts, methods and ideas are borrowed from other fields which have led to much unclearness and confusion about the concept (Rodela 2013). While some researchers point towards the confusion and practical problems this gives (Reed et al. 2010), such diversity and interdisciplinarity might be an inherent characteristic necessary for dealing with complex systems (Ison et al. 2013). In this thesis the latter position will be taken and a focus will be given on all the contributions that the research in the different disciplines has made to the development of the concept of social learning. This will shed light on the expected and proven benefits of social learning, and on the gaps of knowledge, which will all be discussed at the end of this section to make an analysis of the case studies possible.

The section will start with a description of the concept of social learning. Due to its interdisciplinary influences and development in different fields of study, there is still a wide discussion on the definition. Next the influences from the different fields will be divided into influences from the system science, policy studies and research on learning and each will be discussed thoroughly to provide a good understanding of the scope of the social learning literature. The literature on complex systems and “wicked problems” will be discussed as it explains why a different approach is necessary for sustainable and effective management. Finally the characteristics and conditions necessary for social learning will be discussed to provide an analytical framework for the case study.

#### 3.1 Social Learning: The concept

Learning is the process of developing new knowledge, norms and values. According to Bos, Brown, & Farrelly (2013) three types of learning can be distinguished in the transition management literature: broad learning, reflexive learning and social learning. Broad learning relates to understanding the

systemic nature of a societal issue, whereas reflexive learning is associated with questioning existing ways of doing, thinking and organizing a societal practice and letting go of existing convictions and social learning refers to the process by which societal actors interact and develop alternative perspectives on a societal issue (Bos et al., 2013, p.399).

A commonly used definition for social learning is:

“a change in understanding that goes beyond the individual to become situated within wider units or communities of practice through social interactions between actors within social networks” (Reed & Evely, 2010, p.6)

This definition includes the three points that characterize social learning: 1) demonstrate that a change in understanding has taken place in the individuals involved, 2) that this change goes beyond the individual and becomes situated within a wider social unit and 3) occurs through the social interactions and processes between actors within a social network (Reed et al. 2010). Interaction is at the heart of social learning, which implies participation, leading to new knowledge, shared understandings, trust and ultimately collective action. It is a shift from ‘multiple cognition’ to ‘collective cognition’ where individuals develop shared perspectives, insights and values (Harvey et al. 2013).

According to Lebel, Grothmann, & Siebenhüner (2010) who did research related to water governance, social learning can help cope with informational uncertainty, reduce normative uncertainty, build consensus on criteria for monitoring and evaluation, empower stakeholders to take adaptive actions, reduce conflicts and identify synergies between adaptations and improve fairness of decisions and actions.

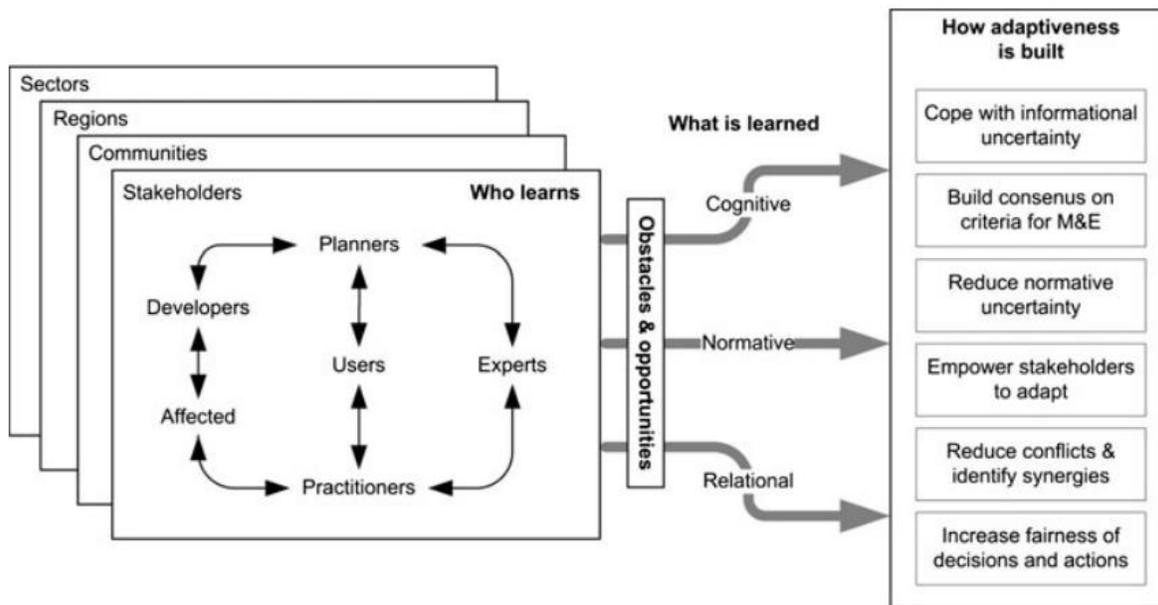


Figure 2: Social learning processes (Lebel et al. 2010).

A distinction as to what is learned can be made into cognitive, normative and relational learning (Lebel et al. 2010). Cognitive learning refers to the factual knowledge, normative learning is related to changes in norms, values and beliefs and relational learning includes building of trust and understanding of worldviews of others (Lebel et al. 2010). The figure copied from Lebel et al. (2010) describes the processes in social learning.

An important component is the 'reflexive processes' that actively question established norms. Social learning needs to be seen as a complementary process of environmental management, and it is about monitoring the learning process instead of monitoring ecological variables.

There is still a wide discussion on the concept of social learning and to what it entails. According to Reed et al. there are three major shortcomings which lead to confusion on the methods of research and outcomes of social learning. First the concept is often confused with the methods and conditions necessary for facilitating social learning, for which stakeholder participation is given as example. Although stakeholder participation seems to be an important key in the facilitation of social learning, as will be discussed later, mere presence of participation does not guarantee social learning and social learning can also happen in the absence of planned participation (Reed et al. 2010). Second there is often little distinction made between individual learning and wider social learning where a group or community learns as a whole. Although learning essentially occurs in the individual, often learning takes place through social interactions and it is possible that more than one person learns due to the reinforcing interaction between people in a group (Reed et al. 2010). Finally researchers often confuse the concept with the outcomes, for which pro-environmental behavior is given as example. Although social learning can lead to "sustainable" behavior it is not guaranteed and this behavior could also be a consequence of other processes.

However the confusion on the last point also emerges out of the fact that social learning may be both a process of people learning from one another and an outcome (Reed et al. 2010). Ison et al. (2013) look at social learning as a duality, which is a totality comprising entity and process. As already mentioned the context is of utmost importance in improving sustainable practices and thus it can be hard to distinguish whether certain empirical findings are related to theory or praxis. Therefore they opt for defining social learning as revealing and concealing features rather than seeking to define the concept rigidly (Ison et al. 2013). Such an approach places responsibility for clarity and rigor on the researcher, who then needs to articulate the way in which he uses the concept and thereby allowing for fluidity and reflexivity of the concept. This helps to fuel new knowledge development about social learning instead of limiting it because of the diversity in understanding of the concept.

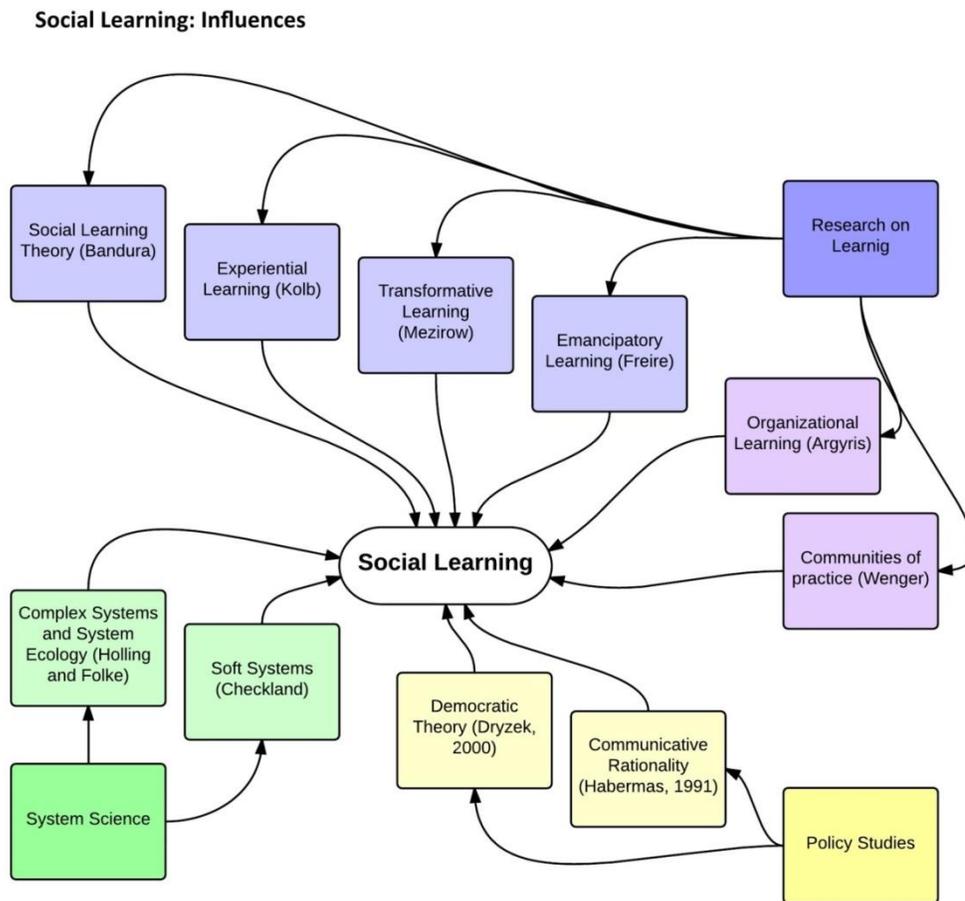
Ison uses metaphoric analysis to reveal the amount of metaphors used to describe social learning. Metaphors reveal and conceal information helping us to see what a researcher defines as social learning. The different metaphors used are closely related to the disciplines that the specific research takes place in, and a closer look at development of social learning research in different fields will help to clarify the components and theoretical and empirical underpinning of the concept. Thus a closer look will be given at the origins and the different theories that support social learning.

### 3.2 Social Learning: The influences

Within different fields of research the concept of social learning has been addressed. Each field has their own focus points and reasoning for addressing the issue which is reflected in the direction of research. For instance in ecology it has emerged out of the necessity to tackle complexity while in collaborative management it is mainly seen as a means for dealing with the numerous stakeholders with different worldviews and values. The influences and theoretical background of social learning can be broadly divided into influences from policy studies, research on learning and the system sciences (Rodela 2013). The main theories that are used can be seen in figure 4. The figure is based on a literature review by Rodela (2013).

A short discussion of each theory will be given as they help to describe the different aspects of social learning. Also will be discussed how these theories can help to design a facilitation for social learning and how social learning can contribute to sustainable development in theory. It should be noted that a deep understanding of each theory falls outside the scope of this research and thus the explanations are based on the leading articles on each theory and the theories are used in line with other researchers on social learning.

Figure 3: Influences of social learning



## **3.3 System Science**

### 3.3.1 Complex systems

One of the biggest challenges for sustainable development is the notion that we are dealing with complex systems characterized by uncertainty, non-linearity and change. Human activities have become globally interconnected and through the development of new technologies and the increase in impacts due to our growing population and wealth it has become apparent that certain ecosystems have become vulnerable and susceptible to sudden changes and loss of ecosystem services. The ability of a system to absorb disturbances and reorganize while undergoing change so that it can maintain its function, structure, identity, and feedbacks is also known as resilience (Walker et al. 2004). The challenge is thus to understand how we can manage resilience.

In the past decades top-down management with linear-thinking and command and control approaches have repeatedly failed for natural resource management (Holling & Meffe 1996), and so other approaches are needed. Holling & Gunderson (2002) discuss how we need to integrate ecological, economic, institutional and evolutionary theory in order to achieve sustainable development and overcome the disconnects that appear due to the limitations of each field. We need to recognize that ecosystems are complex adaptive systems and thus manage them accordingly. Also we need to recognize the role of human activity in shaping ecosystems, which equally reflects the characteristics of a complex adaptive system, such as diverse set of institutions and behaviors, local interactions between actors, and selective processes, that shape future social structures and dynamics (Folke et al. 2005).

Berkes, Folke, & Colding (2000) started to use the term “social-ecological” system (SES) to emphasize the integrated concept of humans in nature and to stress that the delineation between social and ecological systems is artificial and arbitrary. Research shows that such socio-ecological systems are complex adaptive systems and have powerful reciprocal feedback mechanisms (Folke et al. 2005). The assumption of linear dynamics with a solution in the vicinity of an optimum single equilibrium is contested. Such an approach is problematic as it tends to develop governance systems with policies that are focused on selected ecosystem processes, whereby other ecological support functions are neglected and can be lost in order to fulfill specified ecological and social goals (Holling & Meffe 1996). Additionally such governance systems will not be able to deal with the changes that occur within complex socio-ecological systems (Folke et al. 2005).

### 3.3.2 Adaptive Management

We therefore need an adaptive management approach instead of management for optimal use and control of resources (Folke et al. 2005). Fazey, Fazey, & Fischer (2007, p.376) distinguish four main requirements for society to adapt to change: (1) the will and intention to maintain social-ecological resilience, (2) knowledge about current problems and the desired direction of change, (3) proactive behavior, and (4) the capacity to change existing patterns of behavior. They also discuss how both the institutional settings, the ‘hardware’, and the ‘software’, which includes the behavior, knowledge, and skills of the people involved need to be considered. This means that the four requirements should be

reached for each individual separately, but also for a group as a whole as they jointly influence the ecosystem.

Within a system that is constantly changing and that requires context-specific management it is then essential to include learning and feedback mechanisms. Studies from the cognitive and social psychology suggest that the development of expertise requires extensive practice and reflection on performance, using different thinking strategies (Perkins & Grotzer, 1997 in Fazey et al., 2007). A key element to developing adaptability is to vary practices in order to gain different perspectives and enhance cognitive abilities (Fazey et al. 2007). By reflecting on the practices used and the changes made practitioners become more capable of dealing with change. They thus need to 'learn to learn'. In this sense Fazey et al. (2007) makes the distinction between learning about sustainability and learning for sustainability. Education about sustainability builds awareness, willingness, and intent, while education for sustainability promotes the development of flexible learning abilities and dispositions across all disciplines and ages.

Within the adaptive management studies, learning is an important component that needs to be specified better both theoretically and empirically. As Crona & Parker (2012) note, there is a vagueness surrounding the concept of learning as to 1) the definition of learning and how to measure it; 2) how social interactions influence learning; 3) how social environment shapes learning and 4) how learning is affected by power and conflict dynamics (Crona & Parker 2012; Armitage et al. 2008; Muro & Jeffrey 2008). This vagueness is also reflected in the understanding of the concept of social learning and is therefore one of the main topics of research.

### 3.3.3 System science

Besides Holling and Folke's research on complex adaptive systems, pointing at the unpredictability and non-linear interactions, Checkland's research on soft systems thinking (Checkland 2000) has also influenced the theory on social learning (Rodela 2013). Both ask for a more holistic approach in which the context, scale and insight from multiple perspectives are considered. The influences are especially seen in research design, where researchers can become involved in a process more closely, methodological choices as reflective inquiry, context specific characteristics and the fact that the role of meaning making is emphasized (Rodela 2013). I will elaborate more on Peter Checkland's soft system thinking here and give recommendations that follow from there for the design of social learning.

An important insight that possibly also explains the failures of implementing adaptive management practices more widely is the fallacy of the assumption that planning and management is an objective process in which scientists and policy makers are neutral actors (Cundill et al. 2012). This is also explained using the concept of 'hard systems and 'soft' systems. Whereas a hard system approach considers the external world as a system that can be engineered, a soft systems approach sees systems as the observer's interaction with the complex real world and in this way differs for each person and there is no "ideal condition' for everyone (Cundill et al. 2012). As Checkland (2000, p.17) says: "It is this shift of systemicity (or 'systemness') from the world to the process of inquiry into the world which is the crucial intellectual distinction between the two fundamental forms of systems thinking, 'hard' and

'soft'". This is illustrated in figure 5 where it is also stated that instead of engineering we should aim for learning systems.

An goal-oriented management is rejected and instead a "appreciative systems" approach is proposed in which social actors selectively perceive their world, make values and fact-driven judgments about it, consider their social relationships, and then seek to make decisions that balance these relationships and judgments over time (Vickers, 1965 in Cundill & Cumming, 2012). The soft systems methodology builds further on this. Checkland (2000, p.S14-S16) identifies four key thoughts that shaped the soft system methodology: 1) every situation in which decision making is involved is a human situation in which people were attempting to take purposeful action which was meaningful for them. The set of activities together can be modelled and can exhibit the emergent property of purposefulness; 2) many interpretations of any declared purpose, goal or objective are possible, so a choice has to be made as to which are the most relevant or insightful; 3) moving away from the idea that there is a clear problem and searching for a solution to that problem towards the idea that there is a situation which for some people, for various reasons, is regarded as problematic; 4) Decision making takes place when people in a given situation agree on a course of action that is desirable and feasible given their individual histories, relationships, culture and aspiration (Cundill & Cumming, 2012, p.3).

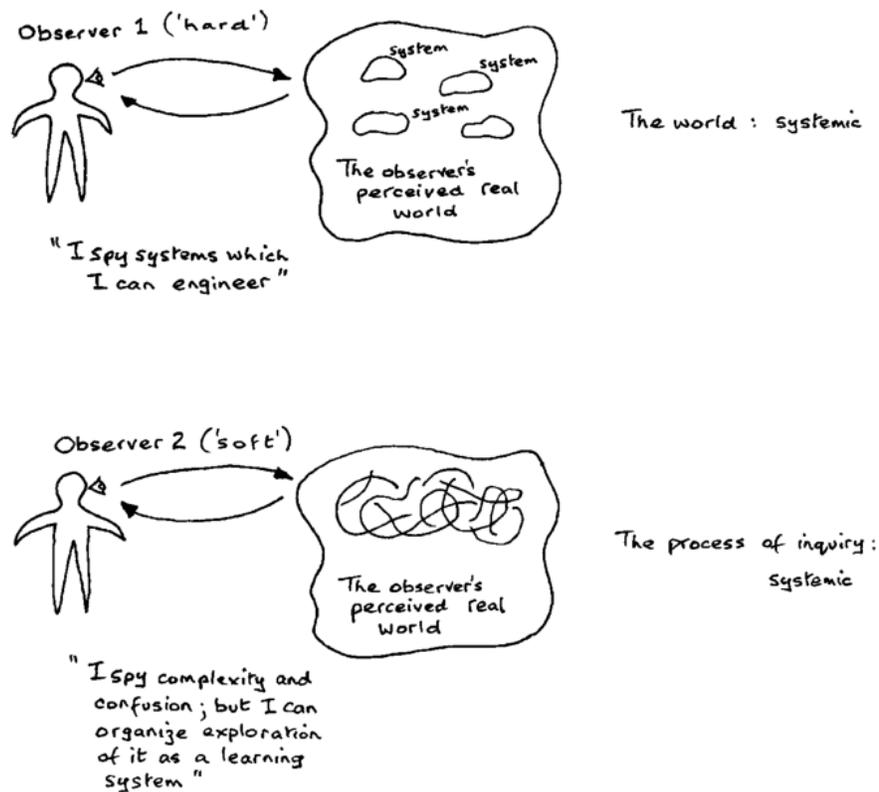


Figure 4: The hard and soft systems stances

Cundill & Cumming (2012) propose a rethinking of adaptive management by drawing on the theory of Checkland in combination with insights from Wals' (2007) theory on social learning. Based on the

theories they identify four core assumption that together lead to five key activities that are crucial for defining the goals and context of problems so that desirable and feasible objectives can be set. The four assumption are: “(1) action toward a common goal is an emergent property of complex social relations, (2) the introduction of new knowledge, alternative values, and ways of understanding the world can stimulate learning, creativity, and change, (3) learning is contextual and is fundamentally about practice, and (4) the process of defining the goal to be addressed is continuous and in principle never ends” (Cundill & Cumming, 2012, p.4). Therefore it is necessary to 1) situate the problem in its social and ecological context; 2) engage relevant stakeholders; 3) raise awareness about alternative views of a problem and encourage enquiry and deconstruction of frames of reference; 4) undertake collaborative actions; and 5) reflect on learning (Cundill & Cumming, 2012, p.4).

### **3.4 Policy studies**

The theory of communicative action by Habermas (1987) has been of great influence for sociologists and philosophers and also forms a basis for the social learning studies (Postone et al. 1990; Gaspar 1999). Habermas was concerned with the way that the structure of the modern society distorted communication. According to him this happened through the encroachment of market systems and bureaucratic authorities into the day-to-day social relationships resulting in the erosion of characteristic human qualities (Gaspar 1999). Because of this distortion people would communicate less about their opinions and ideas and as a consequence establish less mutual understanding with one another (Gaspar 1999). From here the first generation of deliberative democracy theory emerged which reasoned that reason exchange would result in uniform preference change and ultimately lead to consensus (Elstub 2010).

To take into account the complexity of social interactions, the second generation deliberative democrats have the view that preferences will adapt to public reason and new information but not in a uniform way (Elstub 2010). This meant that other forms of communication are necessary to reach consensus, but what kind of tools could be used and how institutions should be formed to facilitate this process was still unclear (Elstub 2010). It is the third generation deliberative democrats that deal with the questions as to how deliberative democracy can be reached in practice and this relates closely to the facilitation for social learning.

“Deliberative democracy, as its name suggests, emphasizes the deliberative or discursive aspects of democratic decision-making rather than the institutionalized norms (e.g., electoral systems, branches of government, parliamentary arrangements, bureaucratic functions) that are frequently defined as being the essence of democracy. Numerous authors argue that democratization is a work in constant progress, and that thoughtful exchanges among different members of a society – on broadly equal terms – about the social goals of that society are indeed the essence of any conception of democracy” (Sneddon, 2006).

The influences of democratic theory and policy studies are related to opening up decision making and improving the legitimacy of final decision making. It explains how participatory processes should look beyond the private preferences of the stakeholder and looks at how a shared understanding of the problem can be formed that reflects the needs, expectations and value claims of the different stakeholders. Habermas theory is often used to explain how participants become engaged in learning

processes that strengthens civic values and relationships by articulating their own arguments and being exposed to alternative views (Rodela 2013). Additionally, according to the deliberative democracy theory outcomes produced in this way are of superior quality as they integrate different perspectives and knowledge and thus have a greater legitimacy (Rodela 2013).

The communicative action theory by Habermas however, also has limitations that need to be considered. The theory has a normative element which assumes that actors have a certain position regarding the issue under discussion and that they are willing to defend this point (Elstub 2010). This assumes that subjects have the cognitive, social and relational qualities as well as resources to participate and form an opinion (Rodela 2013). However in real life participants might not be capable and/or willing to form an opinion and defend it. This argument is especially important for the social learning theory as it implies that consensus will not always be reached. Therefore it is important to think about how to deal with such situations. Differences in trust, power and inclusiveness could partly explain the absence of consensus and should therefore be investigated in future research (Rodela 2013).

What we can learn from the policy theories in favor of social learning is that it is necessary to make space for prolonged interaction and reflective reasoning. The goals should be to improve relationships and create a shared understanding. However the concerns on cognitive, social and relational qualities should be considered properly and there is a need to evaluate the power relations.

### **3.5 Research on learning**

As already stressed in the introduction of this section there is a great need for theoretical and empirical underpinning as to how, where and why learning occurs, and it is thus logically that many scholars borrow from theories on learning. As can be seen in fig.3 there are several strands of research on learning that have influenced social learning. A distinction can be made between theories that look at individual learning and research that focuses on learning in networks, organizations and communities of practice.

Two often cited theories in the social learning discourse on individual learning are the experiential learning theory by Kolb (Maccoby 2004) and Mezirow's transformative theories (Mezirow 1997). Both theories stress the importance of past experiences when learning and emphasize the importance of reflection. Mezirow has built a theory on transformative learning which is about the process of changing our frames of reference. A frame of reference is the set of structures such as associations, concepts, values, feelings and conditioned responses through which we understand our experience and define our world (Mezirow 1997). He argues that a frame of reference encompasses cognitive, conative, and emotional components, and is composed of habits of mind that become articulated in a certain point of view. We have a tendency to reject ideas that fall outside of these preconceptions, but when these habits of mind are being reviewed there is transformative learning.

Mezirow argues that transformative learning is essential for adult education and that it becomes possible through critical reflection of assumptions, validating contested beliefs through discourse, taking action on one's reflective insight, and critically assessing it (Mezirow 1997). He points at the importance for people to learn to be an autonomous thinker who can negotiate his or her own values, meanings,

and purposes rather than to uncritically act on those of others. In practical sense this means that stakeholders need to learn to become aware and critical of their own and others' assumptions.

Another important feature is the discourse which Mezirow defines as : "a dialogue devoted to assessing reasons presented in support of competing interpretations, by critically examining evidence, arguments, and alternative points of view" (Mezirow, 1997, p.6). The more interpretations there are of a certain believe the greater the possibility of finding a shared understanding between participants. How effective a discourse is depends on the facilitator as he needs to create an environment where participants can have full information; are free from coercion; have equal opportunity to assume the various roles of discourse (to advance beliefs, challenge, defend, explain, assess evidence, and judge arguments); become critically reflective of assumptions; are empathic and open to other perspectives; are willing to listen and to search for common ground or a synthesis of different points of view; and can make a tentative best judgment to guide action (Mezirow, 1997, p.10). These ideal conditions for creating discourse are also the ideal for adult learning and education (Mezirow 1997).

Kolb's experiential learning theory complements classic behavioral and cognitive learning theories and emphasizes the need for experience to be incorporated in the learning process. It explains learning as being a process instead of an outcome in which knowledge is being created through the transformation of experience, which is "learning by doing" (Maccoby 2004). Learning is seen as an iterative learning cycle consisting of four stages: concrete experience, reflective observation, abstract conceptualization and active experimentation (Maccoby 2004). The learning cycle highlights that effective learning is iterative, reflective and contextual, combining direct experience and abstract conceptualization (Keen & Mahanty 2006). Thus Kolb points at the importance of including feedback processes in learning.

Keen uses Kolb's theory to distinguish three core learning concepts for natural resource management: learning through a system orientation, learning through negotiation and dialogue and learning through reflection (Keen & Mahanty 2006). These are also seen as important components of social learning and should be incorporated in the facilitation processes for social learning. These principles are also part of the theories in the organizational literature which form a basis for social learning.

A large influence for the adaptive management literature and consequently for the social learning theory is the theory on organizational learning that deals with single loop-, double loop-, and deuterio learning. Single loop learning refers to simple learning that leads to improvement of existing practices within existing frameworks, norms, policies and rules (Tosey et al. 2012). In the face of profound changes however it might be necessary to question the underlying values of the system. Learning that leads to reflection and challenges the status quo is called double-loop learning. The theory was first developed by Argyris and Schon and includes a third type of learning which they call deuterio-learning.

In the discussion of single- and double-loop learning, exploitation versus exploration, radical versus incremental and adaptive versus generative learning are other terms that have been used (Tosey et al. 2012) and help explain the difference. As a change towards sustainable agriculture includes thinking about underlying norms and values and asks for innovative change, double loop learning can be considered necessary. Deuterio-learning as described by Argyris (1978 as cited in Tosey et al., 2011) is 'to

learn how to carry out single- and double-loop learning.'. This implies reflection on the process of learning and a deeper understanding of the governing variables, values and norms underlying the organizational actions (Tosey et al. 2012) and should ultimately lead to improving performance at an increased rate. Knowledge and skills required for deuteron learning of double-loop learning are more complicated and further scientific research is still necessary.

The different types of learning should rather be seen as complementary instead of hierarchical and therefore a focus on double- or deuterio- is not necessarily better. A too great focus on double-loop learning for instance could lead to end-less cycles of reflection without implementation (Fabricius & Cundill 2014). Finding the appropriate balance between the different types of learning could thus be seen as an important task for good adaptive management. Double-loop learning can be encouraged by trust-building efforts, a willingness to take risks in order to extend learning opportunities, the transparency required to test and challenge embedded values, active engagement with civil society, and a high degree of citizen participation (Diduck & Bankes, 2005 in Armitage et al., 2008).

Also related to organizational learning, but also applicable to other social systems is Wenger's research on communities of practice. Communities of practice are "groups of people informally bound together by shared expertise and passion for a joint enterprise" (Wenger & Snyder, 2000, p.139). By organizing standards in communities of practice they could become more effective. However as this is not yet happening in the cases under investigation in this research, this theory will not be discussed further.

Finally Bandura and Freire's theories have also influences but these are not worked out as extensively so will be left out of this analysis. The social learning theory and social cognitive theory of Bandura are cited often in the social learning literature (Rodela 2013). His early works on social learning theory are often cited but seem to have little influence and mostly used to borrow the term. His newer social cognitive theory on how people acquire and maintain certain behavioral patterns could potentially be of use because it theorizes how people acquire and maintain certain behavioral patterns (Rodela 2013).

### **3.6 Empirical research on Social Learning**

Based on the theory discussed above an analytical framework can be created. However first a closer look will be given to another framework for social learning created by Cundill (2010) to see if there are other variables that should be added. This framework also includes insights obtained from empirical research and can provide a valuable addition. Next the critique on social learning and the hurdles that are identified will be discussed. Based on this information a final framework of analysis will be presented that will be used for the case study research.

Based on the literature on social learning Cundill (2010) developed a set of key variables that can be used as a starting point for monitoring social learning. The findings from her research suggest that social learning processes can be externally managed. It also shows that by monitoring social learning a better understanding can be gained concerning the changes in perceptions, values and beliefs that underpin behavior and thus can be of great use for improving collaborative processes and adaptive (co)management (Cundill 2010). The 9 key variables and its indicators for monitoring can be found in the table below which is adopted from (Cundill 2010, p.28-29):

Table 4: Key Variables for collaborative monitoring

Key Variables	Indicators for Monitoring
<b>Trust building</b>	Trust building is taking place between the groups involved in collaborative decision making – Decision making is perceived as open and fair. Information is shared and understood by all participants.
<b>Groups with shared norms and a common interest who have a similar stake in ecosystem management</b>	There is a common interest and shared vision - Participants jointly identify and agree on the problems to be solved, and what the future should look like. It is clear to all participants why a decision making body is needed. Participants agree on what the major problems are, and what the benefits might be of resolving these problems
<b>Economic or other incentives to participants</b>	Incentives: People who contribute more are rewarded, and people who lose ways of earning a living because of the project are compensated.
<b>Security of tenure over the resources of concern</b>	Security of access to resources - There is long term security of access to resources. The decision making body is confident that they are/will be able to prevent outsiders from using the resources
<b>A perceived value in sharing information</b>	Participants recognize the value of sharing information between actors - The organization or committee involved in the initiative is made up of people from the community and from outside the community. These actors respect one another and listen to each other's points of view
<b>A willingness to engage in collaborative learning and decision making</b>	All participants are willing to engage in collaborative learning and decision making - All actors, from outside and inside the community, listen to each other and are willing to change what they are doing in response. 'Experts' are willing to learn from resource users, and resource users are open to alternative ways of doing things. The project is viewed as a learning process by everyone involved
<b>Sufficient funding to enable practical action and experimentation</b>	A long term investment has been made - The state or its partners are committed to making a substantial and long term financial investment in the project. Long term skills and leadership development programs are in place, and planning and decision making support is offered.
<b>Social networks that allow effective information flow</b>	Networks are established that connect the local decision making body with other institutions- Outside partners, such as government officials, researchers and NGO's are involved and are willing to devolve decision making powers. Other, relevant, local decision making bodies are consulted and included in decision making. The roles of these different actors are clearly defined. Information flow - There is good communication between everyone involved. People are informed about what is happening, and their views and opinions are listened to
<b>Effective local leadership or an 'honest broker' to facilitate conflict resolution</b>	Leadership - The leaders of the initiative care about more than just their own interests. The leaders are trusted and acknowledged by all actors

For some key variables there is obviously an overlap with the variables identified in the previous section. However new variables that will be useful to add to the framework of analysis for this research are:

having a similar stake in problem (and therefore motivation to solve it), economic incentives, long term investment and commitment, effective use of social network and an ‘honest broker’.

### 3.6.1 Challenges and points of critique

Empirical research on social learning is still scarce and some researchers point at the shortcomings and failures of social learning. Sometimes uncertainty may be low and conflict minimal and action needs to be taken (Lebel et al. 2010). In such cases resource investment to promote social learning might not be suitable.

Behavior may change for reasons apart from learning and changes in norms and values do not necessarily lead to changes in behavior (Muro & Jeffrey 2008). Differences in interests can also be too large to overcome or too complex and social learning does not guarantee that a solution will be found. Also social learning is often mistakenly equated with consensus while it is not always the case. Therefore a closer focus should be given to how differences can be overcome and how one should deal with them if they cannot be overcome (Ison et al. 2013).

Social learning requires flexible and spontaneous participation, which can be problematic as organizations such as universities and NGO’s require quantifiable indicators of performance and pre-arranged allocation of time (Ison et al. 2013). Finally the differences in knowledge and levels of abilities should be considered adequately.

The points of interest that should be analyzed in the case study are: 1) How to deal with conflict, 2) time consuming / waste, 3) lack of flexibility, 4) unequal power relations and 5) difference in knowledge (and cognitive abilities).

### 3.7 Summary of key variables

The findings from this section are summarized in the table below. Each disciplinary part has highlighted some specific objects for introducing social learning and through which processes such learning might be possible. Some processes can be viewed as outcome objectives as well as they might have positive characteristics in itself, and are thus placed in both columns.

Table 5: Outcome objectives for social learning

Outcome objectives	Processes (Description?)	From which theory
Improved relationship (Trust)	Create shared understanding / goals	Policy studies (Postone et al. 1990; Dryzek 2000)
Create shared understanding / goals	Articulation of arguments and exposure to opposing views → Space for discussion	Policy studies and soft systems (Postone et al. 1990; Dryzek 2000; Checkland 2000)
Increased engagement in learning	Participation through articulation of own arguments and exposure to opposing views	Policy studies (Postone et al. 1990; Dryzek 2000)
Strengthening of civic values	Space for discussion	Policy studies (Postone et al. 1990; Dryzek 2000)

Outcome objectives	Processes (Description?)	From which theory
Improved relationship (Trust)	Create shared understanding / goals	Policy studies (Postone et al. 1990; Dryzek 2000)
Create shared understanding / goals	Articulation of arguments and exposure to opposing views → Space for discussion	Policy studies and soft systems (Postone et al. 1990; Dryzek 2000; Checkland 2000)
Increased engagement in learning	Participation through articulation of own arguments and exposure to opposing views	Policy studies (Postone et al. 1990; Dryzek 2000)
Strengthening of civic values	Space for discussion	Policy studies (Postone et al. 1990; Dryzek 2000)
Improved quality of decisions	Diverse perspectives considered and more/diverse information	Policy studies (Postone et al. 1990; Dryzek 2000)
Raised awareness of own norms, assumptions and view on sustainability	Reflection	Transformative Learning and soft systems (Mezirow 1997; Checkland 2000)
Reflection	Creation of learning cycles, articulation of own arguments and exposure to opposing views	Transformative Learning and soft systems (Mezirow 1997; Checkland 2000)
Increased learning	Creation of learning cycles	Experiential learning theory and organizational learning theory ((Maccoby 2004; Argyris & Schon. 1978)

For many of the processes which are believed to make social learning possible, further requirements and recommendations have been discussed. These are summarized below and are also be part of the investigation of the case studies.

**Table 6: Processes in social learning**

Processes	Requirments	Theory
Articulation of arguments and exposure to opposing views (Space for discussion)	Physical (or digital) space for discussion. Presence of a good facilitator	Policy studies and soft systems (Postone et al. 1990; Dryzek 2000; Checkland 2000)
Articulation of arguments and exposure to opposing views	Participants are free from coercion	Policy studies (Postone et al. 1990; Dryzek 2000)
Space for discussion	Opportunity to assume the various roles of discourse (to advance beliefs, challenge, defend, explain, assess evidence, and judge arguments)	Transformative Learning (Mezirow 1997)
Creation of learning cycles	Single-loop, double-loop and deutero-learning	Experiential learning theory and organizational learning theory ((Maccoby 2004; Argyris & Schon. 1978)

Motivation for engaging and sharing information	Empathic and open to other perspectives; are willing to listen and to search for common ground or a synthesis of different points of view	Policy studies (Postone et al. 1990; Dryzek 2000)
Situate the problem in its social and ecological context	Engage relevant stakeholders	(Checkland 2000)

Additionally variables that need to be considered are: 1) having a similar stake in problem (and therefore motivation to solve it), 2) economic incentives, 3) long term investment and commitment, 4) effective use of social network, 5) presence of a 'honest broker', 6) How to deal with conflict, 7) time consuming / waste, 8) lack of flexibility, 9) unequal power relations and 10) difference in knowledge (and cognitive abilities).

All these aspects discussed will be taken into account when assessing the cases. However to make the assessment more clear they will be placed under the three headings of Adaptiveness, flexibility and learning, evaluation and monitoring and knowledge as presented in the previous chapter.

### 3.7.1 Adaptiveness, flexibility and learning

Creating adaptiveness and improving learning is one of the core challenges and has been discussed in both theoretical chapters. The creation of flexible platforms to learn from feedback and counter uncertainty are a key solution. This is something that is also stressed often in the governance literature but it is the social learning research that looks deeper at how such platforms can become flexible yet effective and improve learning not just for individuals but also collectively for social groups.

When performing the assessment in this research the focus will be on the creation of space for discussion and the conditions under which the actors exchange knowledge. Special attention will be given to whether producers are free from coercion to exchange experiences and knowledge and whether they can assume various roles of discourse (to advance beliefs, challenge, defend, explain, assess evidence, and judge arguments). Another major challenge is to make discussions effective as unorganized discussions are time-consuming and undermine the successfulness of the initiatives. The role of the facilitators and the form of discussion will thus be analyzed.

### 3.7.2 Evaluation and monitoring

Evaluation is concerned with systematically assessing the value of the goal-oriented deliberative intervention in regard to a social-ecological system. Assessment and monitoring should be participatory, interactive, and multiscale. Selecting and matching appropriate indicators to the scale of assessments is a challenge. The social learning theory further develops the concept of evaluation and monitoring by including learning cycles (double-loop learning) and by stressing the importance of an iterative and continuously improving mechanism as opposed to rigid indicators and standards. The theory also links evaluation and monitoring to improved sustainability because it should raise engagement and motivation and helps actors understand the link between single variables and the broader topics related to sustainability.

The assessment will thus focus on how the design of the standards situates the actions of producers in the social and ecological context and promotes continuous improvement. Additionally attention will be given as to how the standards lead to increased awareness and engagement and a greater understanding of sustainability.

### 3.7.3 Knowledge

Environmental governance and the transition towards sustainable agriculture require an intense amount of diverse information. It is a challenge to value multiple knowledge sources, to facilitate exchange of knowledge and to amalgamate the different types of knowledge. A goal is to improve the coproduction of knowledge as generated collaboratively through the interactions of diverse actors. Accepting the dynamism and contingency of knowledge is a notable challenge.

The assessment will focus on whether diverse sources of information are utilized and whether all actors are involved in the process. The direction of knowledge exchange will be analyzed. Also the effectiveness of the knowledge exchange and whether it leads to actual changes in behavior is investigated.

## **4 Research Methodology**

The rapid development in standards for sustainability and the increasing innovation that is taking place because of the failure of current models makes the case study suited as a research methodology at this point of time. As discussed in detail in the previous two chapters the theory on environmental management, environmental governance, supply chain management and social learning have all developed considerably in the past decade and it would be interesting to see if the practice is taking these lessons into account.

### **4.1 Case study approach**

The method used for this research is a comparative case study. Research is done on two different types (locally oriented and export oriented) of bottom-up cooperatives with two cases the first and one for the later. It is a qualitative study.

Case studies may be more useful when a subject is being encountered for the first time, or when they are being considered in a fundamentally new way (Gerring 2007). As Yin (2014) explains Qualitative case study methodology provides tools for researchers to study complex phenomena within their contexts. It allows the researcher to explore individuals or organizations, simply through complex interventions, relationships, communities, or programs (Yin, 2014) and supports the deconstruction and the subsequent reconstruction of various phenomena (Baxter & Jack 2008).

The case study approach is built on a constructivist paradigm which says that reality is a social construct and thus the truth is relative and that it is dependent on one's perspective (Baxter & Jack 2008). Pluralism, not relativism, is stressed with focus on the circular dynamic tension of subject and object (Baxter & Jack 2008). Thus a close collaboration between the researcher and the participants is pursued to give the researcher different perspectives on the subject and thus a better understanding (Baxter & Jack 2008).

According to Yin (2014) a case study can be used when 1) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or 2) the boundaries are not clear between the phenomenon and context. In this case study both are covered by first trying to see what distinguishes the bottom-up initiatives from other standards and secondly trying to analyze how contextual conditions influence the process and development.

A multiple case study enables the researcher to explore differences within and between cases. The goal is to replicate findings across cases. Because comparisons will be drawn, it is imperative that the cases are chosen carefully so that the researcher can predict similar results across cases, or predict contrasting results based on a theory (Yin, 2014). The main difference between the initiatives is the scale for which it is designed: local initiatives with limited actors on the one hand and initiatives with long supply chains on the other. At the same time all initiatives aim to change the behavior of the growers / farmers through the same mechanism of standards and thus comparisons can be made.

### Selection of cases and unit of analysis

The first selection criterion was finding examples of bottom-up initiatives for sustainability standards as these are a novel phenomenon. Due to the limitations of the research possibilities it was chosen to look at multiple cases and see if there are similarities, and thus it does not form a representative research for bottom-up initiatives in general. The purpose is to gain new insights and not to be all-inclusive or representative. As explained in the second chapter however these are the leading initiatives regarding sustainable fruit production in South Africa.

Initially the purpose was to analyze the standards of different assurance systems. However as explained in the previous two chapters the standards are context-specific and the effectiveness and impacts can only be explained in the context of the whole initiative. Additionally when it comes to bottom-up initiatives the development phase and the history of all the actors becomes relevant and thus an analysis of the final standards would not suffice to achieve reliable conclusions.

Another issue when dealing with sustainability standards is the fact that deciding on a comprehensible list of indicators and variables for analysis necessarily involves subjective decision making and context specific outcomes. Therefore this research will focus on the process of deciding on standards and whether there are innovative mechanisms to it besides the simple objective values of a standard.

### Data collection

The initial research consisted of some explorative interviews with the key persons of each initiative. These were performed in an early stage as each initiative is fairly new or still under development so that it was necessary to make sure it matched by research expectations. For all the initiatives there was a lack of documented materials and therefore these interviews were also essential in building an understanding of the initiatives. Finally personal face-to-face interviews were conducted at the respective farms with growers and farmers. Most of the visited farms are in the Western Cape province of South Africa where also the organizations responsible for developing the initiatives reside. The two farms that were visited for the Sustainable Fruit Initiative are in the KwaZulu-Natal province and were selected because they agreed to participate in the pilot study.

### Research material

The theoretical framework was build using a literature search on private voluntary standards and social learning. For the part on private voluntary standards a lot of information could be found in the form of grey literature through an internet search as the international organizations related to standards will publish relevant reports online (ISEAL, IFOAM, WTC, etc.). For the research on the impacts of standards and the literature on social learning the snowball method of collection for sources was used after an initial search for relevant articles.

Often there was a lack of documents with information of the bottom-up initiatives because they were still under development or constantly changing and thus documents from earlier stages were not representative or finalized. Therefore a lot of information comes from personal observations which

include conversations with representatives, attendance of meetings and site visits. In the case of Greenroad much information was also attained by visits during a Sustainable Agriculture course that was attended through the University of Stellenbosch and participation in a yearly conference by the Biodynamic Agricultural Association of South Africa (BDAASA) where the Greenroad presented and discussed its activities.

The interviews with the key persons were mostly one-to-one. The interviews with the growers were in all cases together with one of the developers of the initiative and were often more open conversations in which the different stakeholders gave their own perspective on the questions. It was decided that the presence of the developer would provide benefits (through providing additional information) rather than problems as all farmers seemed to be in a position where they could speak freely. Also for the development of the initiatives it was in the benefit of all actors to discuss possible difficulties which meant the danger of coercion was low.

#### Reliability and validity

The interviews were held over a period of 6 month meaning that reflection was possible. The initial interviews with the key persons were held three month before the interviews with the farmers and afterwards they were consulted again to triangulate the findings. For each case study the freedom was given to contact any of the stakeholders and they were open to answer any of the questions.

However the initiatives were still under development so the amount of actual farmers that could be spoken to was limited and they all form pioneers. Thus one cold question if it is a clear representation of the actual practices once the programs are running fully.

## **4.2 Research Framework**

The research framework is presented in figure 5 and consisted of 4 phases.

### Phase I:

In the first phase a literature review on private voluntary certification and standards was done. The numerous literature reviews on sustainability standards and the most recent academic research on its impacts has been used. This literature forms the first theoretical framework and is concluded with an assessment framework for the governance related issues. The case study research at this point consisted of interviews, document analysis and observations to define 1) relevant actors, 2) case description and history and 3) motivation and vision and 4) expected outcomes.

### Phase II:

In the second phase a framework for assessing the effectiveness of the initiatives concerning social learning has been created. The focus was on the characteristics which are empirically testable within the scope of the research and supported by the theories that have been discussed in chapter 3. It thus by no means is meant to be an exhaustive analysis but could provide leads for further research. Based on the theories from the literature a structured interview scheme was created for the different actors.

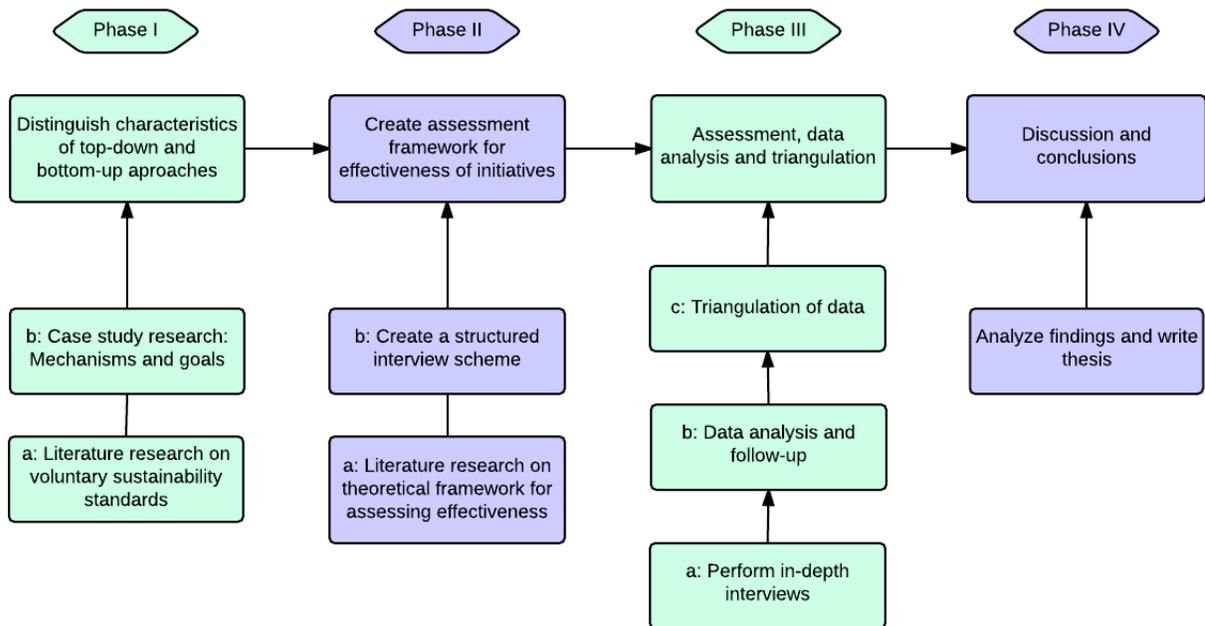


Figure 5: Research Framework

Phase III:

This phase consisted of in-depth interviews with the actors. After finishing the interviews the data were analyzed and a decision was made whether follow-up interviews or additional data gathering was needed. For the triangulation of data the key persons of the initiative were consulted.

Phase IV:

The last phase mainly consisted of processing the results and writing the thesis.

### 4.3 Assessment Framework

As already presented in the previous two chapters six core issues have been selected to structure the results. The empirical research is presented in three separate chapters. The first chapter describes the initiatives. For each initiative a timeline is presented and the standards systems are discussed in detail. In Chapter 6 a score is given to each of the six core issues and a further discussion is provided on each issue. The scoring of each initiative is provided in table 7. In Chapter 7 a cross-case analysis is given.

Table 7: Scoring assessment framework

Core issue / Score	0	1	2	3	*
Accountability and legitimacy	Issue is given no attention	Issue gets attention but poor implementation	Issue is addressed properly but further	Issue is addressed adequately	Innovative

			improvement possible		
Actors and roles	No clear goal to include all actors	Participation is a goal but not all actors are included	All actors are reached but improvements are possible	Participation is adequate	Innovative
Fit, interplay and scale	The context-specificity and fit with existing systems receives no attention	Issue gets attention but poor implementation	The context-specificity and fit with existing systems receives attention but further improvements possible	Issue is addressed adequately	Innovative
Adaptiveness, flexibility and learning	There is no adequate platform for knowledge (and experience) exchange.	There is a platform for knowledge exchange but it does not perform well	Good efforts are made but further improvements possible	There is a well-established platform for knowledge exchange	Innovative
Evaluation and monitoring	No adequate evaluation and monitoring	Issue gets attention but poor implementation	Issue is addressed properly but further improvement possible	Issue is addressed adequately	Innovative
Knowledge	Diversity of sources of knowledge and learning get low attention	Issue gets attention but poor implementation	Issue is addressed properly but further improvement possible	Issue is addressed adequately	Innovative

## 5. Description of the initiatives

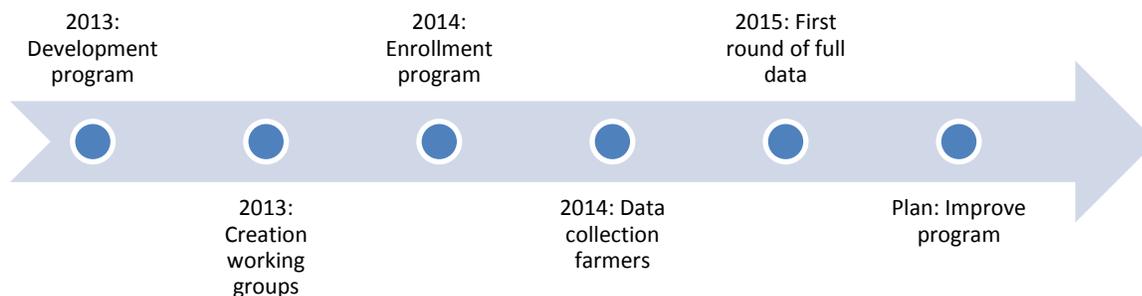
Based on a document analysis and interviews a description is given of each initiative. The focus is on the innovative mechanisms that are behind the initiatives and how they differ with traditional standards.

The Chingford sustainability strategy is a completely private initiative which mainly consists of the local producers and suppliers, which are all part of a larger supply chain related to a large retailer in the UK. The Sustainable Fruit Initiative (SFI) is a collaboration between NGO's and private farmers and target medium to large sized farmers. Greenroad is a civic organization and more focused on smallholders.

### 5.1 Chingford Fruit Limited Sustainability Strategy

Chingford Fruit Limited (CFL) is a United Kingdom based supplier of fresh fruits. They work closely with numerous South African growers and export the products to the UK where they supply J.Sainsbury which is one of the largest chains of supermarkets. Chingford is part of the AG Thames group. The initiative that forms the case study is the sustainability strategy developed by Chingford in order to meet the demands set by the retailer, in this case J.Sainsbury. It is thus a completely private and voluntary initiative. The growers involved in the program are part of a captive value chain where many small suppliers depend on a small number of much larger buyers (Vermeulen 2010).

#### 5.1.1 Historical time path



The initiative for the program came from Chingfords itself who developed it together with BlueNorth in order to deal with the changing preferences of the retailers in a proactive manner. Instead of waiting for the requirements by their consumers, which could lead to difficulties in implementation it was decided that it would be better to start thinking about sustainability by themselves.

The program has been implemented and the first rounds of measurements and discussion have taken place. There have been working group sessions where already insights were gained but the initiatives still need improvements in several ways. The ways of data collection need to be harmonized to make useful comparison possible. However clear results cannot be expected yet as farmers believe that a longer term is necessary for the data to become useful. Only when data over multiple years are available, they will show how different conditions lead to certain outcomes and one can start seeing if certain measures are achieving results. It would then become possible to compare the results of different approaches at different farms and learn from each other.

However this poses the initiative with a challenge concerning the financing. Ideally, and hopefully in the future, the growers will see the benefits of this approach and thus it would become part of their business activities. However as long as this is not clear others need to carry the costs of the initiative and it is still unclear who this will be. Chingford has developed the program and financed the running cost up till now but would like to see it being managed by the farmers themselves.

#### 5.1.2 Actors involved

Chingfords has suppliers in all types of fruit, throughout South Africa. Chingfords is the final supplier to J.Sainsbury which means that they are responsible for the final preparation of the products so that they conform to all standards set by the retailers. They are not directly in charge of producing but are in close contact with the packers and marketers in South Africa. These are companies that work together with a group of growers for which they provide assistance and make sure that the products are in line with the demands of the exporters and overseas market demands.

The initiative is therefore aimed at increasing the information exchange between the different farmers and packing and marketing companies that are part of the supply chain. Through their packing and marketing companies, Chingford's has unrolled the sustainable strategy tool to the growers. The growers then gather the necessary data which is used to discuss sustainability issues in working groups which are facilitated.

The assessment tool was developed by BlueNorth. BlueNorth Sustainability (Pty) Ltd is a specialist sustainability consulting practice. The focus of the business is on the delivery of sustainability solutions and services to businesses and supply chain in the agriculture sector. They have also developed the sustainability tool for the Sustainable Fruit Initiative.

#### 5.1.3 Main motivation for a sustainability strategy

For Chingfords: (Farrell 2011, p.1)

- 1) Sustainability has emerged as a key strategic theme for J.Sainsbury's (JS), CFL's key and dedicated customer. JS recognizes the need to ensure the ongoing supply of products to support its growth strategy into the future.
- 2) CFL's recognition of the strategic importance to its own business to respond pro-actively and meaningfully to JS's strategic drive for sustainability.
- 3) The occurrence of an increasing number of sustainability risks within CFL's supply-base.
- 4) The general and growing pressure for agriculture to become sustainable in a situation of growing demand for food supply and food security and cognition of the environmental degradation and negative social impacts related to modern agricultural practices.

For farmers:

The farmers that are willing to participate actively believe in the potential benefits that the initiative can bring and hope to get value out of participation. They also realize that the negative influences of environmental degradation and other sustainability related issues are increasingly becoming a problem for them. Whereas the farmers are all complying with multiple standard systems such as GlobalGAP,

they feel that these are more of a bureaucratic burden than helping them to become more sustainable. Thus they are motivated to find innovative solutions that can help them improve their businesses.

#### 5.1.4 Description of the “bottom-up” initiative

The strategy is designed as a “bottom-up”/grower-centric strategy aimed at achieving sustainability of the supply-chain and the products that move through it. The entire approach is built on the understanding of the critical role and value of the farmer-base in determining the overall sustainability of the supply-chain. The strategy is conceptualized and structured as a “change-management” initiative. As such it focuses heavily on engagement, measurement and adoption. The operating structures, processes and supporting resources are formulated to identify what change is required and to support the achievement of that change.

As a basis for the initiative a self-assessment tool has been developed in which growers were consulted on the content. The idea is that growers become aware of their impact through the assessment of different indicators and get a more holistic view on sustainability. After the self-assessment, of which data collection is an important part, the results are shared with other growers in a “Working Group” for knowledge exchange. The development of the assessment tool was done by BlueNorth but the idea is that adjustments will be made according to the working group outcomes (Fig. 6).

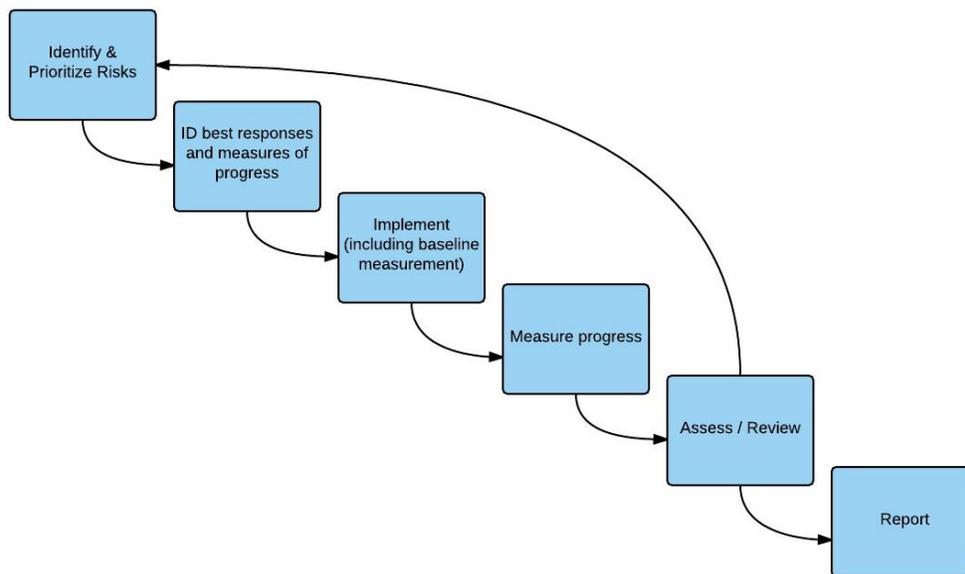


Figure 6: The working group process (Source: Farrell, 2011)

#### 5.1.5 Innovative mechanisms

The structuring of the strategy is built around grower-centric Working Groups. These are essentially sustainability study groups and serve as the forums through which the local knowledge of individual farmers will be encouraged to come-out and be shared, and the forums through which supporting knowledge will be offered and supplied. These forums will also be the point through which farmers are

encouraged to adopt new practices in response to the measurements and the experience of other farmers, and to share their learning and experiences.

The Working Groups are the main structure and mechanism through which the meaning, principles and practical implications of sustainable agriculture is being examined, explored, tested, refined, adopted and monitored. In short, the Working Groups is supposed to be the forum through which the pursuit of sustainable agriculture is given practical effect.

There is one Working Group per Supplier. Where commodities have multiple suppliers within a region and within a commodity, there is also a Steering Group. The role of the Steering Group is to coordinate the sustainability strategy between suppliers and to facilitate consistency in the approaches adopted by the Working Groups.

The data that is collected will be shared freely among participants of the working group but is not shared with external parties such as the retailer. This enables the growers to communicate freely without having the fear to be judged and losing market access.

The development of an assessment tool that enables the farmer to capture necessary data to judge the farm's sustainability is another important component. Based on a Sustainability framework created by BlueNorth and Chingford's a set of indicators was chosen that should help the farmers monitor the essential variables.

#### 5.1.6 The Standards

The initiative is based on self-assessment and a sharing of data so that farmers can learn from each other. By identifying the farmers that perform better on certain indicators they can share their knowledge and help others. Thus there is no real "standard".

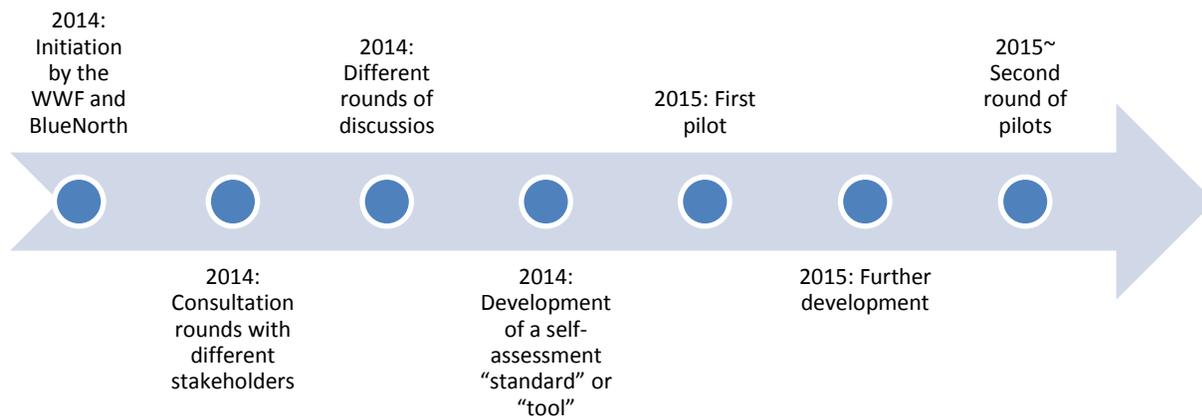
The standards were developed by BlueNorth. Evaluation of these standards is still taking place.

## **5.2 Sustainable Fruit Initiative (SFI)**

The Sustainable Fruit Initiative (SFI) is a multistakeholder initiative which was started by the World Wide Fund for Nature (WWF) South Africa and BlueNorth. The initial goal was to increase farmers' knowledge on the importance of increased biodiversity and the focus is thus on the environment. One of the reasons for this focus is the recent development of the sustainability Initiative of South Africa (SIZA) which is a standard that already deals with social components. During the process of development it was decided to make it into an environmental standard which can be applied to the whole fruit sector in South Africa and which will be benchmarked to existing standards. The standard is thus designed in compliance with the Global Social Compliance Programme (GSCP).

### 5.2.1 Historical time path

This initiative has been an attempt to further develop the concept of bottom-up and thus has actively attempted to include many actors from the beginning in a meaningful manner. The initiative has been under constant development and changed a lot over time.



A brief overview of the steps is given below:

- 1) Initiation by the WWF and BlueNorth
- 2) Sending of invitations to different actors that were identified as being important
- 3) Different rounds of discussion in which the needs of growers and possible sustainability strategies were discussed
- 4) Development of a self-assessment "standard" or "tool" that fits the local context and needs of growers
- 5) First pilots to test the tool.
- 6) Further development of the tool with the lessons learned from the first pilots. It was decided that for the tool to become useful it should be benchmarked to global standards so that growers can show their compliance and get a reward for their efforts.
- 7) Second round of pilots to establish the business case and make the tool ready for wider application

The next step for the initiative is the application to the Global Social Compliance Programme (GSCP). The GSCP is a business-driven program that attempts to harmonize the existing efforts to establish standards (GSCP, 2015). It thus becomes possible for local and context-specific standards to become recognized as standards that fit the demands of overseas retailers and consumers.

### 5.2.2 Actors involved

The initiative was set up by the WWF in collaboration with BlueNorth. Through the approaching of growers a wide range of actors from the fruit sector became involved. This group consisted not only of growers but also of managers and employees of packers and marketers who often represent or manage multiple farms. The involved actors are from farms around whole South Africa representing a diverse group and producing different types of fruit. These include larger companies that own multiple farms across South Africa such as the Afrifresh Group. Because of the larger organization such companies often have resources in the form of managers that deal with standards and sustainability issues and thus have a greater possibility to participate in an initiative like this.

The gatherings were organized and facilitated by WWF South Africa and BlueNorth.

### 5.2.3 Main motivation for a sustainability strategy

The goal of the SFI is to drive and inspire change from conventional farming practices, to those which will hopefully build greater system resilience in the future. The focus is only on the environmental impacts with five key topics which are: energy, ecosystems, biodiversity, water and soils. Although the initial goal was to increase biodiversity, they value participatory approaches and thus gave the farmers the freedom to change the initiative according to their needs.

### 5.2.4 Description of the “bottom-up” initiatives

Inclusion of all stakeholders in each step of the process, from the very beginning, has been an important driver. From the beginning the WWF aimed for a collaborative initiative based on scientific literature and experiences from case studies (Petersen 2013). This is also why the initiative was open for development in different directions and which resulted in an iterative process of improvements.

The first stages were mainly focused on the identification of environmental indicators that could benefit the growers themselves to get a better understanding of their impacts. Based on the outcomes of the group discussion BlueNorth and WWF developed a tool that forms the basis of the initiative. The tool consists of a set of questions for a self-assessment by the farmer. This tool provides a more detailed analysis of variables than the existing standards but more importantly the questions are designed in an innovative way and backed up by constructive explanations. In this way an attempt is made to make the link between single indicators and its influence on the wider ecosystem more clearly and thus creates a link to sustainability.

Experience from previous projects revealed that the questions, often designed by scientists or environmental experts, are often not clear to the growers. Often the knowledge on certain issues (such as good water management, soil health or biodiversity) is lacking and thus answering the questions cannot be done in a meaningful manner. Not only does this lead to a poor analysis but more importantly it decreases the motivation for growers to collect such data and engage in the initiative. To tackle this problem the questions were designed in close collaboration with growers and detailed (yet as concise as possible) explanations on how to answer these questions were added.

The questions are based on a self-assessment in which the growers give themselves a score for each question. In this way they move away from quantifiable data with clear limits which is often not context-specific to a focus on management practices.

After answering the questions a scorecard is derived for different topics which shows the relative position as a stoplight: red meaning serious efforts are needed, orange showing that still progress needs to be made and a green light for when the grower is on the good way. Results can be easily ordered on the basis of topics, the areas that need attention or which have legal requirements so that it immediately becomes clear how the results can and should be translated into policies. This is of importance as it can help set priorities for which areas to address as not all can be dealt with at once. The goals set in the tool are ambitious to show the direction in which the growers should move and motivate even the front-runners for further improvement.

Additionally a spider diagrams for each of the five main topics shows how well the performance is on each sub-areas. Whereas it is just another way of representing the results, it interestingly shows clear variances between different farms and can thus become very valuable in comparing different locations.

### 5.2.5 Innovative mechanisms

The main innovation of the sustainability standard is the tool that is developed which will be used for the self-assessment. Through in-depth discussion with all the stakeholders the necessary and relevant indicators and variables were decided on.

The tool is developed using the Principle, Criteria and Indicator hierarchical framework (fig. 7). The benefit of using this model is that the ideal situations are described so that growers understand which way to move to and how certain actions or indicators are related to the bigger picture. Often there is an understanding that certain indicators are related to sustainability or a bigger goal but it is unclear in what way and as the effects are often only visible in the long term growers might not be too committed to changing.

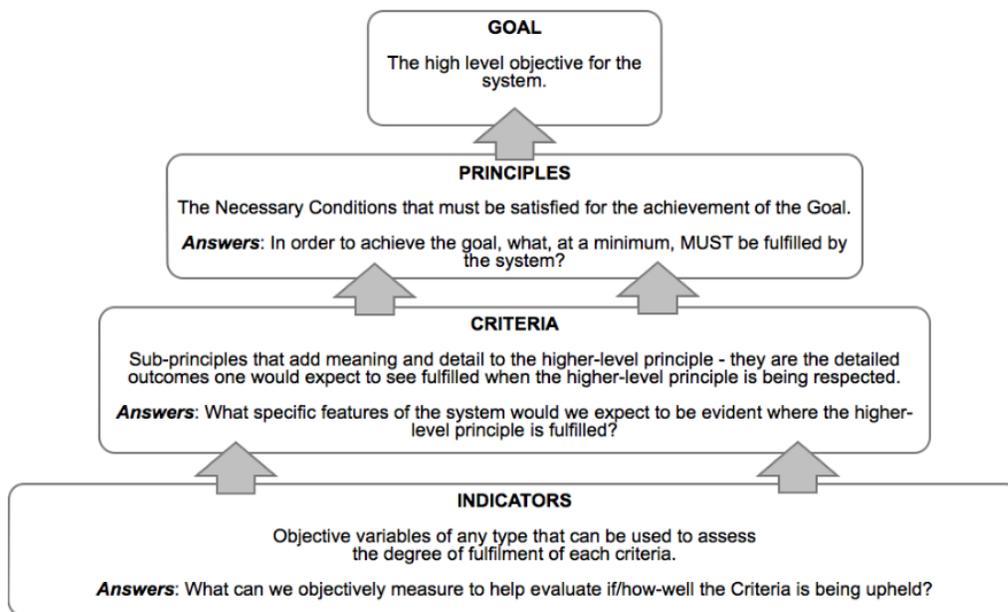


Figure 7: Principle, Criteria and Indicators hierarchical framework (Source: SFI (2014))

Based on the goals set in the principle, criteria and indicator hierarchical framework the content has been divided into three levels. The first level is the more conventional approach in which the impacts are minimized and resource use is optimized. The next step goes further than traditional methods and looks at ways to reduce impacts and restore ecosystems. The final level is the achievement of a sustainable agro-ecosystem. The levels are shown in the figure above (fig. 8). The content is developed using a stronger sustainability perspective than conventional standards and thus leads to different conclusions and recommendations. A strong sustainability perspective seeks to completely diminish negative environmental impacts as opposed to minimizing it to under a critical level. Another important

characteristic of the design is that it uses a system perspective so that growers start to become aware of their position in the larger sociological-ecosystem. This means that farmers have to describe their function and impacts on the local environment.

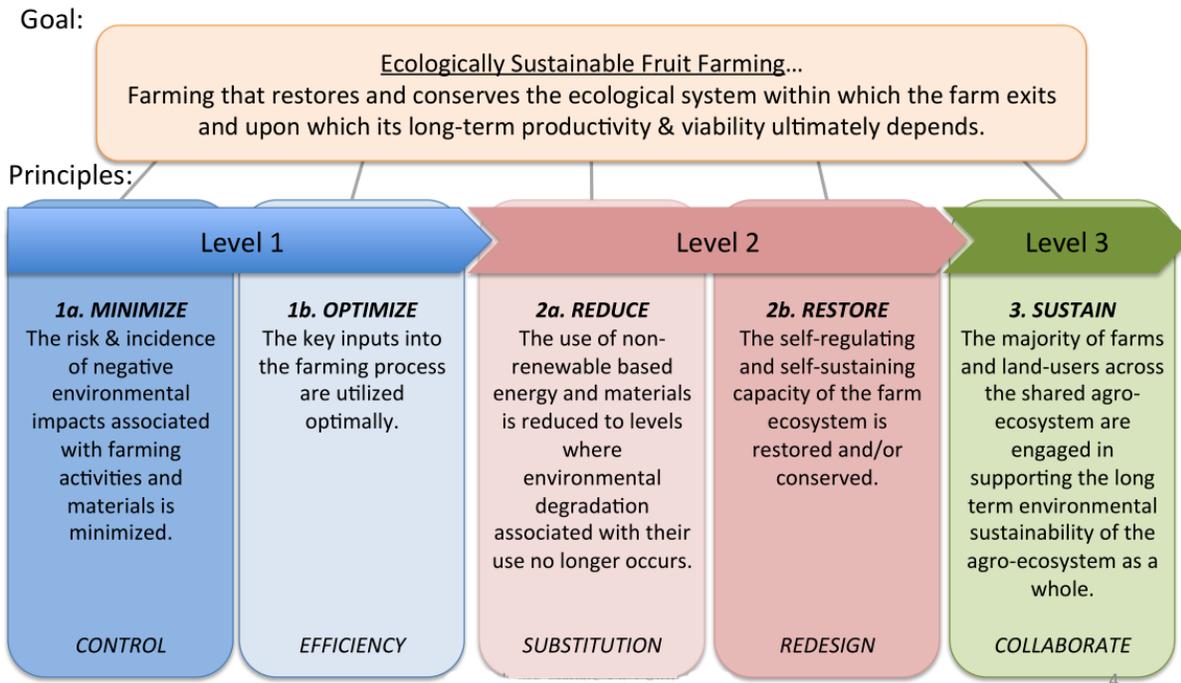


Figure 8: Different levels of sustainability

Instead of being a standard system that imposes thresholds for certain indicators it is more of a management system / tool in the first place. Helping farmers get a better insight into their impacts and signaling where improvements can be made has thus been a key concern in designing the tool. As such a lot of thought has been put in the way that questions are asked and how the assessment will be executed to avoid any pretense of imposing standards.

The audit is based on the use of the tool and whether a certain management system is in place instead of looking at certain indicators and detailed investigation of the ecological variables. The main reason for this is to make the audits more plausible and useful. Although auditing of current environmental standards happens by looking at certain variables it is highly questionable if such analysis are really achieving its goal. Many of the variables are highly context specific and will vary considerably between farms. To assess the health and management of soils or water use in a meaningful manner on a certain farms for instance can normally only be done by someone with great expertise on the subject. It can thus not be assumed that an auditor will have all the necessary knowledge on all the topics and additionally such auditing would take too much time.

In the last pilot it became apparent that benchmarking between different sites of production will likely produce new useful results and is therefore desirable from the grower's perspective.

### 5.2.6 The Standards

The standards, or indicators for the self-assessment, were decided on through intensive discussions with all stakeholders. After completion of the first version of the tool that includes all the questions for the indicators, a round of piloting was performed to see how the growers would perceive the tool. The findings of this pilot led to further improvement of the tool and now a second round of pilot is being held to establish a business case and finalize the tool for wider use.

### 4.3 The Green road (PGS)

The Green road is a local initiative in the Stellenbosch region which seeks to make food consumption more sustainable through a shortening of the supply chain and the use of biodynamic farming. They call themselves a Short Food Supply Chain organization and provide the link between local farmers and consumers. Customers who sign up receive a weekly package of vegetables and fruits which are provided by the farmers in that week. The purpose is to create a personal link between customers and farmers and in this way people get accustomed to seasonal products again. The Greenroad receives funding from the EU to set up the program.



Figure 9: Participatory Guarantee Systems (Source: <http://greenroad.co.za/Content/PGS> )

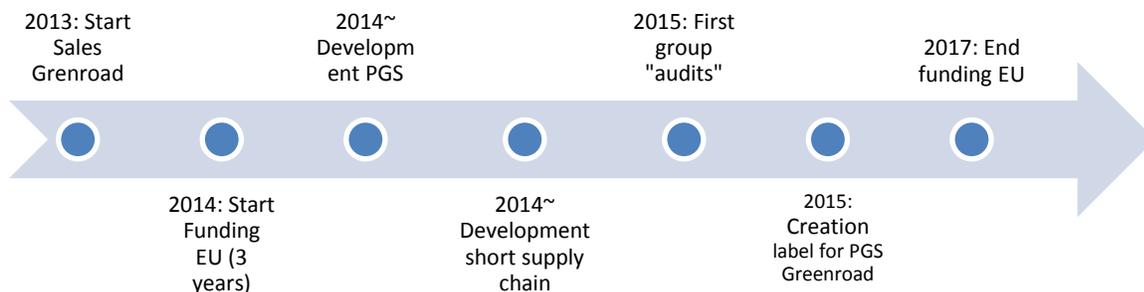
Green road is also setting up a Participatory Guarantee system (PGS) which is a voluntary association of growers, retailers and consumers supporting organic agriculture and local food production based on the principles of ecology, health, fairness and care (See fig. 8)(GreenRoad, 2015). PGS has been developed by the International Federation of Organic Agriculture Movements (IFOAM) as a certification mechanism

for small groups or individual farmers who would not have the resources to apply to third-party certification. Additionally some argued that an annual visit by a third-party inspector would not be able to safeguard the organic integrity and thus alternative, improved methods were necessary (Källander 2008). As Green Road is still in the process of developing and expanding the PGS network it was chosen to also include an analysis of PGS in general for the purpose of this thesis.

A PGS is a quality assurance system that is built on a foundation of trust, social networks and knowledge exchange. There are dozens of PGS around the world with different methodologies and processes but the core principles are similar (Källander 2008). As it focuses on local markets it aims to create a shared vision by including all producers and as much consumers as possible in the certification process. Through active participation they thrive for empowerment of all stakeholders while giving them larger responsibilities (Källander 2008). In this way a high focus is given on knowledge and capacity building. By using an integrity based approach in which social and cultural control mechanisms help to build trust, it minimizes hierarchies and administrative levels.

### 5.3.1 (Historical) time path

The Greenroad is still very much under development and the certification process is only a part of the process. The short supply chain in which consumers are supplied directly by farmers, in which the Greenroad is the only intermediary for organizing the links, is already in practice and aims to grow its customer base to become economically sustainable. Starting from 2014 an EU funding program has been granted which will last for 3 years if annual targets are met and provides the Greenroad the startup costs that are necessary for developing the program. Using this funding the Greenroad currently employs several staff members. The certification program (PGS) is one of the components that are being developed and the standards will be based on the IFOAM organic standards for now, but ultimately the goal is to create a biodynamic certification program. The PGS system is designed in such a way that it will be under constant development in which all actors should be involved, but the basic procedures have been formulated. Mid 2015 the first “audits” or farm inspections have been performed and based on these results the first farms have received accreditation.



### 5.3.2 Actors involved

Green Road currently has around 160 customers that receive a weekly package. There are multiple farmers in the process of getting certification. The Greenroad will become the action-hub were the

initiative is coordinated, marketing takes place and the training and consulting for farmers will be organized. The Greenroad has an office with several (part-time) employees and is currently running on EU funding. The idea is that consumers become actively involved by getting to know the farmers that they receive their produce from and participate in the certification process.

As will be explained below the inspection (auditing) of farms so that they can receive the certification is done using a diverse group of stakeholders. An inspection should at least include consumers, other farmers of the PGS, experts and someone from the Greenroad, and people can apply to join such an inspection.

### 5.3.3 Main motivation for a sustainability strategy

The aim is to create fair prices for farmers, reduce waste and improve cooperation and knowledge exchange through the short supply chains. The Greenroad will be the coordinator that matches supply and demand for the right prices, facilitates the certification process and more importantly provides the training and knowledge to improve farm practices. The initiators of the Greenroad are involved in biodynamic agriculture and are motivated to spread these practices as they believe it is the most sustainable way of agriculture.

### 5.3.4 Description of the “bottom-up” initiatives?

The Greenroad can be seen as an innovative restructuring of the food system and is thus much more than a standard system. For the purpose of this research the focus is on the Participatory Guarantee System which is the certification system. Because the PGS focuses on creating a direct link between consumers and producers and builds on the trust that is thereby created, it is at this point only used for local markets.

PGS has six basic elements which form the core principles (Källander 2008, p.7):

- 1) Shared vision – Farmers and consumers should have a shared vision which is reflected in the core principles of a program. Thus all are aware of what and how goals should be pursued.
- 2) Participation – All stakeholders have to participate in some form which can create the credibility of the production quality
- 3) Transparency – All participants must know generally how the guarantee mechanism works and have an understanding of the criteria and how decisions are made. This means that some written documents must be available to all interested parties.
- 4) Trust (Integrity based approach) – The initiative should reflect a community’s capacity to demonstrate trust through the application of their different social and cultural control mechanisms, providing the necessary oversight to ensure the organic integrity of their organic farmers.
- 5) Learning process – The process of certification should contribute to the construction of knowledge and capacity. It should lead to a constant process of learning among different stakeholders.
- 6) Horizontality – Ideally all stakeholders have equal power, which means equal responsibility and equal capacities.

In practice the Greenroad holds close contact with the farmers and assists them in getting ready for certification. The Greenroad has the expertise in biodynamic farming and can thus provide farmers with the necessary knowledge. In the future it also plans to coordinate services that can be used jointly and might not be feasible for individual farmers such as the making of compost, seed production, making of preparations and the lending of machinery.

Once the farmers are ready for certification an inspection group is set up which should exist of participants from all different stakeholder groups (consumers, experts and other farmers). Any stakeholder can participate in the process. The exact procedure for the inspections (the word audit is avoided as this has negative associations for farmers) is still under development, but at least some actors from each stakeholder groups should be present as the goal of the inspection is to create the trust between stakeholders that the standards and guidelines are being followed respectfully and in an effective manner.

The Greenroad works on a membership base meaning that farmers will have to pay yearly contributions and in exchange receive advice from the Greenroad.

#### 5.3.5 Innovative mechanisms

As the initiative adopts the PGS system, the mechanisms and features of this system will be discussed. However each PGS system will vary due to its local context and people that are involved. After discussing the key features the specific Greenroad example will be discussed.

#### Box 2: Key Features of a PGS (Källander 2008, p.8):

- Norms conceived by the stakeholders through a democratic and participatory process, but always in accordance with the commonly understood sense of what constitutes an organic product. The norms should stimulate creativity, which is a characteristic of organic farmers, instead of inhibit it.
- Grassroots Organization: The Participatory Certification should be perceived as a result of a social dynamic, based on an active organization of all stakeholders.
- PGS is appropriate to smallholder agriculture, because the participatory nature and horizontal structure of the programs allows for more appropriate and less costly mechanisms of certification, and actually highlights and celebrates and encourages consumers to seek out smallholders.
- The creation of clear principles and values that enhance the livelihoods and wellbeing of farming families and promote organic agriculture.
- Documented management systems and procedures – There may be minimal paperwork required of farmers but there will be ways in which they are expected to demonstrate their organic commitment and integrity, these ways should be documented by the PGS.
- Mechanisms to verify farmer's compliance to the established norms, which is able to stimulate participation, organization, and which allows for a learning process for all the stakeholders.
- Mechanisms for supporting farmers to produce organic products and be certified as organic farmers, to include field advisors, newsletters, farm visits, web sites etc.
- Should have a bottom-line document, for example a farmer's pledge stating his/her agreement with the established norms.
- Seals or labels providing evidence of organic status.

- Clear and previously defined consequences for farmers not complying with standards, actions recorded in a data base or made public in some way

The inclusion of all stakeholders in the certification process makes it possible for the system to rely on minimal bureaucracy and a much lower workload and costs related to the certification. In a third-party certification system every facet of the farm has to be recorded so that the auditors can check the claims. These audits are expensive as experts from independent certification bodies have to be brought in. Additionally the process is time consuming and complicated (especially the paper work and research to get everything in order before the audit). All these aspects make a third-party certification system unfit for small-scale farmers, especially because the time and cost will not weight up to the benefits.

Moreover the closer relationships do not only make the auditing affordable but are also expected to lead to social control and knowledge exchange which will make the system more effective.

#### 5.3.6 The Standards

The current standards are based on the IFOAM organic standards. In the future a further focus towards biodynamic farming is the goal but as these standards are stricter (see DEMETER standards) this will be done in a later stage when there are sufficient farms that can meet the standard.

The Greenroad as an organization promotes sustainable agriculture and has as goal to help farmers move in this direction. This is done through advising and making knowledge exchange possible between different actors through the creation of a network, and not by enforcing thresholds through the standard system. Thus the standards and certification process itself is only there to assure the consumers that the claims of the farmers can be trusted and should be a helpful mechanism for farmers to see how they are performing.

## 6. Assessment

In this section the initiatives will be scored on each of the six core issues and a further discussion is given.

### 6.1 Chingfords

	Accountability and legitimacy	Actors and roles	Fit, interplay and scale	Adaptiveness, flexibility and learning	Evaluation and monitoring	Knowledge
Chingfords	0	1	1	1	1	0

As a voluntary initiative it is good to see that efforts are made to improve their practices and sustainability receives attention. However to make significant change possible and really become more sustainable demands a great effort and full commitment by all actors which seems to be lacking in this initiative. The main problem is the fact that the initiative is set up by Chingfords but expected to be taken over by the growers. However they do not have the time, resources and expertise at this point to further develop the program and make it more effective.

#### 6.1.1 Governance issues

**Accountability and legitimacy:** The accountability can be considered problematic as the large retailers hold considerable power in setting their demands and the producers will have to comply with these demands. The initiative can be seen as a reaction to these power relations which enables the growers to deal with this challenge better. Whereas the retailers set the standards and demand higher quality and sustainability, the retailers are not actively involved in taking measures and no investments are made to find solutions. Thus the responsibility for changing practices is placed on the growers, who often have limited time and knowledge to actually engage in the transition.

J.Sainsbury is now interested in taking over the initiative which is leading to an interesting discussion. As a consumer-oriented company J.Sainsbury wants to use the initiative to promote their sustainability activities. At the same time other initiatives built on traditional generic standards seem to have low success and they are looking for new ways to improve their practices. However such an adoption of the program will undermine the initiative as it would mean that the data collected by farmers is no longer confidential. As the growers might be afraid to be judged on their performance it is likely that they will hold back information or judge themselves more positively. As such this move can also be seen as a way for J.Sainsbury to get hold of the data and increase their power in the supply chain.

**Actors and roles:** The initiative was led by Chingford's, who is not the final retailer that decides on quality criteria. This actor has more credibility with the growers and can therefore count on more engagement from the farmers than the retailer. However the growers were not actively involved in developing the initiative. Only after the initial development phase the farmers are involved in th development by providing feedback.

Although BlueNorth, together with Chingford's have taken the lead and organized and facilitated the initial meetings the aim of this project was to make it an initiative that is owned and run by the growers. Possibly this could be problematic as the growers do not feel the responsibility to run the program and

might lack the capacity and capability to organize such an initiative in a meaningful manner. This is becoming apparent now that the initial development is finished and the growers are expected to take over. It is unclear who facilitates the working groups and further development of the tools and discussions. The organization of participatory processes can be time-consuming and inefficient if the goals and outcomes are unclear. Thus there need to be actors who are willing to invest time in the process and constantly keep trying to motivate others to stay in the project. To deal with the complexity and changing environment, the initiative will need to be under constant development so it needs to be clear who will hold responsibility for this.

**Fit, interplay and scale:** The farmers feel that the indicators do not reflect the context specific situation and thus a comparison between different farms becomes problematic. For instance a comparison of energy use between farms is useless if one is situated on top of a hill and needs to pump up all his water. Similarly it is hard to make comparisons between farms if they do not produce exactly the same goods and under the same conditions. Thus a focus on specific indicators might not be suited and more focus could be given on the use of certain techniques and the development process that a farmer goes through.

Also the link between the detailed indicators to the general sustainability and especially economic viability of farms is not clear, which reduces the motivation to put efforts in the initiative. The initiative is additional to any other standard systems and there is little interaction with other institutions or organizations. As such it also lowers the commitment because it has no short-term benefits and long-term benefits are unclear.

#### 6.1.2 Social Learning

**Adaptiveness, flexibility and learning:** As the initiative is based on self-assessment and reflection on the data and not related to a specific standard on which they will be judged, farmers are exchanging data freely. In this way they can identify who is doing better on certain issues and farmers who are struggling with that issue can directly learn from them about their practices. Thus it improves knowledge exchange and this is recognized clearly by the farmers. The data that is gathered is available to all that participate in the initiative. However the farmers are very reluctant to share such information directly with the retailers as they fear consequences based on their performance. This clearly illustrates one of the challenges for standard systems as on the one hand consequences in case of non-compliance are necessary to create accountability, but such consequences lower the commitment of farmers.

Farmers are in general positive about the working groups and do see the value of it. However there is a great variance in growers and where some are more positive and forward looking, others are not as experimental and do not engage in innovative initiatives as seriously. Additionally there is a need for external actors to provide them with knowledge on how to become more sustainable. Currently the farmers get most of their information from consultants (on pesticide and fertilizer use for instance).

The working groups seem to be not as effective as necessary and there is a problem in matching the agenda to the needs of all the farmers. Whereas certain topics are interesting for some farmers, others might already have the knowledge on that topic and thus see the gatherings as a waste of time.

The working groups manage to get new ideas on the agenda but most farmers already have similar gatherings in informal ways. For instance when it concerns pesticides and/or fertilizer use, the economic and environmental consequences are so important that they engage in information exchange where possible. Often these groups are informal and develop over time.

**Evaluation and monitoring:** The positive farmers believe that the data will start to become more valuable over time, especially as a tool for self-assessment and comparing with historical data. This means that such initiatives will have to survive over a longer time and leaders (organization) are necessary to keep the initiative running.

They also acknowledge that a further improvement of the program is necessary at this point but it is unclear who will lead this process. The challenges concerning the data gathering need to be addressed but more importantly the effectiveness of the working groups need to be reevaluated. A good facilitator will be necessary to structure discussion and set agendas.

**Knowledge:** The knowledge on data gathering and which data to gather is of vital importance and is being experienced as a useful contribution. Whereas the interaction between farmers through the working groups is a first step in widening the sources of information for farmers, it is insufficient as it does not provide expert knowledge where necessary.

However the most important deficit expressed by the farmers is that while the initiative helps signaling problems it does not provide any solutions. Reducing the use of pesticides, fertilizers and energy is not just an environmental issue but also crucial to keeping the farms economically viable and therefore it is something that farmers deal with daily. As such, within a conventional farming system (which is highly developed in South Africa) these farmers already do everything to optimize input use which makes it hard to improve under current practices. More knowledge is therefore necessary on how to make a transition towards forms of agriculture that are not based in intensive use of inputs.

**Others:** Difficulty in gathering data and the lack of a link between sustainability has possibly led to the loss of momentum for the initiative (lack of benefits). This is also related to the low perceived additional value because the initiative is not related to a certificate or other short term value.

## 6.2 Sustainable Fruit Initiative

	Accountability and legitimacy	Actors and roles	Fit, interplay and scale	Adaptiveness, flexibility and learning	Evaluation and monitoring	Knowledge
SFI	2	2	3	2	3*	1

The Sustainable Fruit Initiative scores well because of the participatory process that has been used in developing the program and the tool that has been created. Because of the participatory process the initiative is promising to become widely adopted and is suited to the needs of the farmers. The tool helps to increase the understanding of sustainability issues for the farmers and by clearly showing where action can be taken, enables farmers to change their practice. As the initiative is still under development it cannot be assessed completely but at the current stage it does seem to lack a platform where social

learning can take place through the use of diverse sources of knowledge and participation of different stakeholders.

### 6.2.1 Governance issues

**Accountability and legitimacy:** The tool is built as a self-assessment tool which should benefit farmers instead of a standard system that imposes rules on them. Through the benchmarking with other international standards (and the necessary accreditation for this to be acknowledged) the farmers will be able to access international markets using the initiative.

**Actors and roles:** The inclusion of the stakeholders from the very beginning has proven to be essential as it changed the course of the initiative. If the different stakeholders would have only been consulted at a later stage the direction might have been different and it would have been hard to change the basic motivations of the initiative.

Because the initiative was set up by the WWF-SA and participation was voluntary there was an even relationship between participants in which discussion could happen freely. Because the WWF and BlueNorth took the lead in the initiative and worked on the necessary development of the content and facilitation of the meetings, the program was able to make continuous improvements.

**Fit, interplay and scale:** The tool and way of questioning clearly have as goal to situate the problems and indicators on its social and ecological context. Through the model that is created, a clear link is made between detailed indicators and more general sustainability goals. The tool is designed in such a way to increase the understanding among farmers of the impacts.

Building a link between the top-down approaches that fit better to a global market and the bottom-up approaches that are necessary for context-specific action is one of the challenges. For instance the inclusion of the stakeholders made it possible to create a common understanding of the problems and goals, but the question is if this can also be translated to the actors who were not part of the discussion.

### 6.2.2 Social Learning

**Adaptiveness, flexibility and learning:** As discussed in the governance section the equal power relations between stakeholders and the early inclusion were of great importance. The facilitation of these discussions has proven to be decisive in the success and thus the WWF with experience in such processes was able to make a positive contribution. For instance actors from the WWF noted that the actors were not as engaged in the beginning and the discussion only came later when it was clearer what was expected of the growers and there was a clear content to be discussed. This shows that a leading party (or person) is needed that does the agenda-setting and provides content and information. However there still needs to be enough flexibility in the agenda and content to change it according to the feedback from the other stakeholders.

Another important factor in the facilitation of the stakeholder meetings is the ability to let all the actors give their opinion and make sure that dominant figures or people with more prior knowledge do not influence the process too much. Having discussion in smaller groups for instance seemed to be helpful.

For the actively involved stakeholders it was clear that the stakeholder meetings led to a better quality of the tool and all were positive about the participation.

Whereas the participatory approaches using diverse stakeholders was successful in the development stage, there are no clear plans to improve knowledge exchange from different sources in the standard system. However a further development of such a platform is being discussed and could be integrated into the tool. For instance an online platform where experts can share knowledge and farmers experiences are discussed. This however still needs to be developed.

A big advantage of this tool for farmers is that it gives concrete points on which action can/has to be taken. In figure 10 a snapshot is given of the results of an assessment with water as focus area. The crosses in the right table clearly indicate what needs to be done concerning each statement. Additionally there are explanations included for each statement so that farmers can understand what is meant, how it is related to sustainability and what can be done to improve the situation.

**Evaluation and monitoring:** The creation of a link between sustainability and concrete indicators makes it worth engaging in for growers and leads to a greater motivation. Whereas the growers are willing to engage in sustainability and they do understand the importance of the long-term benefits it can bring, they often do not know how and where to start. A tool as designed by the SFI can help them engage in sustainability in a meaningful manner.

From the discussion with farmers it showed that the way that questions are asked is important as it determines how motivated they are to actually take it seriously. Traditional standards are seen as a burden and must in order to sell the products while not really leading to improvements. Because the outcome statements are formulated in a way that it shows the ideal situation, farmers get a better understanding of where they are heading to and what they can do to get there. Furthermore the outcome statements demand continuous improvements as opposed to standards that are based on thresholds.

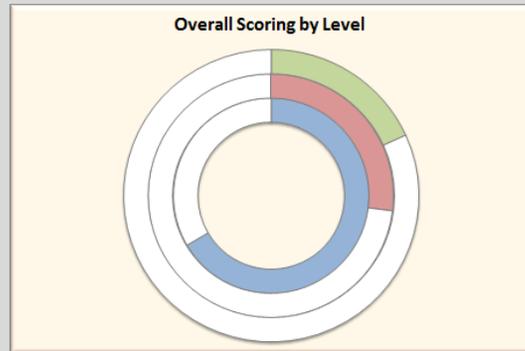
A great deal of effort has been put in visualizing the data and conclusions of the monitoring so that the results will not only be used as an assurance to retailers but can actually help farmers improve their practices (see figure 11 and 12). As there are a wide range of variables that make up the sustainability of a farm and one has to acknowledge that not all will be perfect, the spider diagrams used enable the farmer to see which areas demand priority and where the largest gains can be made. As such it helps better in creating a development plan.

**Knowledge:** The biggest problem that is perceived by growers is the lack of information and knowledge they have on improving their practices. Whereas farmers employ different consultants (for instance for soils or advice on herbicide or fertilizer use), these consultants are only specialized in their field and do not provide the necessary holistic vision. The use of the tool with its visual presentation in the pilot already showed the farmers which issues to address and helps them prioritize their attention. It thus makes it possible for them to look at specific areas or problems for which they can then consult experts.

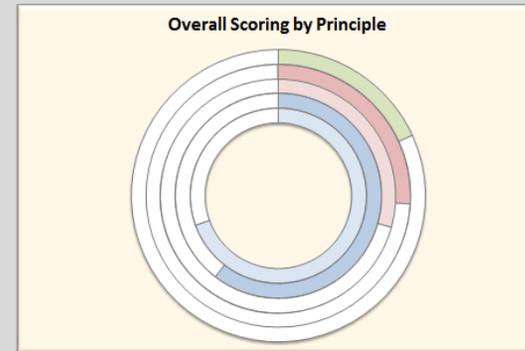
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>Back to EPA</span> <span>View GRAPHS</span> </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 10px;"> <span>SORT by Principle</span> <span>SORT by Performance ↑</span> </div>				Opportunities to Focus Improvement :									
#	Principle	Focus Area	Outcome Statement:	Performance Status	Legal Requirement	Prioritized for Action	Legal Awareness & Alignment	Strategic Review & Risk Assessment	Record Keeping, Mapping etc.	Operational Plans, Management Systems and Performance Monitoring	Adoption of accepted Good Practice	Measured Outcome	Corrective Actions
3.1	Sustain	Water	The achievement of Principles 1 & 2 for “Water” is being pursued by the majority of land users across shared agro-ecosystem and/or the farm participates in specific programs/initiatives aimed at achieving sustainable water use for the agro-ecosystem as a whole.	Blind Spot		Yes	±		X	X	X	X	
1b.2	Optimize	Water	The loss/wastage of stored and/or transferred water is minimized.	Blind Spot		Yes	±	X	±	±	X	±	X
2b.1	Restore	Water	Water courses and riparian areas arising on or passing through the farm are restored and/or conserved.	Blind Spot		Yes	✓		±	±	X	X	±
1a.9	Minimize	Water	Risks of environmental contamination related to the waste water from packhouses, dwellings or any other infrastructure located on the farm is minimized.	On Journey		Yes	✓	±	±	X	X	X	✓
1b.1	Optimize	Water	Water use for irrigation is optimized.	On Journey		Yes	✓		±	±	✓	±	X
1a.1	Minimize	Water	The risk to water resources related to the storage and use/application of agro-chemicals, fertilizers and fuel is minimized.	At Destination		Yes	✓	✓			✓	✓	✓

Figure 10: Example results assessment SFI

**Overall Scoring**



Key	Overall Score
= Level 1 (the Minimize & Optimize Principles)	67%
= Level 2 (the Reduce & Restore Principles)	27%
= Level 3 (the Sustain Principles)	18%



Key	Overall Score
= Principle 1: MINIMIZE	70%
= Principle 2: OPTIMIZE	60%
= Principle 3: REDUCE	29%
= Principle 4: RESTORE	26%
= Principle 5: SUSTAIN	18%

[Back to EPA](#)  
[Back to Report](#)

The two Overall Scoring Graphs show the self-assessment scoring per Level and per Principle. Showing the results in this way emphasises the integrated nature of the SFI content - the different Levels and Principles are nested within each other - while at the same showing the increasing difficulty as one moves from Level 1 to Level 3, and from Principle 1 to Principle 5. This greater difficulty is conveyed by the outer rings in the graphs having further to travel to be fully achieved.

**Figure 11: Example Scoring SFI**

Scoring by Principle

Back to EPA

Back to Report

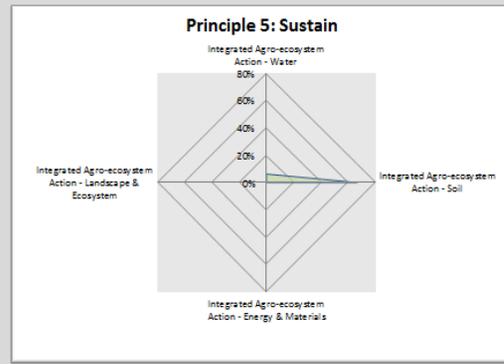
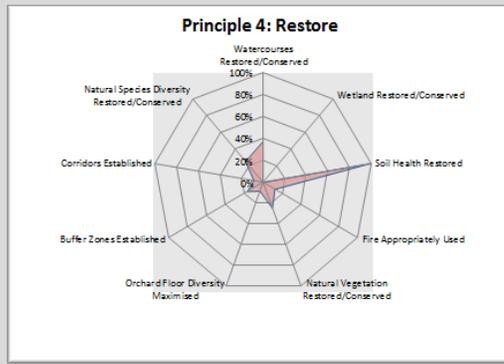
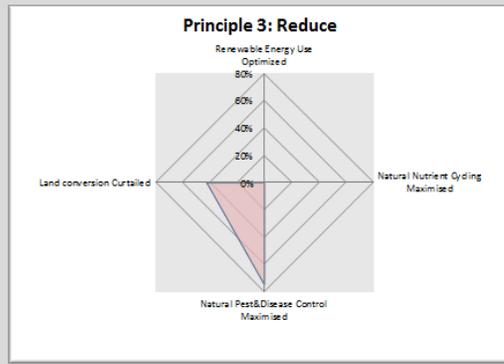
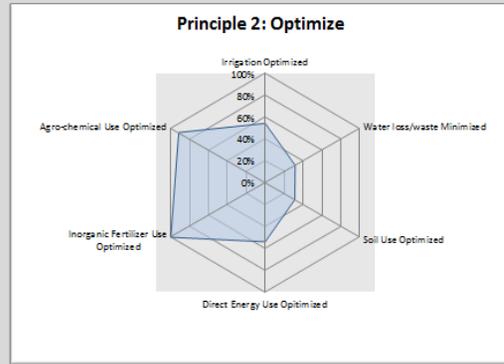
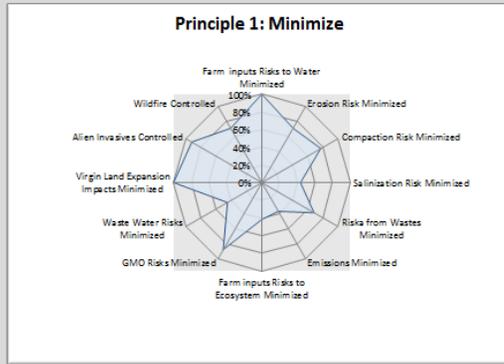
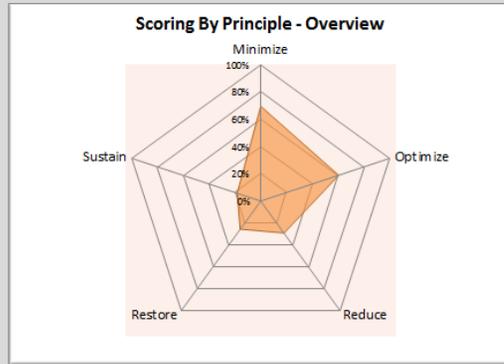


Figure 12: Example spider diagrams SFI

### 5.3.1 Greenroad

	Accountability and legitimacy	Actors and roles	Fit, interplay and scale	Adaptiveness, flexibility and learning	Evaluation and monitoring	Knowledge
Greenroad	2*	3*	3*	2	2	3

This initiative scores the highest and is the most innovative of the three. However one remark that needs to be made is that the system is only suited for local markets with a limited amount of participants. If successful these systems can be replicated in other regions, as many PGS systems in South America have already demonstrated. However it does exclude products that are produced for the international market.

The main reason that the PGS scores well is that it is developed specifically to meet the needs of the producers and because it is based on organic standards that are more holistic and environmentally sustainable. However the initiative is still in an early development stage and thus it is hard to judge the implementation at this point.

#### 5.3.1 Governance Issues

**Accountability and legitimacy:** The PGS system is an innovative system where accountability and legitimacy is based on equality and trust. The inspections are open for anyone to join and because a wide range of stakeholders participate others can rely on their judgments. This leads to considerable time and cost reductions as third-party certification demands a high level of record keeping and bureaucracy which might not provide any valuable contributions to the daily operations of farmers. Such record keeping is necessary as the auditors need to be able to check everything in a limited time without having a deeper understanding of the farm.

In the case of a PGS the farms and their history and challenges are known to the inspectors and relationships are built between the actors. Record keeping that does not directly relate to the organic (or biodynamic) standards and does not help the farmers to improve their practices can thus be omitted and assurances and commitments can be based on trust. Because of the closer relations and social control it is assumed that fraud and non-compliance will be lower and if it happens it is more likely to be discovered.

**Actors and roles:** The PGS system is built on active inclusion of all stakeholders with equal power relations. The Greenroad is a non-profit organization and as such has no aims for making profit and their goal is to increase the profits for producers. The inspection that was followed for this research showed an open discussion in which the various actors could assume different roles. The goal of the Greenroad is to become a platform of knowledge exchange and good efforts and plans are being made to become so. However at this stage the group of farmers is still small and relationships still need to be built up. It is therefore hard to judge if the actors can and will assume different roles.

Of special interest is what will happen when conflicts start to arise for instance because of non-compliance or violation of the rules and how they will deal with this. To maintain the credibility of the

certification system farmers and other actors will have to be strict, but this might be problematic due to the closer relationship.

**Fit, interplay and scale:** In its current form the PGS systems are only possible when there are direct links and contact between the different actors, which makes it only fit for local markets. The possibility (and condition) for consumers and experts to visit the farm and directly see what is happening enables the certification to be done with a minimum of bureaucracy and additional work. As the social control and the mutual close relationship form the basis of these certification systems a weakening of these ties through geographic separation can possibly cause problems for the system to function.

The connection that is created between consumers and producers is very valuable as many of the problems in certification systems are caused by the disconnect between consumer demands and producer realities. Sustainability is a wide concept that can entail variables in many domains and what constitutes sustainability will differ for each situation. Although specific standards will be necessary to judge farms on an equal basis and as a guideline for good practices, this system allows for more flexibility in judging the local context.

### 6.3.2 Social Learning

**Adaptiveness, flexibility and learning:** All actors are on an equal power level and communicate in a constructive manner. Each stakeholder is motivated to actively join discussions and the development of the program. In the future the Greenroad will provide advising services and aims to become a platform for knowledge exchange. The idea is that farmers can at any time ask for advice and experts from the Greenroad will discuss perform checkups to make the farms ready for an inspection. Thus farmers are prepared for the inspection and can use this time not only to show their performance but also to ask other participants for advice. Moreover the farmers that are part of the assessment team will also benefit from this.

**Evaluation and monitoring:** Because the initiative is set-up with the purpose of helping farmers instead of a form of control and assurance for retailers the motivation and engagement for farmers will be higher once the initiative is running properly. However at this point the benefits for farmers still need to be proved which include the guaranteed market access and the affordability of making the transaction towards organic farming. Farmers that have joined now are smallholders that have already made the transition towards organic (or biodynamic) farming but did not have the means to get third-party certification.

Because biodynamic farming is advised the farmers and experts specifically take a holistic look at the farm and actively think about the impacts on the social-ecological system. As they are still in the development stage there is constant discussion about how the inspection procedure can be improved and how the role of the different stakeholders is. It is interesting to see that consumers and farmers are not used to this different role yet as they often expect the Greenroad to organize everything without having to think about the certification procedure. This is already a form of double-loop learning but whether it will be implemented actively and effectively can only be assessed in the future.

**Knowledge:** As already mentioned above the biggest advantage of the PGS is the possibility of consulting and advising during inspections. This is an often neglected problem, but for farmers of most importance and one of the big problems with third-party certification. Not only do farmers get a chance to receive information from experts during the inspection, but because the inspections happen in diverse groups there is a mutual knowledge exchange. In the inspection that was followed for this research the auditors and farmers had discussions on several topics from which they both benefited.

As farmers also need to be part of the inspections of other participants they also get to see other farms in a learning situation. It will be interesting to see how the interaction among farmers and other actors will evolve in the future as it could be a lead for fruitful cooperation and knowledge exchange.

As part of the inspection the Greenroad develops development plans with the farmers. This is the main tool to improve farming practices and will be used to assess the progress that farmers make. This enables farmers that are trying to convert to a sustainable agricultural system but are not there yet to also participate in the certification system. During the inspection it can be checked if these farmers are taking the necessary measures and if the promises made in the previous year have been kept.

## 7. Cross Case Analysis

The scoring as shown in the table below shows that there are clear differences in performance and that the SFI and Greenroad initiative manage to approach the problem in an innovative way. Each initiative has experienced a different historical pathway with varying motivations for developing the initiatives. They also address different actors in different markets, but at the same time have a similar goal of changing actual farming practices. Thus when we focus on the way that they attempt to achieve this change in behavior a cross case analysis can be made which can provide lessons for development of standard systems in general.

Table 8: Scoring Case Study

Core issue / Case	Chingfords	SFI	Greenroad
Accountability and legitimacy	0	2	2*
Actors and roles	1	2	3*
Fit, interplay and scale	1	3	3*
Adaptiveness, flexibility and learning	1	2	2
Evaluation and monitoring	1	3*	2
Knowledge	0	1	3

### Accountability and Legitimacy

As discussed in the Chingford's case the consequences of non-compliance make it difficult for most standard systems to create a safe environment where learning can take place. This forms a major problem of traditional standard systems and especially third-party certification. The Greenroad successfully tackles this problem by applying a group certification in which the focus is given on the creation and execution of development plans, from which the farmers themselves will benefit most. It therefore changes the certification process from something compulsory and resource consuming to something beneficial.

In the case of the SFI project there will still be third-party certification with the related problems of non-compliance but additionally there are many benefits for farmers through the self-assessment. There are clear goals and improvement possibilities beyond the levels required for certification which farmers can aim for to improve their practice. For all the efforts that are done beyond the levels required for certification there is no fear of consequences in the case of non-compliance while the tool helps to clarify to the farmers why it is still beneficiary to take the measures.

In both cases it seems to be important that when farmers engage in the program they need to be motivated to do so for their own benefit in order for effective learning to take place. Finding ways of certification other than third-party certification therefore seems necessary. The SFI project did show however that farmers are reluctant to adopt such a tool if there are no benefits in the form of certification and market access and thus it needs to be a combination of a learning tool and a standard system.

### Actors and Roles (Participation)

The Sustainable Fruit Initiative clearly shows benefits that the bottom-up approach has led to as the program has changed direction to match the needs of the farmers. The organization of participatory processes is however challenging and needs to have good facilitators. The WWF South Africa has wide experience in organizing such processes which helped them through the process but even so they acknowledged that it was difficult at times. Finding the right balance between including many people and considering a wide ray of opinions, and keeping the discussions effective is a major challenge.

Although participation is important it can be time-consuming and messy and thus choices have to be made in which phases to include certain stakeholders and what the correct degree of participation is. Although you want the farmers for instance to be actively involved in the development of the program and tools at some points it will be necessary to let the experts do their work as farmers will not have the resources or knowledge. Including them in the wrong stages could lose to a loss of engagement because activities are perceived as a time-waste. However in any case the farmers will have to feel that they developed the program themselves, to increase the engagement and motivation in the development stage. This was clearly shown in the difference in commitment between the Chingfords initiative and the SFI. In the latter participants were much more engaged in providing feedback and inputs for the further development.

The Greenroad inspection shows how actors taking on different roles can benefit the learning process. Here the information exchange between farmers, experts and consumers went in all direction so that all participants could learn from each other. A challenge is how to organize such platforms for larger programs such as the SFI and Chingfords as such meetings need to be organized, financed and facilitated.

### Fit, interplay and scale

The creation of a link between sustainability and specific indicators and action that can be performed seems to be important in many ways. This is exactly what is meant by “situating the problem in the socio-ecological context” in the social learning theory. All the growers that have been interviewed in this research acknowledged that they are willing to make their businesses more sustainable but that they need a motivation and reasoning to justify actions. A challenge in this sense is the lack of evidence or scientific knowledge concerning long-term effects on ecosystems of building or instance ecological corridors. The pilots with the SFI tool however showed that farmers are already much more interested in changing their behavior if they understand the exact link between their actions and the environment.

An understanding of the farms impacts for the wider socio-ecological system is also part of the biodynamic agriculture thinking and thus it is already present in all farmers that participate in the Greenroad. The challenge is to create this understanding for more conventional farmers as well so that they become motivated to change their behavior.

A major shortcoming that became apparent in the Chingford’s case is the embeddedness of the program in the current conventional farming structure. One of the concerns is that such an approach can lead to incremental technological changes at best and might not suffice to adequately deal with the

sustainability issues. More radical changes in the operation of farms, such as a switch to unconventional methods (organic or even bio-dynamic) and a broader understanding and interaction with the wider socio-ecological system might be necessary. The question is in what way standards can push such change. Whereas measurements of the impacts are recognized as the first step towards changing their practices these type of assessment will most likely only lead to a greater efficiency. Because making efficient use of the resources is already part of the daily practices of farmers they are often already doing the best as possible and thus they are often aware of their deficits but do not know how to deal with them.

Through the implementation of recovery goals and an influence of strong sustainability the SFI makes a first step in bridging this gap. Such a shift seems to be necessary to truly understand the impacts that agriculture has on the broader socio-ecological system. However there is also a risk in taking such position as its objectivity can be criticized. Proponents of sustainable intensification, often seen in the agro-ecology movement, will criticize the perspective as they have the belief that technological improvements and greater knowledge on ecosystems will enable us to manage the system with conventional methods. Although it falls outside of the scope of this research a more in-depth discussion of sustainable agriculture might thus be necessary. Instead of incremental technological fixes we might need a more transformative change of the system.

#### Adaptiveness, flexibility and learning

There needs to be a shift from standard system as a means of exercising control to initiatives that try to change behavior and improve learning. This however needs to be explicitly built into the programs as farmers do not have the means and capabilities to organize these themselves. As the SFI and Greenroad are still under development and developing adaptiveness is an iterative process and they will try to deal with it as the program continues it is difficult to judge the programs at this point.

Although the idea of the Chingford's initiative where working groups are created is a step in the right direction the case shows that there many additional aspects that need to be addressed in order for such working groups to function. With regards to creating such a learning environment that is flexible but effective is still a challenge that needs improvements.

#### Evaluation and Monitoring

As these initiatives show, they are in continuous development and changing even after implementation. As we do not have blueprints on the best ways to organize such initiatives and these are context-specific, such initiatives should be an iterative process with feedbacks and adjustments. The evaluation of the standards is not yet been done as they are all novel initiatives but there are clear links between the farmers and the developers so that feedback can be given.

The data gathering and selection of appropriate indicators is a clear challenge but both in the SFI as in the Greenroad project farmers were satisfied with the selection. As the Chingford example shows it is however essential that programs are evaluated continuously as they might lose momentum and support otherwise.

### Knowledge (transfer)

One of the main problems encountered by the growers is that they are willing to make their practices more sustainable but that they do not know where and how to start. In each of the cases the farmers were willing to change their practices but lacked the information and knowledge to do so. This was expressed very clearly by every farmer that has been spoken to in this research. Improvement of the available information and knowledge creation will thus be essential for a further improvement. Working groups can be useful in this sense but with the limited time available for farmers digital platforms and other forms of interaction can be more suitable.

The possibility for stakeholders to consult and advice the farmers is a valuable addition in the PGS system which makes it more useful in as a tool to increase sustainability. This form of advice which is organized by the Greenroad is however not possible with third-party certification as conflicts of interest between farmers and certification bodies will arise.

Both the SFI and Greenroad are innovative and effective because they use the standard system to help farmers create a development plan. Standard systems do help improve the gathering of necessary data and help farmers signal problems. However they do not help farmers deal with these problems and therefore that is where the biggest improvements can be made.

## **8. Discussion**

In this chapter a reflection is given on the research and the main findings.

### **8.1 What is bottom-up?**

Bottom-up refers to initiatives that are started by farmers themselves and actively include all stakeholders. The PGS systems come closest to a bottom-up initiative as the project is organized by a non-profit company with “civil stakeholders” and the leading actors are all farmers themselves. Similarly the SFI initiative can also be called a bottom-up initiative as it was initiated by the WWF South Africa and farmers were actively involved from the beginning.

However when analyzing the initiatives you can see that the farmers are actively consulted to provide inputs and feedback but that the actual development of a standard system will be done by experts as the farmer lack the necessary resources and knowledge. In the case of the SFI project eventually the implementation then happens in a top-down manner, which might suit these (large scale) farmers better.

Thus it seems to be more important to have meaningful participation of all stakeholders than the question of having a bottom-up or top-down organization. Moreover the distinction between bottom-up and top-down seems to be more of a spectrum as within one initiative or organization both can be used according to what the specific situation demands. Even in the PGS system the Greenroad will eventually organize all certification activities and roll out the program to other farmers that join in a later stage.

The Chingford’s initiative clearly shows the importance of including all the stakeholders from the beginning. Although the initiative itself might become useful in the future the durability of the program is at stake because it is unclear who will keep the program running. If the farmers were consulted from the beginning this would have probably been discussed and included in the design of the initiative.

### **8.2 Social Learning**

Although the concept of social learning is not widely known yet, and the initiatives researched do not use the term, the innovations that they make and its effectiveness can be linked to social learning. Whereas traditional standards and sustainability management were focused on single issues and indicators, the newer initiatives seek to develop a holistic understanding and promote learning for farmers. In order to address sustainability it is necessary to have a greater understanding of the social and ecological context as a context specific approach is demanded. Social learning theory provides many ideas on how to create such understanding and the theory can be clearly linked to the practice.

Standards are effective for showing compliance and as an assurance mechanism for supply chains and consumers but seem not be very helpful in realizing change. Thus if we want to make the agricultural sector more sustainable in the future other systems or initiatives need to be developed that deal with the transition and changing of behavior and practices. The initiatives investigated in this research give clues to how such initiatives should be designed in the future. Learning and knowledge exchange will be most effective when there is no threat or fear of losing market access so that could be a good reason to

either separate these processes from the standard and auditing systems or find other innovative ways to organize it such as in the PGS systems.

Working groups or other discussion platforms with different stakeholders to increase the diversity of sources of knowledge are necessary. Also they help actors in developing a shared understanding of the problems and challenges. A good organization of these platforms with well-trained facilitators is necessary to keep motivation and engagement high. The use of learning cycles in the form of evaluation and monitoring, not just of the farm practices but also of the control mechanisms itself still need further development.

Social learning is promising to be an important instrument for our transition towards a sustainable society. This also counts for the agro-food sector and the domain of standards. However the effective implementation of social learning is not an easy one. It requires a change in mentality and practices which often need time and effort. One can thus not expect quick results and thus convincing more traditional farmers to participate actively in such initiatives will provide a challenge. Moreover as it is a process that takes a long time and development is still in its infancy the process will be one of trial and error and can expect to include set-backs. It is thus a major challenge to overcome these difficulties and find a way to make the programs last to a point where they start to pay off.

### **8.3 Reflection on research**

Due to the constraints for this research related to the geographical, financial and time restrictions the selection of the cases was partly influenced by availability. However the qualitative and descriptive form of research has still led to numerous insights.

As each of the initiatives was still under development the involved actors can be considered pioneers and thus it might be necessary to see if later participants have the same commitment and motivation. On the other hand the involved actors at this point have had to invest a lot in developing the program and thus additional benefits can also be expected in later stages. The time constraints that the developers had did lead to limitations of the research possibilities as many of the actors that are involved had their hands full on the development of the program already. However the key persons of each initiative have been spoken to and it was possible to get as much information as possible at this stage within the scope of this research.

Because the interviews were held over a longer period (six month in total) and interviews with the key actors were held multiple times within this period there were enough opportunities to discuss and confirm the findings of the researcher. However the time constraint did not allow for a group discussion or verification of results with all the actors as was initially proposed. Instead of holding on to a strict interview scheme it was chosen to attend as many opportunities to get to know more about the initiatives. Through these farm visit, attendance of meetings and conference there were many additional opportunities to speak to people that were involved in the initiatives which led to a greater understanding and insights that helped structure the interviews and findings. However as many of the conversations held at these conferences and farm visits occurred spontaneously often it was not possible to record the conversations and thus transcripts and exact quotes are missing.

Additionally in some conferences or meetings the researcher could also actively engage in discussions which would benefit the project but also the information that could be gained. Thus the role of the researcher in such case studies in development needs to get attention as it could interfere with the reliability and validity of the research. The need for inputs from scientific knowledge and empirical observations from other initiative shows that in the future a more participatory role for the researcher could be recommended.

## 9. Conclusion

The research started off with the question of what bottom-up initiatives exactly are in theory and in practice and whether they are more effective in addressing sustainability. Through a literature review on standards and social learning first an attempt was made to understand how standards work and how the different actors involved in the systems have varying motivation to engage in such systems. Whereas the first environmental standards which dealt with organic production were promoting a clearly different way of agriculture that is more sustainable, current standards are more associated with quality assessments and market entry criteria. As such it seems that even though farmers are applying to certain standards their understanding of sustainability issues is not increasing and changes in behavior are incremental. To realize a transition towards sustainability will mean that standard systems need to address behavioral change and learning more effectively. By looking at the social learning literature and comparing this to the practice through three case studies this research has aimed to provide clues as to how such behavioral change and learning can be designed.

This research has focused specifically on three case studies that advocate its initiatives as bottom-up because participatory processes with active inclusion of the farmers in the development phase is increasingly believed to be necessary for an effective standard system. This was confirmed as the development of the programs were significantly influenced and changed due to the inputs by the farmers and the one case where the farmers were not actively involved in the development phase is now experiencing problems in continuing the program. The participatory processes are challenging to organize as many farmers have limited time and resources and often the end goal can be unclear due to continuous changes of direction in the development. As farmers or other actors express their opinion and needs the outcomes can change considerably to what the facilitators initially had in mind and thus it is essential that there are good honest brokers (facilitators). The SFI project is exemplary in this sense as it started off with a voluntary standards system to increase biodiversity but is now heading towards a full sustainability standard that will be benchmarked to international standards.

Although bottom-up suggests that an initiative will be organized completely by farmers in reality they do not have the time, resources and knowledge to do so and leading actors and/or an organization will be necessary. Active participation is necessary to make the programs effective but what might be more important is that the farmers see the initiative as their own so that they are willing to invest the time and effort that is necessary to establish these programs. In the case of large scale agriculture dealing with focal companies and international markets it will still be valuable (and possibly necessary) standard systems are organized using bottom-up approaches but a connection needs to be made with the top-down policies. Benchmarking to other standards for instance has come up as a necessary step in the SFI initiative so that farmers gain access to international markets.

Not all farmers will be eager to participate in the development process but by including the farmers in the process the initiatives will gain credibility so that other farmers might be more willing to also participate in the standard systems. The question however is whether such initiatives will work on a larger scale with a large group of participants over a larger geographical area or whether there is a limit

to the scale in order for the farmers to still feel connected to the program. Especially because such initiatives should ideally be under continuous development there will probably be a limit.

The case studies in this research and especially the SFI and Greenroad manage to deal with many of the necessary requirements that have been discussed in the theoretical framework. The biggest contribution that they make is the focus on development plans and providing farmers with information on how to change their practices.

Each initiative addresses a certain aspect very well. However there is also a lot of overlap in developing and it feels like the wheel is being invented multiple times. Especially when it comes to data collection, selection of indicators and presentation of the data each initiative seems to go through a similar process and it would make sense to share this knowledge. Thus it might be better to invest in the development of methodologies and components of standard systems so that regional groups can use that knowledge to develop their own standards using participatory process. International organizations could then be used to facilitate such participatory processes so that the initiatives can be benchmarked to international standards to enable global trade.

As has become clear in this research, private voluntary standards are a very broad topic with many components, different forms and varying motivation, impacts and consequences for a wide range of actors. This research shows that a much more in-depth research will be necessary for each component such as data collection, data presentation, involvement of stakeholders, organizing participation etc. However at the same time efforts should be made to create a coherent holistic vision of what standards can and cannot do. As discussed above standards might not be the best or core component that helps in realizing a sustainable transition, at least not in every form. The PGS systems for example are promising initiatives that seem to adequately address the challenges. However in the case of Greenroad the certification is merely a part of the process that helps farmers become more sustainable.

## Annex 1: List of Interviewees

Name	Company	Date	Location
David Farrel	Blue North	Multiple	Stellenbosch
David Farrel	Blue North	20-04-2015	Stellenbosch
Van Heerden Coetzee	Chingfords (Technical Manager)		Stellenbosch
Georgie Wolfaardt	Ceres Cascade Farms	13-04-2015	Prince Alfred Hamlet
JC Goosen	Goosen Boerdery (Pty) Ltd	13-04-2015	Prince Alfred Hamlet
Annelie Haumann	Stems Fruit (Managing Director)	13-04-2015	Paarl
Pierre Rossouw	Stems Fruit (Technical Manager)	13-04-2015	Paarl
Mireille & Vongani	WWF		Stellenbosch
Meeting & Presentation Shelly Fuller	WWF	20-11-2014	Stellenbosch
Melinda, David Farrel and Mike Wilson	Sun Valley (Afrifresh Group)	11-05-2015	Weenen (Kwazulu Natal)
Melinda, David Farrel and Mike Wilson	Fruit Star (Afrifresh Group)	12-05-2015	Nkwalini (Kwazulu Natal)
Mike Wilson	SFI	11 & 12-05-2015	
Janet Gracie	Green Road	Multiple	Spier, Stellenbosch
Biodynamic Conference	BDAASA	04-07-2015	Hermanus
Will	Camphill Hermanus	05-07-2015	Hermanus
Riaan van Zyl	Green Road	Multiple	Spier, Stellenbosch

## References

- Argyris, C. & Schon., D., 1978. Organizational Learning: A Theory of Action Perspective. *Reis*, 77/78, pp.345–348.
- Armitage, D., De Loë, R. & Plummer, R., 2012. Environmental governance and its implications for conservation practice. *Conservation Letters*, 5(4), pp.245–255.
- Armitage, D., Marschke, M. & Plummer, R., 2008. Adaptive co management and the paradox of learning. *Global Environmental Change*, 18, pp.86–98.
- Baxter, P. & Jack, S., 2008. Qualitative Case Study Methodology : Study Design and Implementation for Novice Researchers. *The Qualitative Report*, 13(4), pp.544–559.
- Big Room Inc., 2014. Ecolabel Index. Available at: [www.ecolabelindex.com](http://www.ecolabelindex.com) [Accessed January 21, 2015].
- Bos, J.J., Brown, R.R. & Farrelly, M. a., 2013. A design framework for creating social learning situations. *Global Environmental Change*, 23(2), pp.398–412.
- Busch, L., 2007. Performing the economy, performing science: from neoclassical to supply chain models in the agrifood sector. *Economy and Society*, 36(3), pp.437–466.
- Checkland, P., 2000. Soft systems methodology : a thirty year retrospective. *System Research and Behavioral Science*, 17(1), pp.11–59.
- Crona, B.I. & Parker, J.N., 2012. Learning in support of governance: Theories, methods, and a framework to assess how bridging organizations contribute to adaptive resource governance. *Ecology and Society*, 17(1).
- Cundill, G., 2010. Monitoring social learning processes in adaptive comanagement: Three case studies from South Africa. *Ecology & Society*, 15, p.28.
- Cundill, G. et al., 2012. Soft systems thinking and social learning for adaptive management. *Conservation biology : the journal of the Society for Conservation Biology*, 26(1), pp.13–20.
- Diduck, a et al., 2005. Unpacking social learning in social-ecological systems: case studies of polar bear and narwhal management in northern Canada. *Breaking ice: renewable resource and ocean management in the Canadian North*, pp.269–290.
- Dryzek, J., 2000. Deliberative democracy and beyond: liberals, critics, contestations. *Oxford University Press*.

- Elstub, S., 2010. The Third Generation of Deliberative Democracy, The Third Generation of Deliberative Democracy. *Political Studies Review*, *Political Studies Review*, 8, 8(3, 3), pp.291,291–307,307.
- Fabricius, C. & Cundill, G., 2014. Learning in adaptive management: insights from public practice. *Ecology and Society*, 19(1), p.29.
- Farrell, D., 2011. Explaining CFL’s sustainability strategy. *Blue North*.
- Fazey, I. et al., 2007. Adaptive capacity and learning to learn as leverage for social – ecological resilience. *Frontiers in Ecology and the Environment*, 5(7), pp.375–380.
- Folke, C. et al., 2005. Adaptive Governance of Social-Ecological Systems. *Annual Review of Environment and Resources*, 30(1), pp.441–473.
- Gadgil, M., Hemam, N.S. & Reddy, B.M., 2000. People, Refugia and Resilience. *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*, pp.30–47.
- Gaspar, C., 1999. Habermas’ Theory of Communicative Action. *Philippine Studies*, 47(3), pp.407–425.
- Gerring, J., 2007. Case Study Research: Principles and Practices. *Cambridge University Press*, 1996(1998).
- Giovanucci, D. & Ponte, S., 2005. Standards as a new form of social contract ? Sustainability initiatives in the coffee industry. *Food Policy*, 30, pp.284–301.
- GreenRoad, 2015. Green Road | Green Road CMS. Available at: <http://greenroad.co.za/Content/PGS> [Accessed April 7, 2015].
- GSCP, 2015. <http://www.gscpnet.com/>. Available at: <http://www.gscpnet.com/> [Accessed May 18, 2015].
- Gunderson L, H.C., 2002. Panarchy Synopsis: Understanding Transformation in Human and Natural Systems. *Panarchy: Understanding the transformations in human and natural systems*, Chapter 1, pp.2–22.
- Harvey, B. et al., 2013. Social learning in practice: A review of lessons, impacts and tools for climate change adaptation. *CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)*, working paper.
- Hatanaka, M. & Busch, L., 2008. Third-Party Certification in the Global Agrifood System An Objective or Socially Mediated Governance Mechanism? *Sociologia Ruralis*, 48(1), pp.73–91.

- Henson, S. & Humphrey, J., 2010. Understanding the complexities of private standards in global agri-food chains as they impact developing countries. *The journal of development studies*, 46(9), pp.1628–1646.
- Holling, C. & Meffe, G.K., 1996. Command and Control and the Pathology of Natural Resource Management. *Conservation Biology*, 10(2), pp.328–337.
- International Trade Centre (ITC), 2011. The Impacts of Private Standards on Global Value Chains. *International trade centre technical series*, Literature.
- Ison, R., Blackmore, C. & Iaquinto, B.L., 2013. Towards systemic and adaptive governance: Exploring the revealing and concealing aspects of contemporary social-learning metaphors. *Ecological Economics*, 87, pp.34–42.
- Källander, I., 2008. Participatory Guarantee Systems–PGS. *Swedish Society for Nature Conservation*, available at ....
- Kaplinsky, R., 2010. The role of standards in global value chains and their impact on economic and social upgrading. *World Bank Policy Research Working Paper Series*.
- Keen, M. & Mahanty, S., 2006. Learning in sustainable natural resource management: Challenges and opportunities in the Pacific. *Society and Natural Resources*, 19(6), pp.497–513.
- Van Kersbergen, K. & Van Waarden, F., 2001. Shifts in Governance: Problems of Legitimacy and Accountability. *NWO Netherlands Organization for Scientific Research*.
- Lebel, L., Grothmann, T. & Siebenhu"ner, B., 2010. The role of social learning in adaptiveness:insights from water management. *Int Environ Agreements*, 10(10), p.21.
- De Loë, R.C. et al., 2009. From Government to Governance: A State-of-the-Art Review of Environmental Governance. Final Report. Prepared for Alberta Environment, Environmental Stewardship, Environmental Relations.
- Maccoby, M., 2004. Narcissistic Leaders the Incredible Pros, the Inevitable Cons. *Harvard Business Review*, 82(1).
- Meybeck, A. & Redfern, S., 2014. Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities. *Food and Agricultural Organization of the UN*.
- Mezirow, J., 1997. Transformative Learning: Theory to Practice. *New Directions for Adult and Continuing Education*, 1997, pp.5–12.
- Müller, C., Vermeulen, W.J. V & Glasbergen, P., 2009. Perceptions on the demand side and realities on the supply side: A study of the south african table grape export industry. *Sustainable Development*, 17(5), pp.295–310.

- Muro, M. & Jeffrey, P., 2008. A critical review of the theory and application of social learning in participatory natural resource management processes. *Journal of Environmental Planning and Management*, 51(3), pp.325–344.
- Nadvi, K. & Wältring, F., 2002. Making Sense of Global Standards. *INEF Report*.
- Perkins, D. & Grotzer, T., 1997. Teaching intelligence. *American Psychologist*.
- Petersen, S., 2013. A Practitioner ’ s guide to setting up collaborative initiatives to deliver conservation change. *WWF South Africa*.
- Plummer, R., Armitage, D.R. & de Loë, R.C., 2013. Adaptive comanagement and its relationship to environmental Governance. *Ecology and Society*, 18(1).
- Postone, M., Habermas, J. & McCarthy, T., 1990. The Theory of Communicative Action: Vol. 2: Lifeworld and System: A Critique of Functionalist Reason. *Contemporary Sociology*, 19(2), p.170.
- Potts, J. et al., 2014. The State of Sustainability Initiatives Review 2014, Standards and the Green Economy. *International Institute for Sustainable Development (IISD) and the International Institute for Environment and Development (IIED)*, p.332.
- Reed, M. et al., 2010. What is social learning? *Ecology and Society*.
- Rodela, R., 2013. The social learning discourse: Trends, themes and interdisciplinary influences in current research. *Environmental Science and Policy*, 25, pp.157–166.
- Scotcher, J., 2009. The Green Choice: Living Farms Reference. *World Wide Fund for Nature and Conservation International Partnership*.
- Sheldon, A., 1970. The art of judgement: A study of policy making. *Social Science & Medicine (1967)*, 3(4), pp.713–714.
- Steering Committee of the State-of-Knowledge Assesment of Standards and Certification, 2012. Toward sustainability: The roles and limitations of certification. *Washington, DC: RESOLVE, Inc.*
- Tosey, P., Visser, M. & Saunders, M., 2012. The origins and conceptualisations of `triple-loop` learning: a critical review. *Management Learning*.
- Vermeulen, W.J.V., 2010. Sustainable supply chain governance systems: conditions for effective market based governance in global trade. *Progress in Industrial Ecology, An International Journal*, 7(2), p.138.
- Walker, B. et al., 2004. Resilience, adaptability and transformability in social-ecological systems. *Ecology and society*, 9(2), p.5.

Wals, a E.J., 2007. Social learning towards a sustainable world : principles, perspectives, and praxis. *Journal of Industrial Ecology*, 12(4), pp.624–627.

Wenger, E.C. & Snyder, W.M., 2000. Communities of practice: The organizational frontier. *Harvard Business Review*, 78, pp.139–145.

Yin, R., 2014. Case study research: Design and methods. *Sage publications*.