Sustainable Sourcing in a context of Sugar:

Dynamics and Indicators Reflected in a Sustainability Framework.



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EXECUTIVE SUMMARY

Companies in the private sector are increasingly noticing the opportunities arising from investing in sustainable development practices. This thesis exemplifies interest of the private sector to invest in sustainable sourcing by giving a practical example how sustainability can be operationalized in order to contribute to sustainable sourcing.

This research is focused on the construction of a sustainable sourcing framework, commissioned by Tony's Chocolonely, a Dutch chocolate brand with the mission to eradicate childand forced labour in the cocoa industry in Ghana and Ivory Coast. Their approach in the cocoa chain is to make the chain completely transparent and build meaningful relationships with their cocoa producers. To take the next step towards a transparent value chain for all their ingredients however, improvements are needed. A sustainability framework is constructed and highlighted with reference to sugar production, in order to give an overview regarding sustainability issues and sustainable sourcing. This thesis therefore aims to answer the following question: *which production method of sugar is most sustainable when aiming for sustainable sourcing using a sustainability framework, and what can this framework add to the larger debate regarding sustainable, and international development?*

The 19 indicators distributed across economic, environmental and social sustainability are measured for five sugar producing countries: Brazil, Paraguay, Mauritius, Netherlands and Germany, each with their own characteristics and sustainability issues. The framework shows that economically the five countries score very similar, while Mauritius scores very high on the environmental indicators, and Germany on the social indicators. In all Mauritius receives the highest scores overall.

This study argues however, that the given meaning to scores is more important than the outcome of the framework on itself; the goal to support impact requires different considerations than the goal to make an impact. Moreover the framework illustrates a simplified image of a complex situation; local complexities and the influence of certain sustainability measurements are not reflected in this broad overview and should be taken into account before making a choice with regards to sourcing.

This thesis shows that the value chain can play an important role in establishing awareness and transparency, which can contribute to more sustainable development. Investments in these concepts are driven by the current trend of governments to support private sector investment in local communities to enhance local development. Sustainable sourcing together with a drive to transparency of companies drives the sustainability debate forward, especially related to international development.

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CHAPTER ONE: INTRODUCTION.

Consumers as well as producers on the international market are putting more and more emphasis on how and where their products are sourced and produced, and under what environmental and/or social conditions. Issues regarding sustainability are no longer a topic strictly bound to the academic world, but society and private sector are increasingly noticing the issues and/or opportunities arising from (un)sustainable practices, and are driving the sustainability debate forward. This thesis exemplifies the increasing interest of the private sector to invest in sustainable sourcing by proposing how to give meaning to the concept for a private sector actor, namely Tony's Chocolonely.

Tony's Chocolonely is a Dutch chocolate brand, founded in 2005 by a critical journalist who encountered widespread child labour on the cocoa farms in Ghana and Ivory Coast, even though the industry vowed to ban these practices. Since he got no response of large chocolate brands to take action and change these practices, he then decided to produce his own 'Slave-Free' chocolate bars. He used his findings as an awareness raising strategy, which eventually resulted in a successful chocolate brand known today as Tony's Chocolonely. Ten years later Tony's Chocolonely is a serious competitor on the Dutch chocolate market, with an unchanged mission; working towards a slave-free chocolate industry. Tony's Chocolonely is a company who exemplifies the interest of the private sector in sustainability issues, willing to make a meaningful change by seizing the opportunity to incorporate development and sustainability in their business model.

For the past ten years Tony's Chocolonely has been channelling their efforts to improve labour conditions and livelihoods of farmers in the cocoa sector while at the same time increasing transparency of their chain. Up to now these efforts have been focused on the cocoa chain, but the company is looking for opportunities to make an informed decision on other ingredients as well. Therefore this research focuses on constructing, and filling in a framework to make an assessment regarding sourcing agricultural commodities in a sustainable way. The production of sugar will be used to illustrate the use of this framework, and will function as a case study at the same time.

This study exemplifies the interconnectedness of international and sustainable development, and shows how the private sector can play a role in this debate by the use of a framework. By composing a practically useful framework (and reflecting on the process of making one), and looking towards different visions on sustainability from a more practical point of view, the academic debate regarding sustainability and sourcing can be enhanced. Academically this study is relevant since it can contribute to the knowledge about sustainability, the drive to transparency and the role of the private sector in this debate. Moreover, this research can provide more insight into the debate around business and international development as well as the debate around sustainable and transparent sourcing.

This framework is embedded in a context of trade and aid, and even though the public debate tends to prefer trade over aid, in the literature the practical view of how business can significantly contribute to development through trade is missing. It is in this void that this research is placed.

Because of the practical component of this study, the societal relevance plays an important role as well. (Sustainability) frameworks are made for many purposes, including policy, research, etc., however, it is not yet often used as a tool for the private sector; this while it can have great potential in providing information for businesses regarding which source is sustainable and which source is not. A framework can enable private sector initiatives to make a choice regarding sustainable sourcing on forehand, rather than only account for choices afterwards. This framework is made for Tony's Chocolonely, but can serve as an example for other organizations with a mission towards sustainability or with sustainable sourcing in particular. Companies who want to make their goals explicit and choices transparent, or who just want to explore possibilities regarding sustainable sourcing. The process of constructing this framework, as well as the framework itself use can serve as an example for other companies to consider sustainable choices as well.

OBJECTIVE AND RESEARCH QUESTION

This thesis aims to answer the following question:

Which production method of sugar is most sustainable when aiming for sustainable sourcing using a sustainability framework, and what can this framework add to the larger debate regarding sustainable, and international development?

This question is operationalized in the following sub-questions:

- What does a good sustainability framework for sustainable sourcing look like?
 - How can sustainability in the agro-food sector be measured?
 - How to apply this in a framework?
- What are important factors when making a comparative assessment regarding sustainably sourcing sugar?
 - What is the most sustainable sugar source?
- How can a framework contribute to sustainable sourcing, and the larger debate of sustainable development?

Many frameworks have been designed in the past already, measuring different components of sustainability for different purposes. Frameworks are often made to assess sustainability reporting by an organisation (Global Reporting Initiative, 2015), enhance transparency or to give an overview of

the understanding of sustainability of a project or company (Wateraid, 2011). This framework however, is different from all three above since the Tony's Chocolonely already has an elaborate view and mission towards sustainability, the framework will not be used for sustainability reporting or solely for the enhancement of transparency; this framework is rather designed to be able to make a critical assessment fitting well within the vision of the company. In all, this is a research contributing to an academic body of literature by describing and analysing the steps and dilemmas regarding the creation of a sustainability framework, as well as serving a practical purpose of the client, in this case Tony's Chocolonely, in making a choice regarding sustainable sourcing of sugar, and making this choice more transparent.

First this thesis will start with the literature and theoretical concepts underlying the framework. Debates regarding the concept of sustainability, the trade and aid debate and sustainable sourcing will be discussed. In the contextual framework the mission and goals of Tony's Chocolonely will become apparent and be made explicit for use in the framework itself, as well as an overview of the chocolate and sugar sector. The methods will describe the considerations taken into account when constructing the framework, and will show the several steps taken in designing the framework, aiming to answer the first two sub-questions. Next the framework itself will be further explained. In the first place the basis on which this framework is built, and the choices and considerations will be made explicit. Moreover the choice for all indicators will be explained and argued for. This part will also give insight into the weighing of the indicators and the reasons behind (not) weighing.

When the framework itself is fully explained, the next chapter will fill in, and analyse the framework for five different countries. The differences between all countries are made explicit, just as the differences between the three categories of indicators. This part of the research aims to answer the first part of the research question. The discussion, which follows the results chapter, aims to answer the second part of the research question, namely what this framework adds to the larger sustainability and development debate. In the discussion a more elaborate view of the outcomes of the framework will be given, just as the considerations to regarding the most (un)sustainable choice of production methods. This thesis will conclude with a conclusion which aims to answer the research question, and wrap up the main conclusions of this study.

CHAPTER TWO: THEORETICAL FRAMEWORK.

This theoretical framework will elaborate on the most important concepts underlying sustainability, frameworks and the role of business in international development. This research follows the following line of reasoning: Increasing attention is given to sustainable development outside of an academic context, especially by the private sector who make sustainable development an inherent part of their business. Tony's Chocolonely is one such company who made sustainable development a core process of their business by making sustainable sourcing an inherent part of their value chain, for example by actively eliminating child labour, improving labour conditions of workers and increasing returns of farmers. The current conception is that creating a win-win situation in which the private sector is able to make money but at the same time contribute to sustainable development is more durable than adhoc aid giving. This is one of the reasons why Western governments are increasingly investing in the private sector and their trade relations in developing countries.

At the same time the upcoming trend in which consumers as well as producers are increasingly interested in where their products come from and under which conditions they are produced, leads to a drive to transparency. In this drive one can see an inherent demand for sustainable development. If a company or consumer does not agree with how or where products are produced, the question regarding 'How this can be done better' can arise, kick-starting a drive to meaningful change, leading to more sustainable production. This research contributes to this drive to transparency. Tony's Chocolonely wants to assess which options they have to source their products from, and how sustainable those sources actually are.

There are many different ways to give meaning to the concept of sustainable development, and this line of thinking exemplifies one of those ways, focusing on a context of the private sector. In this theoretical framework the different concepts mentioned above will be further explained and related to each other. These concepts include sustainable development and the various approaches towards sustainability, trade and aid, sustainable sourcing and transparency.

SUSTAINABLE DEVELOPMENT

CONCEPT AND BACKGROUND

In 1987 the concept of sustainable development was formerly introduced in the academic literature, when the WCED published a report called 'Our Common Future', also known as the Brundtland report. The report defined sustainable development as: 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987). This definition contains two key concepts,

namely the concept of *needs*, in particular the essential needs of the world's poor; and the idea of *limitations* imposed by the state of technology and social organization on the environment's ability to meet present and future needs (World Commission on Environment and Development, 1987). Even though this is still a widely used definition, many other definitions have emerged since as well. An important re-emerging division in the definitions of sustainability is the division between social, environmental and economic sustainability, and are also known as People, Planet and Profit, or the Triple Bottom Line (TBL). Those three pillars of sustainability are often described as a three-legged stool. The metaphor of the stool, now somewhat contested, illustrates the equal importance of the three concepts; all three are necessary for support of the concept as a whole. If a fourth leg would be added, for example culture (Hawkes, 2001) the allegory of support no longer holds up (Vanclay, 2004, p. 6). Sustainability represents the intersection of all three domains, and the definitions of the three concepts are still open for interpretation, depending on the use and context. While the concept of interdependence among nature, people and the economy is universally shared, the implementation of an integrated approach to analysing all sustainability dimensions as a coherent whole and integrating them into any of the sustainability challenges the earth is facing – ranging from energy, agriculture, and industry, to production, consumption, waste, etc. remains a major challenge (Meybeck & Redfern, 2014).

DILEMMA'S AND TRADE-OFFS

The three pillars of sustainability, the economy, the environment and the social environment together give meaning to the concept of sustainability. However, there are scholars who stress the importance of one of those three pillars, and place them in a central position. This paragraph will give an overview of the view on sustainability within each of the three pillars.

PRIMACY OF PRIVATE SECTOR – ECONOMIC

The private sector is known for putting economic sustainability and economic development on the first place. Boutros-Ghali (1996) describes development as a fundamental human right that needs both democracy and good governance, and he argues that economic growth is the engine of development. The key point for economic sustainability thinkers that everything is substitutable – the generation today is obligated to leave behind a generalized capacity to create well-being, not any particular thing or any particular natural resource. Economics Nobel Laureate Robert Solow argued in 1973 that natural capital is unimportant: "The world can, in effect, get along well without natural resources" (Solow 1974:11). He argued for example, that species should be preserved, but sustainability is not bound to preserve one species in particular (Solow, 1991). Even though he has modified this view since, in 1992 he argued that environmental capital is of small importance, his economic perspective on sustainability remains important. Solow stresses the importance of sustainability on the production

side. Solow (1991) argues; "There is no reason for our society to feel guilty about using up aluminium as long as we leave behind a capacity to perform the same or analogous functions using other kinds of materials (1993:182)". Solow stresses the importance of robust policies first; the market is not capable of dealing with the obligation of sustainability.

IMPLICIT VALUE OF NATURE

The main argument against Solow is that when environmental costs are left out of national accounts, it is impossible make a distinction between a growing economy growing in a sustainable way, or whether the economy is just profiting from asset liquidation beyond its true income, whether the balance of payments is in surplus or deficit on current account, or whether the exchange rate needs to be changed (Daly & Goodland, 1996). Daly & Goodland, (1996) are influential scholars when environmental sustainability is concerned. They argue that environmental sustainability seeks to improve human welfare and social sustainability by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans. Both the limitations and the opportunities of the environment should be taken into account; this means incorporating the emissions of waste, as well as keeping harvest rates of renewables to within regeneration rates. They strongly stress that it is important to maintain natural capital (1996:1003), if sustainable development as a whole is to be achieved.

Another view upon environmental sustainability is the opposition to the notion that nature and the environment can be substituted by technology. One of the main scholars arguing for the preservation of nature is Arturo Escobar. Escobar's arguments revolve around the view that much of nature is now artificially produced and in some fashion, deeply imbricated with technology and social relations, and that these relationships are 'hybrid and multiform' (Escobar, 1996). He places his argument in the political ecology sphere, which describes how human organization and social forms interact with their environment. Its practitioners all query the relationship between economics, politics, and nature. As Batterbury and Fernando (2004) argue; 'this broad-ranging definition neatly combines the concerns of 'realists' interested in the material transformations of the natural world by human actions, and those who perceive nature as a historically and socially constructed category'.

Escobar continues his argument that nature is a constructed concept, just as the concepts used within nature. He identifies three distinct but interlinked nature regimes; organic nature, capitalist nature and techno-nature. The organic nature regime is most commonly found in non-industrialized societies, where local knowledge and the relation between nature and culture are central. Capitalist nature is nature that is commodified and governed, and techno-nature is artificial nature; newly manipulated through biotechnology and engineering. Those different constructions of nature exist next to each other, and according to Escobar, are a way to frame the discourse and power relations of nature (Batterbury and Fernando, 2004).

SOCIAL FIRST

The original definition of sustainability, as defined in the Brundtland report (1987), stressed the importance of social sustainability. As Vallance, Perkins, & Dixon (2011) describe, the human dimension of the concept has been overshadowed by the biophysical or environmental issues, or been subsumed within a discourse that conflated 'development' and 'economic growth'. Since meaningful results stayed out in this approach, the dimension of social sustainability got renewed interest.

Just like the other two concepts of sustainability, social sustainability is a dynamic concept. There are many different ways to define and interpret the concept; Valance et al. (2011) discuss three different standpoints regarding social sustainability. Sachs (1999) identified a number of constituent elements in the discussion of social sustainability and development, such as social homogeneity, equitable incomes and access to goods, services and employment. Sachs also highlighted the importance of 'cultural sustainability' which requires balancing externally imposed change with continuity and development from within, and a 'political sustainability' based around democracy, human rights and effective institutional control of, for example, war, the application of the precautionary principle of risk avoidance and management, and the de-commodification of science and technology (Sachs 1999 in Vallance et al. 2011).

The definition of sustainability used in this research is the following: "social sustainability refers to the personal and societal assets, rules and processes that empower individuals and communities to participate in the long term and fair achievement of adequate and economically achievable standards of life based on self-expressed needs and aspirations within the physical boundaries of places and the planet as a whole" (Colantonio, 2007, p. 7).

Even though the three pillars together give meaning to the concept of sustainability, within the three pillars there are different visions of how sustainable development is to be achieved. A distinction can be made between 'weak' and 'strong' sustainability. As Bergh et al., (2001) write, "a development is said to be weakly sustainable if the development is non-diminishing from generation to generation". It does not matter whether the current generation uses up non-renewable resources or dumps CO2 in the atmosphere as long as enough machineries, roads and ports are built in compensation (Neumayer 2003). Neumayer continues that strong sustainability regards natural capital is as non-substitutable, both in the production of consumption goods and as a direct provider of utility. Bergh et al. (2001) add that all types of capital (economic, ecological and social) should be independently maintained in real physical and biological terms. The economic pillar tends to promote weak sustainability, where the costs of attainment are important and are typically based on a cost-benefit analysis, which inevitably involves trade-offs between economic and environmental and social benefits. The environmental pillar however has the tendency to go for strong sustainability where there is little consideration of the

financial or other costs of attaining sustainability (Bel & Morse 1999). The social pillar moreover focuses on the quality of life of people within the society, tending to strong sustainability as well.

These three paragraphs have given an overview of how the three pillars of sustainability are interpreted by various scholars. Dividing sustainability in three pillars is only one way to operationalize the concept. Another way is to view the concept in terms of attitudes regarding change and means of change, as Hopwood, Mellor, & O'Brien (2005) attempts. In their conceptual approach towards sustainable development they look at the broad views on the nature of the changes necessary in society's political and economic structures and human-environment relationships to achieve sustainable development, making a distinction between status-quo, reform and transformation. Status quo indicating that the view is that sustainability can be achieved within the present structures, with neo-liberal economists as the extreme example. Reform indicating that fundamental reform is necessary, but without a full rupture with the existing arrangements, and transformation, arguing that the roots of the problems are the very economic and power structures of society a radical transformation is needed (Hopwood et al., 2005, p. 42).

Relating these views of sustainability to this research, one could say that Tony's Chocolonely is working towards achieving a transformation of society and the industry. The company chooses to use a framework as a tool, even though a framework is the prime example of a neoliberal approach of mainstream development. Important to note however, is that this framework is used as a tool to make a first assessment of the current situation regarding sustainable agriculture to increase transparency and create awareness; it does not serve as an end-goal in itself. The framework itself does not propose any change, it is still up to the user of the framework to make a meaningful change, whether this supports the status quo, or is really transformative.

TRADE AND AID

The previous paragraph discussed the several standpoints regarding sustainable development. As those three pillars of sustainability show, sustainable development can be operationalized in many different ways. A current trend is for policy makers to connect international development with sustainable development. The public sector has always had a large role in supporting international development through providing aid, and supporting trade relations. The public sector however, is increasingly involving the private sector in the international development debate, leading to a changing dynamic. This upcoming paragraph will elaborate on the current outlook of international development, and the increasing role of the private sector in contributing to development in an international context, linking trade with aid.

As Engel (2014) describes, mainstream development theory in the 1960s argued that countries may need assistance to see economic growth 'take off', after which they would 'catch-up' with the Western world, and economic benefits would 'trickle down' into society and would automatically alleviate poverty (Engel, 2014). History has shown however, that this 'trickle down' took place only very limited, and it did not alleviate poverty. Engel (2014) therefore argues that the Great Aid debate today avoids the idea of 'trickle down' yet this has actually been resurrected through the idea of convergence. The belief is that if you get the incentives right, market mechanisms will produce economic growth, which again will result in the Third World achieving the level of development of the First World (Engel, 2014, p. 1375). This belief is reflected in the current policies regarding trade and aid in the Western world. The most recent trend in Western countries is to limit the amount of aid given to developing countries, but rather encourage private sector investment in developing countries to encourage trade relations, and by doing so contributing to economic development, since this will bring about more durable change in their view. Many critics of aid giving, support the idea that trade will have a sustainable and durable effect on development. The effects of trade are believed to be (part of) the solution to overcome the problems associated with aid, such as ineffective use, enlarging government bureaucracies or perpetuating bad governments (Friedman, 1958, Bauer, 1972 and Easterly, 2001).

The trade-not-aid strategy is based on the idea that if developing countries were able to trade more freely with wealthy countries, they would have more reliable incomes and they would be much less dependent on external aid to carry out development projects. The recent trend is for governments of developed countries to spend less money on development aid, but to invest in trade relations with developing countries; taking the 'trade' standpoint. Local communities are not supported through aid, but through the support of companies who have a business relation with businesses in the developing world. Those business investments lead to more employment and can so contribute to developing local communities (Mawdsley, 2015). International trade would raise incomes and living standards as poor countries would be able to export their way to economic development by selling their products to rich countries eager to buy their goods. In this sense, the "trade-not-aid" theory aligns with the neoliberalization theory, in that both perspectives emphasize the importance of creating export sectors to increase development (Murray & Overton, 2011). As Groves & Hinton (2004) describe; among policy-makers there has been an evolving sense of the need to involve members of civil society in upholding their rights and working to promote transparent, accountable government. For many governments investing in trade is a way to make a shift away from only projects and service delivery, to effective and accountable local governance.

Scholars opposing this view rightly argue that most developed countries have higher tariffs on goods that developing countries export than on manufactured goods that other developed countries produce. This means that in order to sell their goods in developed countries, exporters in developing countries

must pay high taxes, which are ultimately reflected in higher prices of their products once they are sold on the market. Developed countries also subsidize their own industries to keep prices of domestically produced goods low, thereby keeping out competition from poorer countries. In the end, developed countries only 'use' developing countries for their own benefit, as the critics argue (Palley, 2011).

Another argument against trade, argues that in this policy, economic growth is being ideationally and institutionally reinstated as the central and prior condition for "development". And, as Mawdsley (2015) argues, "this is not just deepening the existing poverty reduction-era focus on "bottom billion capitalism" (including land titling, markets for the poor, microfinance and supporting SMEs), but extending towards new and expanding goals of large-scale public-private partnerships, donor support for major commercial investments, private equity initiatives and deepening financialisation" (Mawdsley, 2015, p. 344). With this increasing focus on capital, the overarching goal of having achieving development, is at risk for being lost out of sight. As Mawdsley (2015) argues, government bodies responsible for development are failing to connect growth with development: "Adequate and appropriate regulation, incentive structures that reward development indices (rather than growth or return on investment alone) and recognising/addressing potentially conflicting interests (e.g. between investors, employers and workers), for example, are all vital components of the transmission from "growth" to "development" (even allowing for different understandings of what "development" might mean). However, these are weakly conceptualised within current strategic statements" (Mawdsley, 2015, p. 345). The standpoint of the Dutch government in this debate and their attempt to achieve development through growth, will be discussed in the context chapter.

CHANGING ROLES OF THE PRIVATE SECTOR

With the shift of national governments from aid giving to supporting trade, the private sector is more and more included into the international development debate. Since the end of the Second World War, the roles and responsibilities of actors involved in the development debate were very clear; the government supported developing countries with aid, while the business sector was still mostly driven by their own economic gains. Since governments are increasingly turning to a private sector-led economic growth agenda, the private sector has a different role to play (Mawdsley, 2015). The private sector, with small and medium enterprises (SME) in particular, play crucial roles in furthering growth, innovation and prosperity in both developed, as developing countries, as Bella, Grant, Kindornay, & Tissot, (2013) argue. SMEs generate significant domestic export and earnings, as well as providing a major source of employment in lower- and middle-income countries (Bella et al., 2013). Private sector actors can even further improve their development impact if they view development as a goal in itself by for example improving transparency in supply chains, improving access to supply chains for local producers, protecting local communities affected by corporate land and water use, reducing greenhouse gas emissions, committing to fair prices for small-scale producers and addressing the exploitations of women (Hoffmann, Ladewig, Merkes, Petersen, & Stockfisch, 2003).

The dynamic of private sector-led growth goes together with a drive towards sustainable development. For the private sector, sustainability issues often represent a business opportunity, or a void they can fill (Giunipero, Hooker, & Denslow, 2012). Not only can it be profitable to invest in sustainability, companies can also observe the impacts of for example climate change on their future supply, and notice the importance of sustainable practices (Salzmann, Ionescu-Somers, & Steger, 2005). Companies who do not invest in sustainable practices are lagging behind in relation to companies who do. Moreover, as Lucci (2012) describes; firms are increasingly recognizing that they can no longer afford to ignore their social, environmental, and economic impacts, especially under increasing scrutiny by civil society organizations and the media (Lucci 2012: 1).

The increasing interest of the private sector in development and sustainability exemplifies a changing discourse; development is not solely a matter for governments, and sustainability is not only a matter for the scientific world, but both debates become more and more embedded through society as a whole. The result of this changing discourse is that the roles of actors in the development debate have become increasingly blurred. With the increased interest of the private sector in development, partnerships between development organizations and private actors can have the potential to turn divergent interests into new sources of innovation and facilitate joint problem solving (di Bella et al., 2013). Important however, as di Bella et al. argue is that the roles and responsibility of the state, private sector and non-governmental actors should be made clear, especially as they relate to the delivery of public goods. Those goods are normally seen as responsibilities of governments, however with blurred roles of the actors involved in development, it should be clearly defined who is responsible for those services (di Bella et al., 2013).

The dynamics of the trade and aid debate, and the roles of the public and private sector in this debate explain the trend of the private sector investing in sustainable and international development. Relating this to the conceptual framework, a first step to establish sustainable development, and to encourage the private sector to invest and support sustainable development, is to raise awareness for sustainability issues, and increase transparency. The role of sustainability in the value chain, and its contribution to development will be discussed in the paragraph hereafter.

VALUE CHAINS & DEVELOPMENT

Kaplinski (2000) defines the concept of the value chain as the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production

(involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use (Kaplinski 2000:121). Mcmichael (2013) elaborates on the concept, and writes that the concept of the value chain tends to render invisible the value-creating role of labour as appropriated by corporate and policy interests as a temple for 'upgrading' by capturing value within a hierarchical chain, serving as a proxy for national development strategies.

The value chain is a tool for the private sector to contribute to sustainable development. Tony's Chocolonely contributes to sustainable development by putting emphasis on sustainable sourcing, in which they for example emphasize labour conditions and fair wages. As Hoffmann et al., (2003) describe, improving transparency of the supply chain can have a considerable impact on development. As Milberg & Winkler (2013) describe, the value chain can be a tool to support local economic or social upgrading in which workers are seen as productive and social agents in the changing production networks in developing countries. Social upgrading is the process of improvement in the rights and entitlements of workers as social actors, and enhances the quality of their employment, as Milberg & Winkler (2013) write. Economic upgrading is defined as the process by which economic actors – firms and workers – move from low-value to relatively high-value activities in global production networks (Gereffi 2005 p. 171 in Milberg & Winkler 2013). Even though there is a relation between economic and social upgrading, this does not mean when economic upgrading takes place, social upgrading, in the form of higher wages or better employment rights automatically occurs as well. If you turn it around however, one can see that social upgrading (paying higher wages or increasing labour standards) has a positive effect on international trade relations, and will raise production costs and by implication reduce international competitiveness (Milberg & Winkler, 2013).

International companies often rather invest in economic upgrading rather than social upgrading; increase productivity or get more skilled workers rather than pay higher wages to their workers. A sustainable supply chain however goes further than only economic upgrading of the chain, which for many companies is a barrier to invest in a sustainable supply chain. However, Nidumolu, Prahalad, & Rangaswami (2009) argue that putting emphasis on sustainability issues such as waste reduction or social issues lowers costs because companies end up reducing the inputs they use (Nidumolu et al., 2009, p. 2). Companies, who acknowledge the opportunities of sustainable value chain management, are able to see the potential of sustainability, rather than seeing investing in sustainability as a cost. The value chain provides the perfect opportunities to invest in sustainable practices (Nidumolu et al., 2009). Seen from the perspective of the company investing in sustainability can have positive outcomes for their own development and value chain, and eventually contribute to better trade relations. This framework gives a first impression regarding which issues can be taken into account to encourage sustainable value chain management.

As the above paragraph described, there are many ways to upgrade the value chain in a sustainable way, thereby improving the livelihoods of the people in local communities. The following section illustrates how the value chain can be upgraded and by doing so improve trade relations of local farmers, by looking at the Fairtrade movement in particular.

THE FAIRTRADE MOVEMENT

An initiative that specifically focuses on enhancing the position of farmers in developing countries through value chain development is the Fairtrade movement. As Raynolds (2000) argues; "the fair trade movement fosters the re-embedding of international commodity production and distribution in "equitable social relations," developing more stable and advantageous system of trade for agricultural and non-agricultural goods produced under favourable social and environmental conditions" (Raynolds 2000:297). Raynolds (2012) continues; Fairtrade links labour, community, and environmental concerns primarily in food items like coffee, tea, cocoa, sugar, and bananas, which is in contrast with corporate social responsibility efforts which address regulatory concerns through internal mechanisms.

Even though including smallholders in the global value chain can contribute to development, unequal trade relations and power position in value chains are often not taken into account when the value chain is assessed. The well-defined conditions of the fair trade movement however, have tried to take unequal trade relations into account and protect the values of farmers. The question is however, as mentioned in the paragraph discussing the trade and aid debate; to what extent it is the role of either the market or the government to protect smallholders in weak power positions.

Not only the well-defined and regulated ways of the Fairtrade movement can contribute to international development in the agricultural value chain; private initiatives can contribute to the same goal as well. Private initiatives are of growing importance, especially since value chains are used as an intervention strategy. As Neilson (2014) describes, Global value chain analysis has developed an influential set of conceptual tools to understand the operations of industry systems across world geography, thereby providing an informed analysis of how capitalist processes generate opportunities and constraints for different people and places in the global economy.

The following paragraph will discuss how sourcing agricultural products in a sustainable way can be incorporated in the value chain; it describes the potential of sustainable sourcing and how it can be incorporated in management of the value chain.

SUSTAINABLE SOURCING

The concept of sustainable sourcing is where the value chain and sustainability come together, and can contribute to transparency, awareness creation and eventually sustainable development. Sustainable sourcing is part of a larger sustainable supply chain management agenda, in which the Triple Bottom Line (TBL) is incorporated (Zorzini, Hendry, Huq, & Stevenson, 2015). The definition of "sustainable sourcing" provided by (Pagell, Wu, & Wasserman, 2010), is a very broad one in scope, and includes all three dimensions of the TBL. According to the authors, sustainable sourcing refers to "managing all aspects of the upstream component of the supply chain to maximise TBL performance". The main goal of sustainable sourcing is not to improve the power position of local producers, but to encourage suppliers to source their products in a responsible way; whether this includes paying attention to the power position of farmers, or to the environmental impact of production. Schneider & Wallenburg (2012) have conducted a study on how to operationalize sustainable sourcing methods. The case of the Fairtrade movement as described in the previous paragraph, sustainable sourcing often focuses on the social aspects of sourcing, and deals with ethically sound supplier-buyer relationships, establishing codes of conduct, preventing child labour, or considering minority-owned suppliers. Research on environmental aspects of sourcing initially centred on purchasing's responsibility to facilitate recycling, reuse, and resource reduction and subsequently connected environmental sourcing to strategic topics, such as new product development or strategic risk minimisation (Schneider & Wallenburg 2012).

Sustainable sourcing is where the private sector can make a difference with regards to sustainable trade relations, and setting up a sustainability policy for their company. As the different ways of looking at sustainability described in the first paragraph of this chapter, there are different ways to interpret sustainability, and different ways to emphasize the concept. Whether you put social, environmental or economic sustainability on the forefront, can be reflected in the choices a company makes with regards to sourcing in a sustainable way. Even though sustainable sourcing is increasingly important, and more and more research about the topic has been done, Zorzini et al (2015) conclude; there is a lack of research and insight in how to effectively incorporate sustainable sourcing in developing countries.

TRANSPARENCY AND MEASUREMENT

The concept of sustainability was introduced as an academic concept, but it is becoming more and more embedded in policy and business. As exemplified in the previous paragraph, governments and business are experiencing the urgency to include sustainability in their practices one way or another. This, in combination with the trend of a neoliberal market approach, leads to an urgency to create tools to measure the state of sustainability, and the impact of sustainable policy. The neoliberal market

approach is principally a political project of embedding market values and structures not only within economic, but also within social and political life (Rodan, 2004). Policy makers, entrepreneurs and customers alike want to see the progress of the efforts taken to contribute to sustainability, and corporate responsibility is no longer enough, as Utting (2008) describes; '*There is a shift in emphasis from corporate responsibility to accountability, from voluntary initiatives to law and public policy, from codes of conduct to verification and industrial relations, as well as a resurgence of contestation'.* This trend is taking place in value chains and international trade as well.

As mentioned in the beginning of this chapter, the value chain is increasingly used by the private sector to contribute to sustainable development. This trend goes hand in hand with a drive to transparency. Companies want to know where their products are sourced from, and consumers want to know what they buy and under which conditions it is produced. In the academic context, transparency is referred to as *"making information available to external stakeholders"* (Potts et al., 2010). There are several ways to achieve transparency, two of which will be highlighted here; institutional transparency and responsible sourcing.

A way of contributing to transparency is by the use of sustainability standards, initiatives and indicators. Institutional transparency is driven by a number of factors, described by the IISD (Potts et al., 2010). On the one hand, there are a growing number of voluntary sustainability initiatives (VSI) which measure the impacts of sustainability policies on markets and industry, questioning the status and practices of the private sector. These voluntary standards set the standards for trade for mainstream supply chains, therefore their impact on the market will grow, and increasing demand for VSIs. On the other hand, the growing proliferation of initiatives is forcing external stakeholders to be more critical about the impacts of those initiatives on the local community. While at the same time, developments in information technology are making it increasingly feasible to meet these growing demands. Finally, and perhaps most relevantly to the VSIs themselves, the commitment to sustainable development includes a commitment to promoting participatory governance. Increased organizational transparency among VSIs provides a vehicle for facilitating participatory governance across the initiatives themselves and the markets they operate within. To the extent that VSIs have relied on participatory governance to build trust with different stakeholder groups in the market, transparency represents an important instrument for maintaining trust and market buy-in (Potts et al. 2010). This drive for transparency accomplished an opening-up, and increasing market information, which can contribute to sustainable development and highlight the issues which need more attention.

The second way to improve transparency is through sustainable sourcing. As Potts et al. argue that by enhancing the information flow, transparency can promote market efficiency, social welfare and cost internalization, which are all core principles of sustainable development (2010). Moreover,

stakeholders are able to participate more knowledgeably in the governance process when they have sufficient information, which then can promote participatory governance, which is a core principle of sustainable development as well. The IISD argues: as transparency requirements on the sustainable development impacts of companies and other market actors grow, so too does the potential of transparency to forward the objectives of sustainable development.

Zorzini et al (2015) suggest that firms have initially proposed three potential ways to achieve transparency, in response to stakeholder pressure for responsible sourcing. In the first place by publishing annual sustainability reports, secondly by developing internal CRS codes and private supplier standards, and finally by resorting to other certification or standards to endorse their company stance via third-party accreditation. Carter & Rogers (2008) add that transparency should not only refer to reporting to stakeholders, but should also engage stakeholders and use their feedback to improve the process of the value chain. For a company to open up about the issues they are struggling with whether these are environmental, social or economic issues, towards partners and customers, can contribute to increasing transparency.

FRAMEWORKS AND INDICATORS

The previous paragraph discussing institutional transparency already touched upon the value of indicators measuring sustainability. Business is increasingly investing in sustainability. Linked with the quest of with regards to transparency is the challenge for business to measure the impact they make with the investments made towards sustainability. Especially in the case of business, where investments are often measured in monetary outcomes, it can be difficult to legitimize and measure choices resulting in intangible outcomes. Indicators and frameworks can be used as a tool to measure progress and give an overview of current practices.

A framework in which indicators are chosen aimed to measure the impact and state of sustainability policy and investments is a way to measure progress or assess a situation. Likewise, frameworks can be a useful tool to make choices and policy more transparent. Frameworks are often made from a specific standpoint regarding sustainability; whether this is an integrated approach, or a framework with a particular view on sustainability, whether this is environmental, social or economic sustainability, all can give insight in the state of sustainability.

When using the concept of sustainable sourcing in a practical context, emphasizing each of the three sustainability dimensions can be achieved in two ways, as Schneider & Wallenburg (2012) describe; first, by increasing the number of sustainability criteria that are considered in certain sourcing processes, and second, by increasing the number of sourcing activities in which the particular sustainability criteria are explicitly considered. It depends on the combination of both the number of

criteria and the number of activities considering sustainability, which sustainability dimension is taken as a standpoint, whether this is strong, moderate or weak (Schneider & Wallenburg 2012).

Not only the private sector however, is interested in measuring sustainability; academics and the public sector all have interests in measuring the status and progress of their investment or policies aiming for sustainable development. Because of the wide definition of the concept of sustainability, many different indicators have been formulated to operationalize and measure the concept. As Slaper, T.F. & Hall (2011) describe, an indicator zoo has emerged over the years. One of the first general principles to measure sustainability were the Bellagio Principles (1997). The idea behind the Bellagio Principles is that harmonization is not simply a matter of selecting common frameworks and indicators, but of following a common approach of developing and using measurement systems as an integral part of how institutions and society function. The Principles were not expected to lead directly to common indicator sets, but to help guide overall indicator system design and analysis that—over time—will result in convergence and better accountability (Slaper, T.F. & Hall, 2011). Since the first Bellagio principles were formulated in the nineties, they have been revised, since there was a need to better assess financial risk and performance, both at the macro and microeconomic level. But better metrics were also needed for tracking poverty, food security, carbon, water availability and a host of other issues that are not well captured by traditional economic accounts. This resulted in the Bellagio Sustainability Assessment and Measurement Principles (BellagioSTAMP) in 2008.

In short, this theoretical framework introduced the debate around sustainable development and the different views within the debate, whether this is a focus on economic, environmental or social sustainability. Next an insight is given into the trade and aid debate and how the roles in this debate have changed over the years, and the current trend in which the roles of the government and business have become blurred. This theoretical framework has been concluded by some insight into the current drive to transparency, measurement and impact assessment. This thesis will continue with the context in which this research takes place, discussing among others the global sugar industry, the Dutch chocolate market and the position of the Dutch government in the trade and aid debate.

CHAPTER THREE: CONTEXT.

This chapter provides some context for this research. This framework is tailored to fit the purpose of Tony's Chocolonely, therefore it is important to give some context on the company, and the vision from which it operates. Moreover, this chapter will give some background information on the sector central in this research, namely the sugar sector.

TONY'S CHOCOLONELY

Tony's Chocolonely is a social enterprise, founded in 2005, after a Dutch journalist, Teun van de Keuken, encountered that children were still used as slaves and forced to work on cocoa plantations in Ghana and Ivory Coast. This, despite the international agreement signed by large chocolate producers such as Nestle, The Hershey Company and Ferrero, to eliminate the worst forms of child labour in the cocoa supply chain in West Africa (ILO 2011), also known as the Harkin-Engel Protocol. Van de Keuken decided to take matters into his own hands, and produced 5000 Fairtrade chocolate bars. Those first bars were only available online, and proved to be a huge success; 13.000 orders were placed. This marks the beginning of the company Tony's Chocolonely.

Now, a decade later the company's mission remains to abandon forced- and child labour in the cocoa sector by setting the right example, and show the industry and the consumer that slave-free, fairly produced chocolate is possible. Their vision statement reads; 'On our way to 100% slave-free chocolate'. The company envisions this not only for their own company, but for the chocolate sector as a whole. Since their foundation in 2005, Tony's Chocolonely has been able to grow, and now has a market share of 4,5% of chocolate bars in the Dutch market (Tony's Chocolonely, 2013). Part of their mission is to show that producing chocolate bars without using child- and/or slave labour is possible, and that the consumer is willing to pay for not only a fair product, but also for the best quality chocolate. The company has divided its mission, to transform the chocolate market into a slave-free market, into three sub-parts: in the first place they aim to only use fair-trade cocoa, and strive to get the best quality of cocoa possible. Next is to take all people in the value chain of their chocolate serious; this means not only paying a fair price for the cocoa beans, but also people working in the head office, and all people in their value chain. These three points together make up their mission: 'crazy about chocolate & serious about people'. As the company states: "Only if there is no slavery in the chocolate industry anymore, we have reached our goal" (Tony's Chocolonely, 2013).

Tony's Chocolonely is a social enterprise, which means business goals are combined with social and societal goals. Creating value for society is more important than making profit or shareholder value

maximization. "Profitability is not a goal in itself, but generating profit is a means to achieve our goals. The Tony's business model lets the industry see that growing, making, producing and selling fair chocolate can be a healthy, sustainable business with profitable returns", as is written in the Jaar Fairslag (2013). The net sales of the company in 2013 grew to 7,38,336 euro's, which is an increase of 62.9% compared to 2012 (Tony's Chocolonely, 2013).

CHOCOLONELY FOUNDATION

The Chocolonely Foundation was founded in 2008, and focuses on the community surrounding the cocoa farmers. The foundation is affiliated with, but operating independently from, Tony's Chocolonely. Tony's Chocolonely saves 1% of the net-revenue for activities of the Chocolonely Foundation. The foundation supports projects which contribute to a slave-free chocolate sector, even when it does not particularly benefits the company Tony's Chocolonely, or its value chain partners (Tony's Chocolonely, 2013). Projects supported by the foundations range from an awareness campaign about child labour and slavery for farmers in Ghana and Ivory Coast, to building a primary school in Ivory Coast, to supporting lobby-activities in Europe against child trafficking and child labour in the cocoa sector (Chocolonely Foundation 2015).

SECTOR CONTEXT

This paragraph discusses two different value chains: the chain of cocoa and the chain of sugar. Cocoa is the main ingredient of the chocolate bars, and illustrates the issues Tony's Chocolonely has to overcome with their brand. Illustrations of both value chains focus on the issues in the sector and chain to give an overview of which improvements can be still made in relation to international and sustainable development.

THE COCOA SECTOR

Tony's Chocolonely was the first Fairtrade chocolate brand in the supermarket. Nowadays, all the generic chocolate brands sold in the supermarket are certified (with Fairtrade, Rainforest Alliance or UTZ), just as the majority of all the large chocolate brands. This however, does not mean the issues in the cocoa sector are significantly reduced or improved. This paragraph will elaborate on the issues arising in the cocoa sector worldwide.

There is a worldwide growing demand for cocoa, while the amount of farmers growing cocoa is diminishing. Many farmers are not able to earn a decent living income from cocoa; therefore, they decide to grow other, more profitable crops (Fountain, A.C. and Hütz-Adams, 2015). Consequently business and governments involved in the cocoa sector have joined forces over the years to create a sustainable cocoa sector and more importantly, to secure future demand.

Steps to be taken to improve the situation of farmers in the cocoa sector include securing a fair price for farmers, so they can earn a decent income, and send their children to school rather then they have to work on the farm (The Frog Blog, 2014). The million cocoa farmers earn little money from their crop, while the few large processing companies hold all the power (and revenues). This year (2015), Voice network published a report on the poverty of farmers growing cocoa in relation to the great wealth of the few large cocoa processors worldwide. The report describes that there are various reasons that farmers earn so little money; *low and fluctuating cocoa prices, lack of farmer organisation and market power, the small size of farms, uncertainty of land tenure, sharecropping, low productivity, lack of infrastructure and access to market and market information*' (Fountain, A.C. and Hütz-Adams, 2015). Next to those issues farming communities lack basic infrastructure such as roads, education, health care, farmer organisation, and support structures to aid farmers in their efforts for sustainable cocoa production. As Fountain & Hütz-Adams (2015) write, the current outlook of the sector does not encourage the younger generation to continue working in the cocoa sector, since they do not see opportunities to earn a decent income from cocoa farming.

While currently a decline of cocoa farmers is occuring, there is an increasing concentration of actors in the global cocoa supply chain. Fewer, large companies are controlling the processing of beans to chocolate. Currently, two processors (Barry Callebaut and Cargill) are about to produce about 70 to 80% of the world's couverture. As Fountain & Hütz continue; 'Only eight traders and grinders control approximately three quarters of the worldwide cocoa trade. The market power of the six biggest chocolate companies is around forty per cent'. This illustrates the weak position of power of the many individual farmers growing cocoa in relation to the large processing companies.

Tony's Chocolonely is aware of these challenges and has adjusted their company policy to address those issues. Through a 'bean-to-bar' system the company can guarantee the beans from their farmers are processed in their chocolate bars. This is not only good for the quality of the product, but for the farmers as well. The farmers know who they are producing for, and Tony's Chocolonely can share their knowledge about for example the market, with their own farmers to ensure a good quality product. By signing a contract with the cooperative for several years, farmers are secured of a buyer for their product, and therefore are able to make long-term investment.

Even though Tony's Chocolonely is not unique anymore in being certified, since the majority of chocolate brands have a certification label nowadays, their approach towards their farmers is still unique. For many brands having a certification stops when the premium is paid, where Tony's Chocolonely puts more emphasis on their cooperatives' functioning and well-being of the farmers in order to secure the highest quality cocoa as possible.

THE SUGAR SECTOR

The sugar industry is a large and widespread industry with hubs all over the world. In the Global South sugar is mainly grown in the form of sugar cane, while in the more northern areas, sugar is derived from sugar beet. In the Global South sugarcane is produced by three different sort of producers; the large plantation farmers in mainly Latin America, with Brazil as the worldwide largest producer and exporter of sugarcane. In Asia smallholders are the main producers of sugarcane, with India, China and Pakistan as main producers. The producers in Africa are both smallholders as large plantation farmers, with the main producers from Swaziland, Mozambique and Cameroon (Chisanga et. Al 2014).

The international market for sugarcane, production as well as export, has grown significantly over the last 20 years. Increased investments in the sector have generated growth, but they have also tended to create market structures in which a single multinational is dominant. This concentration raises concerns about the functioning of these increasingly important markets and the efficiency and equity implications (Chisanga et. Al 2014). As Chisanga et. Al (2014) continue, while the market is highly concentrated, contract farming arrangements enable smallholders to be included in the global value chain, even though sugarcane is not a crop particularly well-fit for smallholders. Especially in South-East Asia sugarcane is grown by smallholders, where the pressure on land and water is growing, but incentives to change to a different, less land and water intensive crop are low since the farmers are used to producing sugarcane.

From an environmental perspective sugarcane is not the ideal crop for South-East Asia; the semi-arid climate of India, Pakistan and China is not very suitable for the water intensive crop. Irrigation is needed in order to grow the cane, in an area where water use for agriculture already has to compete with water use for domestic purposes (Solomon, 2014). Moreover, from a social perspective sugarcane is not ideal either; the plots on which the farmers in South-East Asia are producing are too small to earn a decent income from. Only the farmers, who have an additional income next to the income derived from the cultivation of sugarcane, are able to earn a decent wage. For farmers owning a sugarcane plantation (rather than a smallholder plot), this is not the case, since economies of scale make sugarcane cultivation particularly suitable for large cultivated areas (Fraser et al 2012).

Looking at issues in the sector in general, the sugar sector faces a few pressing problems. The sector struggles especially with issues regarding water use, productivity and the infrastructure of organisations and cooperatives. Organisations such as Solidaridad, a Dutch NGO who brings together supply chain actors and engages them in innovative solutions to improve production, ensuring the transition to a sustainable and inclusive economy that maximizes the benefit for all, are supporting farmers, producers and the industry as a whole to work on those issues. Even though the issues in the

sector are pressing, there is not one large 'marketable' problem, which can be used to draw attention to the sector and make important improvements. Solidaridad for example, works on improving institutional infrastructure of the sector in particular. Formalizing and structuring cooperatives, and linking different actors in the sector to formalize the industry on all different levels, is where the attention is focused, so that not only individual farmers are able to create a better position for themselves but that the industry can solve their own problems on the long term.

Innovation can be an important tool to improve the issues in the sector. The sugarcane sector is driven by innovation, with sustainable innovation in particular. For smallholders it is important to increase the economies of scale, which they achieve by working together and investing in mechanization (Mkwambisi, Fraser, & Dougill, 2011). As Sven Sielhorst¹ (Solidaridad) explains, 'Innovation and a drive towards sustainability in the sugar industry, have been, and still are an internal drive. As opposed to many other sectors, where pressure from the outsides pushes the industry to make changes towards sustainability, in the sugar industry, the industry itself has made steps to become more sustainable; process in a more efficient way, use drip irrigation, use the waste of production for energy generation etc. Even though these investments were mainly made from a practical rather than sustainability perspective; those changes had to be made to keep the sector up to date. Sustainability and innovation have been introduced alongside each other, and is integrated in the sector, rather than introduced as a result of outside pressure'.

POLITICS IN THE SUGAR INDUSTRY

An added layer of complexity in the sugar industry is the influence of national and international politics. The industry worldwide has to deal with market protection, import tariffs, subsidies for own markets and quota's set by governments to control their own market. In the sugar industry, governments of producing countries have a larger influence than multinationals wanting to produce in their country, with regards to who produces where for what price (Chisanga et al 2014). This is not always in advantage of the industry as a whole; prices are kept artificially high, and some markets are kept alive only because of subsidies and tax benefits, with sugarcane from the Caribbean as a prominent example.

EU policy exempt countries from the region Africa, Caribbean and Pacific (ACP) from having to pay import tariffs into Europe. The mostly smallholders producing in these countries, are able to compete with sugar from within Europe because of those tax exemptions. If you look at the characteristics of those markets however, it would be far more logical for producers in ACP countries to switch to a different, more profitable crop, as explained previously.

¹ Open interview 28-04-2015

From 2017 onwards, the EU will let go of their sugar quotas and minimum beet prices. This major change will have an impact on the dynamic of the worldwide market. Not only will beet growers from within the EU increase their production, and therefore the international price of raw sugar will drop, the competitiveness of producers will increase as well. Small producers with high costs will be less competitive than large plantations with more opportunities to cut on overhead costs. Sielhorst states that; 'In general, I do not think this new EU policy will have large influence on the market as a whole. The industry has had enough time to prepare itself, increase production and lower the cost. The niche markets however, will experience more difficulties'. As Sielhorst continues, small-, or niche markets of sugar; for example Fairtrade sugar, who already ask a higher price for their sugar, will have difficulties producing their sugar as it becomes even more expensive in relation to conventional sugar. The question whether they will be able to continue production, depends on whether the consumer is willing to pay that higher price.

In short, the cocoa sector and the sugar sector both face similar issues regarding income of smallholder farmers and working conditions of farmers, but where the cocoa industry has received a lot of attention in the past, and still receives today because of the occurrence forced- and child labour, the sugar industry does not have a problem with a face. Issues in the sugar sector therefore, stay under the radar of the larger public debate. The internal drive of the sugar industry however, to improve their value chain and make steps towards sustainability, is lacking in the cocoa sector. Where the sugar industry has both smallholder farmers as large plantations, cocoa is largely produced by smallholders. Large plantation farmers have more potential to invest and innovate the sector, than smallholders. Especially when those smallholders are abandoning cocoa to grow more profitable crops. The large and influential actors in the sector have the power to drive innovation, however, they are entangled in power politics, adding an extra layer of complexity. The following paragraph will introduce a new actor in the debate, namely the role of foreign governments, the Dutch government in this case. Development of especially smallholders in the developing world can be driven or supported by foreign governments in the form of international development cooperation or aid. The following paragraph will give insight into policy of the Dutch government, explaining the so-called 'Dutch Approach', and its role on sustainable and international development. This is an important actor since development cooperation is increasingly shifting towards economic support and development for farmers and local business.

TRADE AND AID: THE DUTCH GOVERNMENT

In the past years, the amount of money spent on aid has been declining; in 2012 the OECD noted an almost 3% decline in aid over 2010's aid. Not only the worldwide financial crisis could be an

explanation for this decline in international aid giving (Shah, 2014), moreover, a changing vision of Western countries regarding how to handle aid can play a role as well. The Dutch government for example, has founded a fund for Small and Medium enterprises (SME) in the Netherlands, but also in developing countries, where they can lend money from to invest in developing markets. This fund is called the Dutch Good Growth Fund (DGGF), and as the Dutch government writes; "In the new document the government seeks to synergise trade and development policy. Doing so is essential in the new economic world order. Countries that were once among the least prosperous are now confident and rapidly growing trading nations. Most of the world's people living in extreme poverty are to be found in the emerging economies. And although the Netherlands is a leading trading nation, it is not yet profiting sufficiently from the economic growth that Asia, Africa and Latin America are experiencing" (New Agenda for trade, aid and investment, 2013).

The Dutch government takes a middle ground between the aid critics and supporters, and they have designed policy to combine both trade and aid. By supporting private sector initiatives aid is given in the form of trade support, with the goal to enhance international development cooperation. An example of such support is the Centre for the Promotion of Imports from Developing Countries (CBI), an organization which combines aid and trade in low- and middle-income countries. "*The CBI helps small and medium-sized enterprises in low- and middle-income countries to gain access to the European market and to emerging markets in the South*" (Trade and Development Cooperation n.d.).

The standpoint of the Dutch government towards development and trade is called the Dutch approach (Roodenburg, 2014). Development aid is about mutual benefit and long-term success and improving livelihoods in a sustainable way. As the Roodenburg remarks; "*The Dutch government aims to find win-win solutions: contributing to sustainable and inclusive growth in low and middle income countries whilst promoting Dutch businesses to invest in and trade with these countries, and finding and accelerating innovative solutions with the capacity to contribute to sustainable and inclusive growth throughout the world*" (Roodenburg, 2014). Creating a stimulating business environment, one that facilitates the creation and development of small and medium enterprises (SME), is crucial to make development a success.

The fund has recently celebrated its first birthday, and the first contours of the fund are becoming increasingly visible. The Dutch government published that out of the 22 transactions made this year, a grand total of 10.000 jobs are created (Mooyman, 2015). However, there are some critical notes on the execution and the base points of the fund as well. One such critique is the lack of transparency of the fund; there is no information available with regards to which companies are in the process of applying for support from the fund, or what the results are of the investment (Somo, 2013). All development projects set up by Dutch NGOs have to show their progress according to International Aid

Transparency Standards (IATI). Projects funded by the Good Growth Fund do not have to show progress, which makes the fund very un-transparent (Somo, 2013). The question is moreover, whether the projects supported by the fund are really contributing to international development. Making it more transparent who applies for money and who does (not) receive funding, and thereafter give more insight into how the money is spent, will result in more transparency regarding the funds contribution to development (Knulst & Paul, 2015).

A second critical point is whether there is enough enthusiasm by Dutch SMEs to ask for support by the fund. Some sources state that there is an underutilization of the fund, which makes it relatively easy to use money from the fund for other expenses, such as the $\mathfrak{S}0$ million the Dutch minister has taken out of the fund to create more employment for African youth (Kroneman, 2015). Again, the funds lacks transparency.

Moreover, the standpoint from the fund is to incorporate sustainability in their development goals from the beginning. There are no sustainability requirements however, that should be met in order to receive money from the fund and there are no particular sustainability goals either. For example, sustainable sourcing and its possibilities to contribute to international development, is not mentioned by the fund at all. As Mooyman (2015) argues; it looks like the fund prefers to invest in the more classical projects in developing countries, such as the building of greenhouses, rather than reflect how the Dutch economy looks like, namely a service economy for the major part.

In all, the fund is presented with much enthusiasm, but needs improvement if contribution to sustainable- or international development is the main goal. In this chapter the context in which this research takes place is further elaborated on. In the first place the role of Tony's as a social enterprise, followed by an insight in the current structure, barriers and opportunities of the sugar industry concluded by an overview of the standpoint of the Dutch government on development cooperation.

CHAPTER FOUR: METHODS.

The aim of this research is to (1) create a framework to assess the sustainability of ingredients, and (2) to give advice on which production method of sugar is most sustainable and fits best within the aims of the company. The first part of this research, is to provide insight into how to operationalize sustainable sourcing and make it measureable. This chapter explains which methods were chosen and why. The chapter on analysing data will give more specific insight into which steps and sources were used to construct and fill in the framework.

With ten years of experience Tony's Chocolonely has set up an elaborate programme in order to ensure a sustainable supply of cocoa. However, the company understands the urgency of sustainable sourcing throughout their value chain. How this should be assessed and operationalized however, remains a question. Therefore, the company has asked for an assessment of how to source sustainably. Tony's Chocolonely is an interesting case for this study since they already have some goals towards sustainability, but this is not yet formalized through all ingredients and systems of the company yet. It can prove to be an example for companies with similar goals, or for companies to make the first step towards sustainable sourcing.

Sugar is the perfect case study to use for the sustainability framework because of the wide range of sugar use, and the importance of sugar in our daily diet. The impact of sourcing sugar in a sustainable way therefore, can have a significant impact. Moreover, the sugar industry is an interesting staring point because of the large scale of the sector and the large data availability. This makes it an excellent test case for this framework. If this framework proves to work with sugar, it can be applied to other agricultural products as well.

This research is an exploratory research; there are very few academically based framework constructed with sustainable sourcing as main objective. Therefore this research explores the possibilities and opportunities a framework can add to a practical sense of decision-making, as well as to a larger academic debate. The aim is to provide insights through the way data is structured; the majority of the data used in the framework is already available, but the analyses based on existing data often only focus on one particular part of the definition of sustainability, only on the export/production capacity of a country, or only at the conditions regarding child labour, instead of taking all those different elements into one coherent analysis. In all, the data is already there, but the data still should be compiled an analysed to give a coherent view of sustainable sourcing as a whole.
CREATING & FILLING IN A FRAMEWORK: DATA COLLECTING AND ANALYSIS

This paragraph will elaborate on the methods used for creating and filling in the framework. In some places the data derived from different methods complement each other, while sometimes data derived from the same or different methods serve a very different purpose.

To enhance methodological rigor, different research methods are used (Sumner & Tribe, 2008). These methods include interviews, secondary data analysis and literature reviews. Methodological rigor is not the only reason to use mixed methods; the combination of both qualitative and quantitative data is needed to give a complete picture of a complex reality. Quantitative data can be quite straightforward and unambiguous, but qualitative and narrative scenarios are a useful addition for the analysis of complex situations in which relevant information cannot completely be quantified (van Notten et al., 2003).

This study has used both primary and secondary data sources in creating and filling in the framework. The primary sources consist for example of experts from the field; either the sugar sector, the cocoa sector, or experts on frameworks. The information provided by these key informants serve as input for the creating the framework in the first place, but can, for a smaller part, serve a purpose of filling in the framework as well. The secondary sources are primarily used for filling in the framework, and for grounding this study in the existing body of theory on accountability, transparency, agribusiness and Fairtrade. In the upcoming two paragraphs the use of primary and secondary data sources will be further explained.

THE FRAMEWORK

The purpose of this framework is to be able to compare several sources of an agricultural product on a national level. This framework only gives a first overview and does not propose a cooperative in a country in particular. After this first assessment further research should be conducted to be able to make a choice for a regional or local production source. The objective of this framework is to make it usable for many different agricultural sectors. In order to make data comparable in one single sector, but also between different sectors, it is important use the same values for throughout the framework. Contributing to this goal, the same system of ranking is used for all indicators. This because it streamlines all possible answers, and makes it possible to compare production from different sources. Even though this means the indicators are subjected to an extra layer of value interpretation, it does create the possibility to compare the framework through different contexts.

The ranking is structured from 0 to 4, where 0 indicates the worst condition relating sustainability and 4 the best possible condition, sometimes relative to the other scores. In order to keep the framework easy to use, and to be able to indicate a middle ground, a range from 0 to 4 is chosen. Some indicators, for example the use of forced labour, is easy to scale from 0 to 4 (Forced labour occurs – forced labour dos not occur). For other indicators however, it is more difficult to scale them from 0 to 4; for example Greenhouse Gas emissions. For those indicators the rank is based on the highest, and the lowest possible scores, with steps equally divided between those two extremes

SECONDARY DATA SOURCES

Secondary data analysis has been used to get a greater understanding of existing sustainability frameworks, and serves as a base in order to continue where other frameworks have left off, and to identify the gaps in the data. According to Desai & Potter (2008) secondary data can offer a long-term context of a particular program of policy, which will lead to a better understanding of the historical context of interventions. In this case, examining previous frameworks can provide insight into the key elements of sustainability frameworks, and the different focus points each framework has chosen.

Secondary data analysis moreover, has consisted of studying several reports written by Tony's Chocolonely, commissioned by Tony's Chocolonely, studies on sustainability frameworks in general, and case studies using sustainability frameworks. From these different data sources, valuable lessons have been subtracted regarding how to compose a framework, and which indicators are crucial to measure sustainability.

DATABASES & VALUE CHAIN ANALYSES

Secondary literature study is not only used to get an insight in how frameworks work, but after the framework is constructed, secondary data analysis is also used to fill in the framework. Especially data derived from large national/international databases has been used to fill in the framework. Sustainability in the agro-food sector is a well-covered issue in the literature, especially in the form of local case studies and value chain analyses. Large databases, such as FAO Stat and dol.gov, have been a valuable source. Reports about the status of the sugar industry, Fairtrade sources and background of production are crucial to fill in the framework and compile a comprehensive picture. The data derived from those databases was filled in the framework, after which the corresponding score was given. The analysis of the data derived from those databases and analyses took place in the form of composing the score, and analysing the framework.

PRIMARY DATA SOURCES

Secondary data analysis is useful to get a general and broad picture of the situation, however, some more specific, first-hand information is a valuable addition, especially to get more context when constructing a framework. Understanding the dynamics of the researched sector, understanding the preferences of the client and learning from previous studies can be best achieved by the use of qualitative methods, with interviews in particular.

Data collection in the form of interviews has not formed the body of this research, but it has been the basis of creating the framework. Interviews, formal and informal, and daily conversations with professionals have been used to get a better understanding of the preferences of the company, dynamics of sustainability frameworks, and dynamics of agricultural sectors. Understanding the background of sustainability frameworks, and issues within a sector are crucial in understanding what should be included, and what should not be included in the framework.

People were interviewed based on their particular knowledge; this might be knowledge about the sugar sector, experience with sustainability frameworks from a practical or more scientific background, or because of their views on sustainability. Issues regarding their views of the sector, current practices, pressing sustainability issues, possible solutions to those issues and the future of the sector are covered in those interviews. In total five people were interviewed. Moreover, topics closely related to sustainability frameworks; what to look for, where to put focus, what are important pitfalls, and what are best practices etc. are discussed in more scientific interviews. With the information collected through the interviews, complemented with data collected through reports and case-studies, a consideration is made, which can lead to the advice for one certain way of production, or even a certain producer.

Data collected through interviews, literature study, case studies and secondary data analysis have been assembled and made quantifiable, in order to fill in the framework of indicators. The themes and issues derived from the interviews have been compared to the issues and themes found in the literature. Further elaboration on the issues and themes found and how they were used, will be discussed in the next chapter..

RISKS AND LIMITATIONS

A framework can give an structured insight into a complex matter; in this case sustainable sourcing in the agro-food sector. The risk however, is that an over-simplified picture of reality is presented. Especially when the framework covers large areas and broad topics, there is a high risk of overseeing complexities. However, this framework serves a purpose of giving a first, broad overview of the situation: it aims to create a starting point, not an end station. After the general picture of a production method in a country is clear, the next step would be to take a closer look to the local situation and give more attention to the local complexities, and make a choice within that local complexity.

A limitation regarding a the use of indicators is that sustainability views or preferences of the researcher and knowledge needs of the company will always be represented in the framework, and will have an influence on the outcome of the framework. The indicators selected for the framework, highly influence the outcome of the advice. It is therefore, important to make a well thought-through and informed decision concerning which indicators are used for which measurement, in order to be able to make transparent choices. By focusing on academic literature and reports before adding the company's preferences it is aimed to minimize company influence. I do acknowledge however, that involving the company in determining the indicators and level of measurement, can have an influence on the outcome of the framework, in particular when the company wants to achieve certain outcomes, or want to position themselves in a certain way. The company can choose to look at a particular scale level to ensure outcomes best fitting their purpose, or their reputation, while the framework is constructed as an open-minded assessment. However, if a user intends to misuse the framework, they can always find a way to do so.

VALIDITY

The external validity of this study is not particularly high since this study is specifically tailored for Tony's Chocolonely. However, the broader idea of making choices transparent, and specifically focus on sustainability, is useful for many companies and organisations in the agro-food sector in general as well. This framework still represents the general definition of sustainable development. Even though some choices were highlighted by Tony's Chocolonely, the scientific purpose has always been the first and major concern. Sustainability and accountability towards customers is increasingly important, and other actors may consider using a sustainability framework to make a choice with regards to sustainable sourcing. Furthermore, this study is rooted in a wider, critical debate on sustainability and transparency in the agro-food sector. This all adds to the validity of this framework, as well as this research as a whole.

This chapter up until now has given an overview of the aims and questions this research starts with; moreover, the methods used to create and fill in the framework are discussed, as well as the risks, limitations and validity of this study. Especially secondary data analysis and semi-structured interviews were used in the construction of the framework. Database analysis and secondary data analysis have been used to fill in the framework to make the different case-studies comparable. The remaining part of this chapter will give insight into how the framework was developed, including which steps and considerations were taken to do so.

ANALYSING DATA

FRAMEWORK DEVELOPMENT

There are many different frameworks who assess similar sustainability issues, such as the International Finance Corporation's sustainability framework which articulates the corporation's strategic commitment to sustainable development and risk management (International Finance Corporation, 2012), the FAOs Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food security, to promote secure tenure rights and equitable access to land, fisheries and forests as a means of eradicating hunger and poverty, supporting sustainable development and enhancing the environment (Munro-Faure & Palmer, 2012), or the UN's guiding principles for business and human rights (United Nations Human Rights, 2011). All these different frameworks and guidelines work within the scope of sustainability, however, they all have their specific focus point; land tenure, business principles or risk management.

The Guidelines on Sustainability Assessment of Food and Agriculture (SAFA), formulated by the FAO, provide an international reference for sustainable management, monitoring and reporting in food and agriculture at all levels of the supply chain. SAFA is not a sustainability index, nor a sustainability standard, nor a labelling tool. SAFA: in the first place it defines what sustainable food and agriculture systems are, including environmental integrity, economic resilience, social well-being and good governance; secondly it gives an outline of a procedure for an integrated analysis of all dimensions of sustainability, including the selection of appropriate indicators and rating of sustainability performance (i.e. best, good, moderate, limited or unacceptable); and it finally describes sustainability themes, subthemes and core indicators (Meybeck & Redfern, 2014). The SAFA framework is built especially for agricultural systems and can be used by producers, cooperatives, investors and business alike. The main advantage of the SAFA guidelines is their holistic point of view, and their specific focus on agricultural production. Because of those characteristics, the SAFA guidelines have been the inspiration for the Sustainable Sourcing framework for Tony's Chocolonely.

The guidelines designed by the FAO are the result of the joint efforts of practitioners from civil society and the private sector, and three years of participatory development (Scialabba & Nemes, 2013). The SAFA indicator framework aims to harmonize the requirements which underpin sustainable production, manufacturing and retailing of food and agriculture products worldwide. As the FAO describes, the framework does not aim to replace existing systems, but aims to set an

example to which such systems can be related (Scialabba & Nemes, 2013). This indicator framework by SAFA is designed for the use of producers, farmers and cooperatives making or growing agricultural products, and contains an extensive list of 188 indicators spread across themes related to environmental integrity, economic resilience, social well -being and good governance. Tony's Chocolonely focusses on the source of ingredients, rather than growing or producing agricultural produce. Therefore, the SAFA indicators are used as an inspiration, rather than as set indicators in the process of designing the sourcing framework for Tony's Chocolonely.

There are many existing frameworks covering some or all pillars of sustainability. The FAO designed a framework containing 118 indicators in four categories operationalizing sustainability, to assess how sustainable the practices of agricultural producers, cooperatives and retailers are. This framework serves as a blueprint for the creating of a framework to assess sustainable sourcing for Tony's Chocolonely. There are a few areas where the SAFA framework does not suffice, or is not directly applicable or useful for the purpose of this research. Therefore, adjustments have been made. This research can exemplify how the SAFA framework can be used on an even wider scale, making the step from producer cooperatives and enterprises, to value chain directors. The indicators selected for the Tony's Chocolonely Sustainable Sourcing framework will be discussed in the upcoming paragraph.

INDICATORS SELECTION

The 118 indicators formulated in the SAFA guidelines are used as a basis for the Tony's Chocolonely Sustainable Sourcing Framework. A selection from those indicators has been made to make a more comprehensive framework. Also, some indicators have been added to be able to get a complete picture of agricultural production. The next paragraph will give insight into how the indicators are selected.

The indicators derived from the SAFA indicators list are selected on the basis of scientific researchers from different backgrounds, scientific reports, and on the basis of preferences of the company, Tony's Chocolonely. With the SAFA framework as a blueprint, the chain director of Tony's Chocolonely (Arjen Boekhold) has selected several indicators (6) of crucial importance to the company, with a special focus on social sustainability. This was completed by, the most frequent used indicators to measure sustainability in three separate studies are taken into consideration for this framework as well. These studies were the study of (True Price, PwC, & Deloitte (2013) on the cocoa chain, the study of Kemps-Verhage on sustainable milk production (2012) and a research on global food systems and value chains (Schmitt et. Al, 2014). The data from these different sources has been used to indicate the importance of certain indicators per category; every indicator used in those three studies plus the

indicators mentioned by Tony's, and the most important indicators mentioned by SAFA has been scored. True Price used 13 indicators, just like Kemps Verhage (2012). The study by Schmitt et al., (2014) used 22 indicators and the 23 most important SAFA indicators who were scored. Which indicators these were, can be found in appendix A.

The indicators with the highest score – which means they were most often mentioned by the 5 studies/actors, made the short list. After this selection, several brainstorm sessions with Arjen Boekhold have led to the final selection of indicators. Important selection criteria were usefulness, availability of information and effective measurement. This has resulted in 19 indicators in total, divided among three categories; economic (7), environmental (5) and social sustainability (7).

Economic	Environmental	Social
Market price	GHG balance	Wage level
Export capacity	Water withdrawals	Forced labour
Import duties	Human induced soil	Child labour
	degradation	
Product quality	Wildlife friendly agriculture	Fair pricing
Premium	Energy consumption	Producer price
Traceability		Safety of workplace
Cooperative structure		Farm profitability

Table 1: selected indicators

Indicators who have not made the cut were for example indicators who measured sustainability on a very local level, such as concentration of water pollutants, waste disposal, and the availability of safety nets, the use of local workforce or the use of indigenous knowledge. Even though these indicators give interesting insights in sustainable production on different aspects of sustainability, they measure sustainability on a very local and detailed level, too detailed for the purpose of this study. They are interesting however to address in a further study where sustainability on a local, rather than national level is addressed.

The choice to focus on usefulness and data availability will have an influence on the outcome of this study. If there was not enough data to measure the indicator, I tried to find a different way to measure the indicator in order to still be able to include the indicator in the framework, in order to keep the holistic view on sustainability intact. On such example is 'Wildlife friendly agriculture'. Where

measuring the state of biodiversity or the influence of production on local biodiversity is important to include, it is difficult to find a measurement which can be easily used, and still covers the influence of production on local biodiversity. The FAO has divided biodiversity in ecosystem diversity, species diversity and genetic diversity, with indicators such as structural diversity of ecosystems and land use and land cover change, I aimed to include an indicator for each of the three categories, but had to choose different ways of measuring these. This has resulted in this framework in 'Wildlife friendly agriculture' and 'Human induced soil degradation'.

I do acknowledge that with this different approach to measure the same concept, results in a different outcome of the indicator. However, since it does give insight in the topic as a whole, the measurement may not be the same; it does give an important indication of the topic in the country as a whole. Therefore I believe the outcome of the score will not significantly change when using a different measurement of the indicator.

THE INDICATORS

To make this framework comprehensive and easy to use, the three pillars of sustainability; economic, environmental and social sustainability, are taken as a starting point. The crucial indicators from the fourth pillar defined by SAFA (Good governance) are included in one of the three categories as well. To keep the framework comprehensive it was chosen to not place them in a separate category.

The FAO added a fourth category of Good Governance. Good governance often lies on the basis of any sustainable development goal. Even though the importance of good governance is recognized, it is not included it in this framework. The most important indicator captured in the Good governance category by the FAO, namely traceability, is included in the framework, but because the goal of this framework is to keep it comprehensible and easy to use, there is not an extensive list of indicators measuring good governance included. Moreover, good governance is most interesting on a local or even cooperative level. Since this framework compares options on a national level, good governance is not included.

This paragraph will continue with elaborating on the different indicators chosen to measure the specific type of sustainability; what they measure, how they measure and what the importance is of this indicator.

ECONOMIC INDICATORS

Economic sustainability or economic resilience has long been the main indicator to measure progress and impact. In agricultural sustainability framework of the FAO, economic resilience is only related to the economic well-being of the farmer or cooperative producing the product (FAO 2013, ISEAL). However, in this context, it is not only important that the cooperative is economically healthy enough to deliver a constant supply of produce, for the receiving company, in this case Tony's Chocolonely, it is important as well that it is economically feasible to source the product from that cooperative. This means that the indicators in this category represent both the economic resilience of the cooperative as well as of Tony's Chocolonely. The seven indicators measuring economic sustainability will be discussed hereafter.

WORLD MARKET PRICE

"The price of a commodity when sold in a given market" is how the Oxford Dictionary² defines market price. The indicator of the market price compares the price of the product from that certain country and production method, to the average price on the world market, regardless its origin. The FAO does not include market price in their SAFA guidelines, since it is of little importance for the economic well-being of the producer on the long term. This framework however, takes a different standpoint; since economic sustainability is set up to create a financially healthy company, a price below the average world market price is more desirable than a price higher than the world market price. This is only the case for the traders, not for the farmers. For the farmers a higher price is more desirable.

The world market price is taken as a baseline, and the actual prices for the product from the specific origin are related to this baseline. The numbers have shown that prices for sugar range between plus and minus 25% of the market price; therefore, this range is reflected in the assignment of the scores. A score of 4 is given when the specific sugar price is more than 25 percent below the world market price, a 3 when it is 10-25% less than the world market price, a score of 2 when it is 10% more or less than the world market price, a score of 1 when the price ranges between 10 and 25% more than the world market price.

² http://www.oxforddictionaries.com/definition/english/market-price - accessed on 20-04-2015

This indicator seems to be counterintuitive; if the market price is low, the farmer will earn less money from the crop, but this is preferred for the importing country; for them it is more economically sustainable to be able to source a cheap product. Therefore it is important to see this indicator from a worldwide perspective; what is most sustainable on a world-market level. This framework however, aims to cover the value chain as whole, concerning both producers down the value chain, and the company importing the goods higher up in the value chain.

The perspective of the farmer is included later in the framework, in the indicator of farm profitability and producer price.

EXPORT CAPACITY

In the SAFA guidelines an indicator called 'Guarantee of production levels' has been included, which is operationalized as the mechanisms that the enterprise has put in place to ensure that the quantity and quality of the production is sufficiently resilient to withstand environmental, social and economic shocks (FAO, 2013:76). To make this indicator more measureable however, a different standpoint is taken. The indicator describes export capacity by measuring the share of export of the produce in relation to the total export of the country. The larger the share, the greater the chance that sourcing the product is possible at all times. Even though a full reliance on one export product is not desirable either, the numbers show that share of sugar export nationwide never goes far beyond 0,001%, and thus not creating a too large dependency.

The scores given in the framework are based on the total export of the country in relation to the total sugar export³. A larger share results in a higher score in the framework. The numbers, corresponding with the scores of the framework are based on the largest and the smallest share of export, with equal steps in between. With 0,00001% as the smallest share, therefore receiving the lowest score (0), and a share of bigger than 0,001, receiving the highest score (4). All shares in between are equally spread across the remaining 3 scores.

³ If this framework were to be used in a different context, the values of the scores would bet set according to those new values.

For this indicator a higher export capacity is preferred over a very diverse economic structure. This goes both ways; on the one hand it is positive when you are able to secure a safe supply of produce over the year, but on the other hand, on a wider economic scale it is not very sustainable if a country is dependent on only one agricultural crop. Since none of the researched countries had an extremely large dependency on one agricultural product, it was chosen to put the importance of year-round supply, over the importance of crop diversification.

COOPERATIVE STRUCTURE

If a long-term and meaningful relationship is to be established with a cooperative producing the required amount of produce, it is desirable to work with effective and strong cooperatives, who are able to invest in their own organizational structure as well as in its farmers (FAO 2013, 164). The potential that the cooperative is able to deliver the required quality and quantity of the product on the long term is measured by looking at its current financial position. There are many different cooperatives active in each country; therefore the score is based upon the one or two largest cooperatives of the corresponding sector, and the information about their financial position.

The indicators in this framework are measured on a national level. However, in a few exceptional cases the indicator is measured on a cooperative level. The largest cooperative for the particular production method in the country is taken and assessed on a broad level. This indicator for example, does not look at national level, but at cooperative level. A cooperative with a healthy or strong financial position offers more potential for a strong partnership over the long-term than a weak financial position, and therefore receives a higher score. A cooperative is labelled 'financially healthy' when it is functioning well, and able to invest in its own organization as well as in their farmers. This data is derived from year reports and articles written by watchdogs indicating the position of the cooperative. The better the cooperative functions, the higher the score.

IMPORT DUTIES

For the business importing goods from oversees the feasibility to import from a certain location depends on whether or not they have to pay import duties, and how high those tariffs are. Import duties can have a significant influence on the economic sustainability of a product, especially since ACP (Asia, Caribbean, and Pacific) countries do not have to pay import duties into the European Union, where for non-ACP countries high import duties have to be paid.

The import tariffs are different for every product, and depend on the originating country. The import duties per commodity and per origin can be found in data of the European Commission (www.ec.europa.eu). A score of 4 is given when no import duties have to be paid, a score of 2 when the base line has to be paid for import, and a score of 0 if a particularly high import tariff has to be paid.

TRACEABILITY SYSTEM

One of the main key points of Tony's Chocolonely is the ability to fully trace back the ingredients used in their chocolate bars. This indicator measures whether it is possible to trace the ingredient back to the farm where it is produced. As the FAO describes; 'a traceability system is a series of mechanisms and procedures that ensures traceability over all stages in the food chain, so that products can be easily and correctly identified and recalled' (FAO 2013, p. 206). A distinction is made between mass balance, and actual segregation traceability. Segregation means that the products are not mixed with products originating from other farms, and therefore can be traced back to the specific farmer who produced the product (Fairtrade International, 2011).

Being able to fully trace the produce back to the farm where it was produced, gives you the opportunity to control the quality of the produce, as well as support producing farmers. Therefore, this will receive the highest score (4). The option of mass balance is partly traceable, and therefore receives the middle score (2), while not being able to trace the produce back at all, receives a 0. In the case of this indicator a ranking on a 3-points-scale is chosen since there are no options between segregation – mass balance – or non-traceability possible.

PRODUCT QUALITY

This indicator shows the quality certifications the method of production has received, indicating an independent assessment of quality. The product quality and the label of the product indicating the quality are crucial regarding transparent accountability towards consumers (FAO 2013, p. 204). Nowadays there are many different labels to indicate a certain quality. It is important for the product to have a label since 'it usually provides details on the content and composition of the products but also particular aspect of the product, such as its origin, or production method, including whether it has been produced using a certified organic production or other method' (FAO 2013, p. 204).

No quality label receives the lowest score, since it shows the production method has not put extra effort in certifying their production. When a producer runs an independent, not internationally

recognized quality label, a score of 1 is assigned. Even though this own label might indicate a very good sustainability score, since there are different certification labels, own standards etc. which are not independently measured, it is impossible to know where those independent labels stand. But, because steps towards quality measurement are made, it does receive a score of 1. ISO certification receives a score of 2, since ISO certification has an enormous range, which can vary between CSR to quality management. This score of 2 will only be assigned if the ISO score is related to, or relevant towards, sustainable production. The highest score of 4 is given to a certified Fair Trade and organic label because that indicates it is measured by two different independent certification bodies, assuring the highest quality. A score of 3 is given if either one of those certification labels are given to the product.

(FAIR TRADE) PREMIUM

Associated with product quality and the corresponding label, a premium can be paid to farmers in some occasions (FAO 2013, p. 204). A premium is important for farmers and their cooperatives, because it enables them to invest in their farm and cooperative, and by doings so are being able to increase their own, and their family's livelihoods (Fairtrade International, 2015). Fairtrade International is the most well-known certification body who rewards the farmers operating with good practices with a premium added to the market price.

If the cooperative pays a premium to its farmers for their good work, and thereby stimulate good practices, a higher score will be received, than when a cooperative does not pay their farmers any premium (0). The base line for premiums is the premium Fairtrade International pays for Fairtrade produce, and scores a 2. Other, less known organizations might reward farmers who support good practises as well; those production systems will get a score related to the amount of premium they receive in relation to the baseline premium given by Fairtrade international. A premium 0 to 10% higher than the standard Fairtrade premium will result in a score of 3, and a premium more than 10% higher than the base line, will receive a score of 4.

ENVIRONMENTAL INDICATORS

GREEN HOUSE GAS EMISSION

In the case of environmental indicators the emissions to air are measured in the form of Greenhouse Gas (GHG) balance. Greenhouse Gases consist of CO_2 , N_2O and CH_4 , and the GHG emission refers to the amount of these gases emitted through the growing and processing of the sugar on site. Different production methods emit different amounts of Greenhouse gases to the air, measured in kg gas per kg sugar produced (FAO 2013: 55).

Data on GHG emissions are derived from studies on the Life Cycle Analysis of the sugar from the desired country. The scale of this indicator is based on the data found on GHG emission. A low emission level is most desirable, since it corresponds with limited air pollution, and therefore receives with a score of 4, while high emission levels (more than 650 kg gas per kg sugar) receive a score of 0. The data showed that emission levels far below 200 kg gas per kg sugar, or far above 650 kg gas per kg sugar did not occur; therefore an equal distribution is made between those values.

ENERGY CONSUMPTION

Because an individual farmer does not use a significant amount of energy, and because it is very hard to measure this energy consumption, energy consumption in this framework is measured by looking at the amount of energy used in transport. A distinction is made between the different modes of transport in order to determine how much CO_2 is emitted from place of production to the factory of usage.

To measure energy consumption, the following standards are used⁴: Truck = 50 g CO₂/ km Plane = 540 g CO₂/ km Boat = 21 g CO₂/ km

By making use of the website www.searates.com, the distance from the production area to the area of use is given, specified the distance by road or sea. These distances are multiplied by the amount of CO_2 emitted per kilometre by the mode of transport. The more CO_2 emitted, the higher the given score in the framework. The numbers relating to the assigned scores are distributed on the basis of an equal division between the highest and the lowest emission outcomes (less than 6000 kg CO_2 emitted, and more than 250.000 kg CO_2 emitted). This division represents and equal distribution of scores.

WATER WITHDRAWALS

The amount of water used in agricultural practices is becoming increasingly problematic, especially in regions where water scarcity is already a growing problem, and water use for agricultural purposes has to compete with water to generate energy or for daily consumption.

In this indicator framework the Water Footprint (<u>www.waterfootprint.org</u>) is used as an indicator to measure water withdrawals. The water footprint subdivides water use in the form of green, blue and grey water. The green water footprint is the volume of rainwater consumed during the production

⁴ http://www.searates.com/reference/portdistance/ - accessed on 20-05-2015

process. The green water footprint refers to the total rainwater evapotranspiration (from fields and plantations) plus the water incorporated into the harvested crop. Blue water contains the water used for production originating from freshwater lakes, rivers and aquifers. It includes water abstracted from surface or groundwater in a catchment and returned to another catchment or the sea. Finally the grey water footprint includes the amount freshwater pollution that can be associated with the production of a product over its full supply chain. It is defined as the volume of freshwater that is required to assimilate the load of pollutants based on natural background concentrations and existing ambient water quality standards.

In the case of sustainable water use, the amount of grey and blue water used is most important, because green water represents the natural precipitation, and the blue and grey water indicate how much additional water is used, and how much is polluted in the process. Therefore, most attention will be paid to blue and grey water footprints. The scores are calculated by using the database of waterfootprint.org (which can be found in appendix B). To determine the score the share of blue and grey water of the water footprint as a whole are measured. The outcome showed that the percentages are spread between 0 and 20%, therefore, the scores are equally divided between those percentages.

A score of 4 is given when less than 1% of the water used in the process of sugar cultivation is grey and blue, a score of 3 when 1 to 6% is grey and blue and a score of 2 when the share of blue and grey is 7-13% of the total. Finally a score of 1 is given for a share of 13-20% and a 0 when the share of blue and grey water is more than 20% of the total water use.

HUMAN INDUCED SOIL DEGRADATION

Soil degradation is defined as the loss of organic matter, decline in soil fertility, decline in structural condition, erosion, adverse changes in salinity, acidity or alkalinity, and the effects of toxic chemicals, pollutants or excessive flooding (Charman & Murphy, 2007), and is a growing problem.

Soil degradation has many causes but the core of the problems often lies in human behaviour. This indicator looks at human induced soil degradation in particular, based on a map made by the Global Assessment of Human-induced Soil Degradation (GLASOD) project. This map specifies the level of soil degradation on a regional level. In the ideal situation production does not take place in a much degraded area, and would therefore receive the maximum score of 4. If production takes place in a very high degraded area, the score will be 0. This map can be found in appendix C.

Important to note regarding this indicator is that even though a certain cooperative or group of farmers is able to do good work in an area that is labelled with 'very high human induced soil degradation', it automatically receives a low score. However, this level of assessment is not able to look at specific cooperatives or farmers in a certain area, but looks at the area of production in general. After the level of assessment used in this framework, it would be interesting to take a closer look at a local context and the cooperatives operating there.

WILDLIFE FRIENDLY AGRICULTURE

Agricultural production should not take place at the expense of local biodiversity. Methods of production, and chemicals used can have a great impact on the biodiversity of the area. This indicator assesses whether agricultural practices are sensitive to the occurring wildlife. This indicator serves to determine how agricultural practices have influenced wildlife in the area of production.

Five questions can be asked in order to assess the diversity and abundance of key species related to the production of sugar cane/beet in a certain area (Cheesman, 2004). Those five questions have been translated to general questions:

- Is production taking place in marginal areas?
- Are agrochemicals used in producing the product?
- Are un-improved irrigation systems used?
- Are fields burned after harvest?
- Are fields cleared before cultivation?

The amount of times the answer on the question is 'yes' lowers the score. So a perfect score of 4 does not make use of any of those practices.

Wildlife and biodiversity are important themes to add in the framework. However, there are many different ways of measuring biodiversity, and the (un-hoped for) loss of biodiversity. The way the indicator is formulated in this framework, in the form of wildlife friendly agriculture, only gives a limited overview of the state of biodiversity in the region. Further research on biodiversity therefore, would be recommended.

SOCIAL INDICATORS

WAGE LEVEL

A 'wage' can be specified in many different concepts; most common is the minimum wage, set by the government of some countries. However, this amount of wage is often not enough for a worker to live a decent life. Therefore, the 'living wage' standard was introduced. The FAO defines the concept as follows: "A living wage is the amount paid to employees or earned by an individual within a standard work-week (that does not include over-time or exceed normal working hours) that meets basic needs for subsistence, including nutrition, clothing, health care, education, potable water, child care, transportation, housing, and energy, plus savings (FAO 2013: 223). It is important to note however, that living wage is not yet widely implemented yet and is often difficult to measure. This indicator measures the wage level of a worker specifically in the sugar sector.

It is important to make a distinction between the poverty line (0), minimum wage (1) and the actual living wage (3) per country. A score of 2 is received when a wage worker earns more than the standard minimum wage, but less than the living wage of the country, and a score of 4 is given when the workers earn more than the standard living wage.

Important to note here, is that the numbers in the framework are the official numbers as provided by corresponding governments, and thus can be higher than the actual wage workers earn in a day. The ultimate objective of the ILO committee of experts is to set a minimum wage, so that a guarantee can be given that the minimum wage is able to provide a satisfactory standard of living to the workers and their families.

FORCED LABOUR

While legal slavery has been abolished in the countries where it has been practiced historically, it still exists in many surreptitious and hidden forms. Employers, or their hired labour contractors, or crew leaders, keep workers' passports or other documents, thus preventing them from leaving or protesting against work and living conditions they might find abhorrent. As the FAO writes, 'Workers take positions in foreign countries only to discover that the wages or living conditions are not what they were promised; often, they find themselves stranded without the means necessary to switch to another job, or to return home' (FAO 2013, 236). Unfortunately, there are all too many variations on this practice in workplaces around the world. An enterprise with goals towards sustainability should ensure that no forced labour is part of their supply chain, according to the FAO (2013).

The US Department of Labor closely monitors the state of child – and forced labour worldwide. Their database specifies whether forced labour occurs in a country within a sector. There are only 3 scores to be achieved for this indicator; a 4 when there is a guarantee no forced labour occurs, a score of 2 when the problem is acknowledged and actions against it are in place, and a score of 0 when forced labour still occurs and no action against forced labour is taken. Data for this indicator is based on the data from the Department of Labor (www.dol.gov).

CHILD LABOUR

Child labour refers to work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. Whether child labourers work on their parents' farms, are hired to work on the farms or plantations of others, or accompany their migrant farm-worker parents, the hazards and levels of risk they face can be worse than those for adult workers. Whether or not particular forms of "work" can be called "child labour" depends on the child's age, the type and hours of work performed, the conditions under which it is performed and the objectives pursued by individual countries. The answer varies from country to country, as well as among sectors within countries (ILO convention 182). Not all work done by children should be classified as child labour that is to be targeted for elimination. Children or adolescents' participation in work that does not affect their health and personal development, or interfere with their schooling, is generally regarded as being something positive. These kinds of activities contribute to children's development and to the welfare of their families; they provide them with skills and experience, and help to prepare them to be productive members of society during their adult life (SAFA 2014).

The ILO works with the following definition of child labour: 'work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It refers to work that is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work.

The worst forms of child labour occur when children are being enslaved, separated from their families, exposed to serious hazards and illnesses and/or left to fend for themselves on the streets of large cities – often at a very early age (ILO 2015). Tony's Chocolonely takes child labour very seriously; therefore this indicator is of crucial importance. A score of 1 is given when the worst forms of child labour occur, while a score of 4 is given when there are no children under 14 working permanently on the farm. This data can again be derived from the US department of labour.

FAIR PRICING

Because of the weak position of power many farmers have it is often difficult to receive a good price for their produce (Geling, 2014). Traders determine the price, and the farmers have little power to negotiate this price. In an ideal situation however, the price for the products is the result of a negotiation between farmer and trader. Farmers should be able to get a price that not only covers the direct costs of production, but also is enough to provide for their own, and their family's livelihoods (FAO 2013: 229).

Fair pricing is possible when buyers agree to negotiate with their suppliers on terms of equality before establishing contracts, whether written or verbal that set the terms of trade. When bargaining in good faith occurs, all parties agree to transparency, to share financial records when requested, and to share information about existing markets (FAO 2013: 229).

Best case scenario is when the price of the produce and the contracts between farmer and buyer are set after a negotiation between the farmer and the buyer. When this is the case, a score of 4 is given. The less influence the farmer has on the price of his own produce, the lower the score. A score of 2 is given when buyers set the price, but producers do have some room to negotiate, but the price still does not cover the costs of production. A score of 0 is given when the buyer sets the prices and determines the contracts as a whole.

SAFETY OF WORKPLACE

Employers are responsible for providing a safe and healthy workplace for all personnel and employees. Not only the workplace facilities should be clean and safe, the equipment used on the facility moreover, has to be safe as well. As the SAFA guidelines continue, the enterprise (farmer of cooperative) should monitor the health of employees who are exposed to toxic, radioactive or Nano materials, as well as excessive noise (FAO 2013: 252).

It is however, quite difficult to measure the safety of workplaces on the several farms or cooperatives worldwide. Therefore, to measure safety of workplace, the existence of safety measures, formulated by cooperatives or farmers, is used to measure this indicator. This indicator again only has 3 steps to indicate the score. When a farm or cooperative has formally formulated safety measures this earns the highest score (4), while not having any safety measures at all, formal or informal, receives the lowest score (0) A score of 2 is given when safety measures are formulated, however informal.

PRODUCER PRICE

The OECD defines the producer price as: "The average price or unit value received by farmers in the domestic market for a specific agricultural commodity produced within a specific 12-month period. This price is measured at the farm gate and therefore does not incorporate the costs of transport and processing" (OECD 2015). The price of the agricultural product sold on the world market however, is not the price the individual farmer gets for a tonne of produce.

The difference between the producer price and the price on the world market is what the middlemen get for each of their transactions. The producer price is the price paid to the farmer at the farm gate, and should be enough to cover his costs, and earn him a decent income. A farmer does not earn a wage, like a labourer does, but is completely dependent on the price they receive for their product by a middleman. With this money the costs of production have to be covered, and should still be enough to provide an income for the farmer and his family (FAO 2013, 174). With a three-point scale, a score of 4 is given when the producer price easily covers cost of production, a score of 2 if the producer price just about covers cost of production and a score of 0 when the producer price does not cover the cost of production.

FARM PROFITABILITY

A recent report in the cocoa sector indicated that even though small-scale farmers can improve their cocoa productivity, which will increase their income, if they really want to earn a decent wage, their farms should significantly increase in size. For a farm to be productive, farmers should have a double amount of hectares of land as they have right now (Fountain, A.C. and Hütz-Adams, 2015). This issue is not only apparent in the cocoa sector, but in many agricultural sectors in general as well.

Because the amount of land needed to provide for a decent income is different per country, the most important question asked regarding this indicator is: 'Can the farmer live off his land with his current amount of farmland?' This is measured by multiplying the average farm size, the average yield and the producer price. This will give an insight into how much a farmer will roughly earn, and whether this would be enough to support himself and his family. The outcome of this calculation is how much a farmer would roughly earn on a yearly basis. This is compared to the national Gross National Income (GNI) per capita of the country, which is derived from the World Bank database. GNI per capita is based on purchasing power parity (PPP) which describes what people in a country can buy for one dollar. GNI is the sum of value added by all resident producers plus ay product taxes not included in the valuation of output plus net receipts of primary income from abroad (World Bank 2015). GNI is a

useful indicator to use as a base line since it shows whether the agricultural earnings of a farmer are enough to earn a decent wage.

If the farmers earn more of less the same amount as the GNI per capita, this will result in a score of 2. If the farmer earns more than the national GNI, this means that he/she has enough hectares of land and/or enough yield and/or a high enough producer price. If this is more than 25% higher than national GNI, this will be rewarded with a score of 4, while if the farmer earns less than 75% of national GNI, this will result in a score of 0. This then means that the farmer does not have enough hectare of land, and/or receives too little for his product, and/or has a too low yield to successfully provide a living for his/her family. The numbers have shown that no farmer earns far more than 25% or far less than 25% of the national GNI, therefore this division is made.

This framework works on a country level analysis, so even though it seems that this indicator is based on a far-fetch calculation, the indicator is able to give more insight into the relation between how large the farm is of a farmer in general, and whether a farmer is able to earn a decent income from his land.

USED DATA & FILLING IN THE FRAMEWORK

After all indicators were selected and made measurable, the next step comprised of finding data to fill in the framework. For some indicators data was readily available, and easy to use. This indicators included export capacity, Fairtrade premium or water withdrawals. While data for other indicators, such as Greenhouse gas balance or cooperative structure is less straightforward. Government sources, such as the American Labor Department, FAO statistics or statistics from the World Bank are seen as reliable and easy-to-use sources, while other indicators need some triangulation to get a reliable score. Those are for example safety of workplace, Greenhouse gas balance or world market price.

The first step when starting to fill in the framework is to find reliable databases, literature or basepoints from which the information is directly useable. Databases or websites are able to give clear and objective information, such as the sea rates (searates.com), producer price (FAO stat) or import duties (European Commission), but are not available for all indicators.

Even though these databases are widely used and highly recommended, even this data might need to be triangulated in some cases, when data does not seem to be in line with already found data. An example is the producer price in the case of Mauritius. The data was found on FAO statistics website, but did not seem in line with the producer price found for the other four countries. After a secondary search it was concluded that the FAO statistic most probably made a typing error, which made the data much more in line with the other four countries.

Unfortunately not all data needed for the framework is readily available through a database, figure or website. Data for some indicators can only be found after an extensive literature review, or through the analysis of secondary literature sources. Data on indicators such as average area cultivated, Greenhouse gas balance, cooperative structure or fair pricing and wage level of workers on the farm were found through extensive literature research, and was triangulated before use. Academic articles or reports written by NGOs or other organizations are most reliable when data is concerned. Other sources, such as company data, or reports commissioned by sugar companies are less reliable since they might give a coloured picture of the situation. To even out those imbalances, triangulation is needed.

In a few cases there was no data available for a certain indicator, even after extensive literature research. In this case, it is preferred to make an educated guess (if possible) rather than leave the indicator blank. Making an educated guess was only needed in the case of the export capacity of organic sugar beet from Germany, because there is very little detailed information about the production on organic sugar beet available, especially when production capacity is concerned.

An added difficulty in some cases is to find information specifically focused on Fairtrade production, organic production or even both. In general more information is available about conventional sugar production. In order to get the right information on Fairtrade or organic sugar beet/cane, you need to combine data, interpret data or choose to use the generic data instead. This is a recognized limitation.

Table 2 gives an overview of the main sources used for filling in data for specific indicators. This list does not include all indicators. The data of the indicators not mentioned in the table was not available in the form of a database or standard measurement. Secondary literature research was used to find data for these indicators, and consisted of varying sources.

Table 2: Final indicators and data used

Export capacity	http://faostat3.fao.org/home/E					
Import duties	http://ec.europa.eu/taxation_customs/dds2/taric/measures.jsp?Lang=nl &SimDate=20150401&Area=PY&Taric=170000000&LangDescr=nl					
Fairtrade Premium	http://www.fairtrade.net/price-and-premium-info.html					
GHG Balance	kg GHG / tonne sugar > LCA scholar.google.com					
Energy consumption	https://www.searates.com/reference/portdistance/					
Water withdrawals	Appendix B					
Wildlife friendly agriculture	5 questions					
Human induced soil degradation	Appendix C					
Producer price	USD/tonne > FAO stat					
Forced labour	http://www.dol.gov/ilab/reports/child-labor/list-of-goods/					
Child labour	http://www.dol.gov/ilab/reports/child-labor/list-of-goods/					
Average area cultivated:	ha / farmer > FAO stat					
	yield: tonne/ha > FAO stat					
	GNI per capita >					
	http://data.worldbank.org/indicator/NY.GDP.PCAP.CD					

As mentioned previously; the indicators defined by SAFA were taken as a blueprint. This means that the description of some indicators is derived from the FAO; however, the way of measuring these indicators might be inspired from the way the FAO measured the indicator, but is not a direct copy of their measurement. This because in some cases this framework is interested in a slightly different perspective on sustainability in relation to the indicators defined by SAFA. Still the SAFA are taken as a starting point for some indicators, but it is not a 1 on 1 copy.

COUNTRY SELECTION

In order to show the workings of this framework, sugar is used as a case study. For this case study five sugar producing countries are selected, and each of those countries has their own specific method of producing the sugar, ranging from conventional to Fairtrade organic. It is Tony's Chocolonely's mission to show that sustainable production and sourcing is possible in mainstream markets, and should take place in mainstream markets to achieve the most significant change. Therefore, all producers assessed in the framework should produce for a mainstream market. This may have the

consequence however, that the most sustainable option worldwide is not included in the framework, because it only produces for a niche market. The following paragraph describes which countries are assessed in the framework. The considerations for each country will be discussed hereafter.

In the first place sugarcane from Brazil, the largest exporter of sugar cane worldwide, is included in the analysis because of its large share on the market. Sugar beet originating from within the European Union, with the Netherlands in particular are included as well because of its large export capacity, but coming from a local source, as opposed to Brazil. The comparison between sugar beet and sugar cane is interesting as well, because of its different production methods as well as the different climatic regions of production. The next options analysed is the Fairtrade and organic sugarcane from Paraguay. This sugar is often labelled as the most sustainable sugar in the world, and with a Fair Trade-organic label this production method should be taken into consideration. Another large exporter of Fairtrade sugarcane is Mauritius. Produced on a different continent and with a less elaborate sustainability label, but still Fair Trade, this production method is a meaningful addition to the sugarcane from Paraguay and Brazil. The final option is organic sugar beet from within the European Union (Germany).

With those five options I aim to cover the full range of possible sources of sugar, with an interesting mix between local and international sources, and fairly produced and conventional options.

This chapter gave a step-by-step overview of the considerations kept into mind while constructing this sustainable sourcing framework. Including the selection of indicators, finding right measurements for the indicators and finding appropriate data for filling in the framework. The following chapter describes what happens next: how the eventual scores are calculated and which steps are taken to arrive at this number.

CHAPTER FIVE: SENSITIVITY ANALYSIS. SCALE & WEIGHING

The 19 indicators discussed in the previous chapter are all measured on a five points-scale, ranging from 0 to 4. The choice to work with five steps is to be able to indicate a middle ground; progress is being made, but can still use improvement (2). A score of 4 is given to indicate an (almost) perfect state with regards to sustainability, and 0 to indicate a very poor state where a lot of improvement is still needed. And a score of 3 or 1 to indicate a score between the middle and the best/worst score. A more specific definition of each score per indicator can be found in appendix D.

WEIGHTED AVERAGE

The score per country is calculated by using a weighted average. This means the indicators in the environmental category are weighed heavier than the indicators in the other two categories, since the category contains fewer indicators. Even though this means individual indicators in this category have a larger weight than in the other two categories. If however, there is one certain aspect of sustainability that is of greater importance, than the other two, it is useful to see what happens if one of the three categories is weighed heavier than the other two. The result of this extra weight will be presented in the sensitivity analysis.

Table 3: calculation of scores

	Economic	Environmental	Social
	Market price	GHG balance	Wage level
	Export capacity	Water withdrawals	Forced labour
	Import duties	Human induced soil degradation	Child labour
	Product quality	Wildlife friendly agriculture	Fair pricing
	Premium	Energy consumption	Producer price
	Traceability		Safety of workplace
	Cooperative structure		Farm profitability
Total	Total x 0.833*	Total x 1	Total x 0.883

* 5/7 = 0,833 Economic & social category - 5/5 = 1 Environmental category

Total Ec + *total Env* + *total Soc*

SENSITIVITY ANALYSIS

Even though in theory all three of the categories are equally important, to be able to show the influence of one of the three individual categories on the framework as a whole, other weighing scenarios are used next to weighing all categories equally. This is called a sensitivity analysis, and shows the influence of putting extra weight on one of the indicators.

This sensitivity analysis examines several possible combinations of weighing scores, and shows what happens to the total score of the end score of the country. All combinations for the weighing coefficient add up to 100%. Table 4 shows an overview of the proportion used as input for the sensitivity analysis. Since there are an infinite amount of possibilities regarding the proportion of weighing of 3 categories, I have chosen to keep the possibilities orderly. The possible combinations of proportions are taken with steps of 10, with a few exceptions, where steps of 5 are taken.

33	33	33
40	30	30
40	50	10
40	40	20
50	25	25
50	30	20
60	20	20
60	30	10
70	15	15
70	10	20
80	10	10
90	5	5

Table 4: WEIGHTING coefficients

All possible combinations for these coefficients for the three categories are used to do the sensitivity analysis. Since there are an infinite amount of possibilities regarding the proportion of weighing of 3 categories, it is chosen to represent a limited amount of possible combinations. The possible combinations of proportions are taken with steps of 10, with a few exceptions, where steps of 5 are taken. All possible combinations of the proportions within the three categories are used in the analysis. The calculations of the sensitivity analysis can be found in appendix E.

CHAPTER SIX: RESULTS

This chapter describes the results of applying the framework on sugar production in five different countries. The scores for each indicator and how these results make up the eventual scores are displayed and explained just like the indicator scores.



Figure 1: Overview Scores

The above figure shows the distribution of scores and how they make up for the total score. In the first place it becomes visible that even though the distribution of economic scores is different for each of the five countries, the total score is the same for four out of five countries, as table 5 shows. While the total scores for the environmental category differ most per country. Mauritius scores highest for economic and environmental indicators, but is overtaken by Germany in the social category. Brazil receives the lowest scores for all three categories.

WEIGHTED AVERAGE.

The previous chapter explained how scores were calculated. This paragraph will give insight into the numbers and their meaning. The figure shows that sugarcane from Mauritius is the most sustainable choice, closely followed by sugar beet from Germany. Brazil scores lowest overall and sugar from Paraguay and the Netherlands are somewhat in between. Mauritius shows a peak on environmental sustainability, Brazil a low point on environmental sustainability, and Germany a peak on social sustainability.

	Brazil	Netherlands	Paraguay	Mauritius	Germany
World market price	4	3	0	2	1
Export capacity	4	1	1	3	0
Cooperative structure	4	4	2	0	4
Import duties	2	4	2	4	4
Traceability	2	2	4	4	4
Product quality	0	2	4	3	3
Fairtrade premium	0	0	3	2	0
Total	16	16	16	18	16

Table 5: scores economic indicators

Table 6: scores environmental indicators

	Brazil	Netherlands	Paraguay	Mauritius	Germany
GHG balance	1	0	2	4	0
Energy consumption	1	4	0	0	4
Water withdrawals	2	0	1	3	0
Diversity and abundance	1	3	4	4	4
of key species					
Human induced soil	1	1	1	3	2
degradation					
Total	6	8	8	14	10

Table 7: Scores social indicators

	Brazil	Netherlands	Paraguay	Mauritius	Germany
Wage level workers on	3	2	3	3	2
farm					
Forced labour	0	4	2	4	4
Child labour	4	4	4	4	4
Fair pricing	1	4	4	1	4
Safety of workplace	2	4	4	4	4
Producer price	0	4	2	2	4
Farm profitability	4	0	2	0	3
Total	14	22	21	18	25

The three tables above show the scores given for each indicator and for each country. The following paragraph will discuss the scores for each country in detail, and elaborate on the calculated scores as a result of the given scores.

COUNTRY SCORES IN DETAIL.



Figure 2: Scores Brazil

The overall score of Brazilian sugarcane is the lowest of all five options with only a 1.42 – not even reaching middle ground. The environmental category scores particularly low, while the economic category scores similar to the other countries. Brazil scores a 1 for all indicators in the environmental category, with an exception for water withdrawals, where it scores a 2. Brazil has the best scores in the economic category, where the scores are generally high, a score of 3 or 4, with only low scores on product quality (0), and premium (0), since it has not particular quality labels or certifications, and does not pay any premium to its farmers.

According to the American government, forced labour still occurs in Brazil, and therefore receives a score of 0, contributing to the social indicators. Moreover, in the social category Brazil receives low scores for producer price and fair pricing. This while the wage of workers on the farm is quite good (3), as well as farm profitability (4), and child labour (4).





Sugar beet from the Netherlands ranks third overall, and scores very good on the social part. However, because of low scores for environmental indicators, it does not achieve an average score above 2 points (1.85). For the economic indicators low scores are achieved for the premium paid to farmers (none), and because of the low export capacity. High scores (4) are achieved for a good cooperative structure, and low import duties (none).

On the environmental indicators sugar beet from the EU scores very low, only 1.60. This because the production has a high GHG balance, has high water withdrawals, and operates in regions with high human induced soil degradation. The scores on energy consumption and diversity of key species however, are good (4 and 3 respectively). As the graph already shows, sugar beet scores very high on the social indicators. All indicators receive scores of 4, with the exception for farm size (0), and wage level of workers on the farm (2). Which means the amount of farm land a farmer grows its sugar beet on, is too small to earn a decent living from.



Figure 4: Scores Paraguay

Fairtrade Organic sugarcane from Paraguay is labelled as the most sustainable option for sugar by among others, Oxfam International. However, in this framework Paraguay does not score very high on the sustainability indicators. This is mainly because of low scores on environmental and economic indicators. Regarding the economic indicators, the sugar has a high price on the world market, and therefore receives a low score. Moreover, it scores low on export capacity. High scores however, are achieved for traceability, product quality with a Fairtrade and organic label, and with a high premium to its farmers.

Environmentally this sugar achieves the lowest score, because of high energy consumption, high water withdrawals and high human induced soil degradation. The score is lifted however, because of good scores for wildlife friendly agriculture (4). The scores of the social indicators are average, with no very low scores. It achieves high scores for abandoning child labour, providing fair prices for

the farmers, and creating a safe work environment. Improvements can be made to move away from forced labour, where it still scores a 2.



Figure 5: Scores Mauritius

With an average score of 2.16 Mauritius has the highest average score for the sugar producing countries. All categories are close together, with a highest average for the environmental indicators. Especially because of low GHG emission and high biodiversity, high scores are achieved. However, improvements can be made regarding energy consumption (0). The average scores for the social and economic category are the same, namely 2.57. Economically sugarcane from Mauritius scores high on import duties (4), because countries from Africa, the Caribbean and the Pacific are exempted from import duties into the European Union. On traceability Mauritius scores high as well. The lowest score is for the cooperative structure (0).

On the social level, low scores are given for a farm too small for farmers to earn a decent income from, and farmers have little bargaining power to determine their own price for their product. All other indicators in the social category have achieved high scores; there is no child or forced labour, and there are good working conditions on the farm (4).



Figure 6: Scores Germany

Organic sugar beet from Germany scores best out of the sugar beet producing countries. Environmental indicators get the lowest scores, with extremely low scores on GHG balance and water withdrawals (0), but in return gets very high scores on energy consumption (local production), and diversity of species.

The organic sugar scores best on the social indicators. It receives high scores in general, with a lowest score of 2 for the wage level of workers on the farm. Farms could be larger for the farmers to get a better living income but this indicator still gets a score of 3. The economic indicators score low on the world market price, since the price of organic sugar beet is high. There is no data available regarding the export capacity and Fairtrade premium for organic sugar beet, therefore, an educated guess is made for those two indicators.

Table 8: overview scores						
	Brazil	Netherlands	Paraguay	Mauritius	Germany	
Economic	1,63	1,63	1,63	1,84	1,63	
Environmental	1,20	1,60	1,60	2,80	2,00	
Social	1,43	2,24	2,14	1,84	2,55	
Total	1,42	1,82	1,75	2,16	2,06	

CHAPTER SEVEN: ANALYSIS.

Even though detailed scores are interesting when searching for specific characteristics, it is also interesting to see how different outcomes relate to each other on a broader level. This chapter will discuss how the scores for each different category relate to each other taken the framework as a whole into account.

One of the first things that becomes apparent when looking at table 8, is that even though the distribution of the scores in the economic category is very widely spread between all the different countries, the eventual scores are the same for four out of five countries. The scores are widely distributed between the different indicators and countries, as can be seen in table 7. Hence it is not possible to say that one or more indicators all received the same score and therefore ended up with the same total score.

In this particular case it might seem that the economic indicators do not add much to the sustainability debate as a whole, since four countries all have the same total score. But, if this framework were to be used on different cases, the scores might differ widely, and not end up with the same total score after all. Moreover, looking at the differences within the category makes the scores even more interesting. Therefore, I assess that it is a coincidence that the scores have ended up the same, rather than it is due to wrongly defined and operationalized indicators.

The second notable observation is that Mauritius scores extremely well on the environmental indicators, which is striking since the environmental category scores the worst for many other countries. This might be explained by the fact that human induced soil degradation is much lower in Mauritius than it is in other areas studied, Mauritian sugarcane is using water in a responsible way and their greenhouse gas balance is very low. This where those indicators for the other countries are not as

efficient with their water use –the production of sugar beet in general requires more water than the production of sugar cane. On an environmental level only energy consumption lags behind, but this is the same for sugarcane from Paraguay or Brazil.

Assessing another remarkable score is the high score for social sustainability in Paraguay, especially in relation to economic and environmental sustainability. For social sustainability there are no scores measured below middle ground, this in contrast to 3 out of the remaining 4 countries. Only Germany scores better. Because in Paraguay the sugar is produced in a Fairtrade organic way, there are some standards which producers have to meet in order to receive that quality label. That may be an explanation on why they score so well on a social sustainable indicators. Even though Fairtrade and organic labels have standards on economic and environmental sustainability as well, it looks like those standards they have set, are not measured in the same way as the set indicators are measured in this framework. Therefore, socially Paraguay scores very well, while there are still many improvements to make on the economic and environmental indicators.

Brazil is the 'loser' in this sustainability framework. In every category Brazil receives the lowest scores, this while large sugarcane plantations are preferred over smallholder farmers. One would expect that the economic scores therefore, would be higher than for example from the smallholders in Paraguay of Mauritius.

Sugar cane in Brazil is often produced on large plantations, with high production and highly mechanized farms. Those farms are designed to produce large quantities of sugar cane, and investments with regards to sustainability are not on top of the agenda.

There may be smaller cooperatives in Brazil as well however, who are focused on sustainable production. But since this framework looks at the state of a sector nationwide, those farms or cooperatives do not show in the data.

FAIRTRADE AND NON-FAIRTRADE PRODUCERS

Comparing countries producing in a Fairtrade way (Mauritius and Paraguay), with countries producing in a conventional way (Brazil), it becomes apparent that Fairtrade producing countries score particularly well on social indicators. While economically there is hardly any difference between both production outlooks. A reason for this difference could be that the requirements for Fairtrade certification are particularly based on improving the social conditions of farmers, which are better reflected in the chosen indicators than in the other categories. Because Fairtrade farmers have to meet certain standards to be able to use the quality seal of Fairtrade, the organisation can set certain organisational standards. The result is that where generally speaking cooperatives are not well structured in developing countries, cooperatives producing under the Fairtrade label, are required to strengthen their cooperatives, resulting in better working conditions for farmers, hence scoring higher on these indicators than conventional cooperatives. This is the same for giving a premium, supporting farmers to receive a living wage, or ensuring a safe work place for farmers. Because of the ensured standards required by Fairtrade, those developing countries can meet their production standards with production in developed countries, and even receive a better outcome than developed countries with regards to sugar production.

Even though Fairtrade certification gives certain guarantees with a positive outlook on sustainability, as mentioned in the context chapter, EU policy makes it possible for many farmers in developing countries, especially from Africa, Caribbean and Pacific to export their sugar to European countries. When these policies change however, the competitive position of those farmers can dramatically change, especially when producing a niche product for a higher price already. Time will tell whether those farmers are able to stay competitive without supporting EU policy.

COUNTRY COMPARISONS

PARAGUAY VS MAURITIUS

Paraguay produces Fairtrade organic sugarcane, where Mauritius only produces under Fairtrade certification. Because Paraguayan sugarcane has to comply with more standards, one would expect this sugarcane to score higher in the framework than sugarcane from Mauritius. However, this is not the case: Mauritian sugarcane receives a higher overall score than sugarcane from Paraguay. The major difference between the two countries can be found in the environmental category, where Mauritius scores much higher than Paraguay. Mauritius works on less degraded soils uses less water and produces less greenhouse gases in the production. Paraguay does score higher in the social category because farmers have more opportunities to negotiate the price, and because they have more potential to run a profitable farm. This higher social score however does not outweigh the environmental score, resulting in a higher sustainability score for Mauritius than for Paraguay.

A possible explanation for this outcome could be that the standards of organic farming, are not reflected in the indicators of this framework, hence not contributing to a higher score for sugarcane from Paraguay. Local complexities can influence this score as well. The environmental conditions in Mauritius might be better suitable for sugarcane than in Paraguay, explaining the higher score.

Important to stress here is that organic farming does not automatically mean sustainable, and nor does Fairtrade. Products produced under both labels however, do have to comply to certain standards, which are often based on (one of the) sustainability principles.

PARAGUAY VS BRAZIL

The fact that sugarcane from Paraguay ranks higher in this sustainability framework than Brazil, is expected. As mentioned previously because of the certified production in Paraguay, certain standards are met which are not automatically covered in policy in developing countries. This is particularly reflected in the social indicators since Fairtrade standards are mostly compatible with social sustainability.

The score for Paraguay regarding environmental and social sustainability are both higher than the Brazilian scores for those categories, which is expected since Fairtrade organic sugarcane is better monitored and supported. Both production methods rank the same however in the economic category which is surprising; the main selling point of Brazilian sugarcane is its export capacity and efficient production methods, where the small-scale production of Paraguay would be expected to perform less.

The diversion between producing countries becomes visible through the category of forced labour: the producers in developing countries, especially in the mainstream production of Brazil, still use forced labour to harvest the sugarcane. Paraguay scores higher than Brazil, even though you would expect the same practices since both countries are situated in the same region. However, Paraguay is a Fairtrade organic certified producer, where those practices are much better monitored and measured.

Because of quality standards set by Fairtrade and organic certification, the state of the environmental sustainability in Paraguay was expected to be higher. But, as mentioned previously, the choice of indicators might have contributed to this difference.

NETHERLANDS VS GERMANY

Dutch and German sugar beet rank similar, but here the effects of organic vs non-organic are more visible when comparing those two countries than was when comparing two countries in the context of developing countries. Again on social aspects organic farming performs better, but it also performs better on environmental indicators. The difference between both countries however, is not extremely large. Certain base lines which would be set by an organization as Fairtrade in developing countries, is set by the national government of these developed countries; taking out the advantages of organic production, leading to very similar results for both countries. The economic outlook of German sugar beet can be problematic since supply is very low. This is partly reflected in the economic score for the country.
GERMANY VS MAURITIUS

The comparison between Germany and Mauritius is particularly interesting. They both receive almost the same end score, while their production methods and local conditions are very different. Where Mauritius scores much better on the environmental indicators, Germany scores much better on the social indicators. In the economic category Mauritius scores slightly better than Germany.

Mauritius receives high scores for all environmental indicators except for energy consumption because of the geographical location – where Germany receives the optimal score for this indicator. The transport distance, seems to be done away with when the total score of the category is calculated. However, looking at the remaining environmental indicators, the conditions for sugar production seem to be better in Mauritius, especially regarding water use and soil quality. The fact that social indicators are scored higher in Germany is not surprising, since they are generally more formalized in policy in a developed country than in a developing country; even when Fairtrade aims to obviate this lack of support and policy in developing countries. It seems that adequate governance and policy is more effective than independent organisations in improving social standards and living conditions.

SENSITIVITY ANALYSIS

As explained in the methods chapter, this sensitivity analysis aims to even out the influence of the indicators on the calculated score for the country as a whole. This sensitivity analysis gives insight in which proportion of weighing gives the best results.

Table 9: most	optimal weigl	nting proportions		
	Economic	Environmental	Social	Average
Brazil	90	5	5	1.6002
Netherlands	5	5	90	2.1776
Paraguay	5	5	90	1.9976
Mauritius	5	90	5	2.7036
Germany	5	5	90	2.4765

	Economic	Environmental	Social	Average
Brazil	5	90	5	1.233
Netherlands	5	90	5	1.6336
Paraguay	5	90	5	1.6236
Mauritius	80	5	15	1.8842
Germany	90	5	5	1.9645

Table 10: Least optimal weighting proportions

The data shows that in three out of five cases, weighing social sustainability the heaviest gives the best results. The proportion of 5 (economic) - 5 (environmental) - 90 (social) delivers the best results for the Netherlands, Paraguay and Germany. For Brazil putting the most emphasis on the economic category (90-5-5) gives the best results, while in the case of Mauritius putting most weight on the environmental category represents the highest average score.

With the best possible proportion ratio, sourcing from Mauritius would be the most sustainable choice. With a score of 2.7036 this would almost be a whole point above using the worst weighing ratio possible. Interesting to see as well is that the best weighing ratio for Brazil (1.6002) is worse than the average of the least optimal proportion of all other countries.

For Tony's Chocolonely the social aspects of production, especially in the cocoa chain are of great importance. If this emphasis is to be further extended in the sourcing of sugar, the following average scores would be achieved:

Table 11: weight social: 90%

Brazil	1.4268
Netherlands	2.1776
Paraguay	1.9976
Mauritius	1.8842
Germany	2.4765

In the overall ranking this would mean Germany would be the best option to source sugar from, and Mauritius would drop to the fourth place. From the sugarcane producing countries, Paraguay would be the best option to source sugar from.

Looking at the proportions and the scores they represent, it can be seen that environmental sustainability is the category with the smallest influence; even if the category receives a high weighing

proportion, low average scores are achieved. Social sustainability however, is the category with the largest influence; when those indicators receive a high weighing score, the overall scores are high as well.

	Best	No Weighing	Worst	Difference
Brazil	1.6002	1.42	1.233	0.3672
Netherlands	2.1776	1.824	1.6336	0.544
Paraguay	1.9976	1.75	1.6236	0.374
Mauritius	2.7036	2.15	1.8842	0.8194
Germany	2.4765	2.06	1.9645	0.512

Table 12: overview weighting proportions

The table above shows the variance between the best and worst scores resulting from different weighing ratios. If there is a large variance, this would mean weighing is of minor importance. If there is a big difference between best and worst scores, weighing makes a difference. In this case the variance fluctuates between small (0.367) to average (0.8194).

In all, this sensitivity analysis indicates that focusing on the social category produces the best results. This is in line with the current vision of Tony's Chocolonely as well. If it would be chosen to apply the weighting proportions as proposed in this analysis, this would have an important outcome on the ranking of the production methods: Mauritius would be one of the worst scoring countries, while the sugar beet producers; the Netherlands and Germany thrive. This shows as well that improving the social indicators can have a considerable effect on improving the score as a whole.

CHAPTER EIGHT: DISCUSSION.

This study focused on how to make a good measurement tool for sustainable sourcing, and to assess the sustainability status of five different sources of sugar. Starting with defining sustainable development and sustainable sourcing, a selection of indicators to measure these concepts have been made. These indicators have been operationalized and divided into either social, environmental or economic sustainability, representing the three pillars of sustainability. This framework has been filled in for five different sugar-producing countries, and showed that Fairtrade sugarcane from Mauritius is most sustainable, while conventional sugarcane from Brazil is least sustainable. This chapter will start with discussing how the framework was established and the role of the indicators in the framework as a whole. Next, the outcomes on a broad scale are discussed followed by an overview of the theoretical discussion of sustainable development, social sustainability and international development, in which this research has taken place.

FRAMEWORK: USE AND LIMITATIONS.

THE PURPOSE OF THE FRAMEWORK

This framework presents a wide range of data in the form of seemingly meaningless numbers and values. The outcome of this framework becomes particularly interesting when the user determines what its goals are regarding sustainability and development; is the goal of the company to assess how to support impact, therefore choosing the most sustainable option given by the framework, or is the goal to actively contribute to making an impact, hence choosing for the option where a lot of improvement can be made still, reflected in a low score given in the framework. The framework is most useful when the user has a clear view of what the purpose is of using the tool. As the value chain manager of Tony's Chocolonely describes; "In the cocoa sector we want to make an impact, therefore we have chosen to work in an environment which would not score high on the sustainability indicators, but the steps we make, how small they might be, have a large impact on contributing to a sustainable environment. If we want to keep focus however, we should not apply this same line of thinking for all our ingredients⁵".

An example describing how the aims of the company can influence choices of sourcing is coming from Ben & Jerry's ice cream. Ben & Jerry's is a social enterprise, just like Tony's Chocolonely. Where Tony's has put their emphasis on making the cocoa chain more transparent, Ben & Jerry's are doing the same for the dairy used in their ice cream. Tony's Chocolonely looked for opportunities to

⁵ Interview Frans Pannekoek, 12-05-2015

collaborate with Ben & Jerry's; Ben & Jerry's uses a lot of cocoa powder, but not the cocoa butter, a product highly used by Tony's Chocolonely. Tony's Chocolonely aims to *make* impact in the cocoa sector, and only *support* impact in the dairy sector. Ben & Jerry's aim to *make* the impact on the dairy sector, and only *supports* the impact in the cocoa sector. For a successful collaboration, Ben & Jerry's should have to shift their focus towards making the impact on the cocoa sector, in order to comply with the bean-to-bar standards of Tony's Chocolonely. Collaboration between the two companies, both aiming to make an impact, did not work out eventually because they both want to make impact in different areas. Ben & Jerry's does not want to commit themselves to being a frontrunner in the cocoa industry, therefore collaboration with Tony's Chocolonely becomes difficult.

The differentiation between making an impact and supporting impact might explain why sugarcane from Paraguay is recommended as the most sustainable option by organizations such as Oxfam and Fairtrade, but does not receive a high score in this framework; the potential to make an impact in the sugar sector is highest in Paraguay. This might not be the most sustainable sugar (yet), but if more people start supporting the farmers, a significant change can be made, having the largest influence on the sugar industry, and local livelihoods as a whole. Therefore those organisations choose to support the sugar sector in Paraguay since they argue that the opportunities for meaningful impact creation are largest in that area.

Relating this discussion to the outcome of this case study, organic sugar beet from Germany, is one of the most sustainable choices, but the possible impact on the local community is the smallest. The user of the framework has to make decisions on forehand; work in developing countries with poor regulatory systems, high risks and a long-term process of success, but at the same time a higher potential for meaningful improvements, or does the company prefer to source from a developed country, with clear regulations and a safe environment, but with a smaller possible impact on the long run? Even though the first might receive a lower overall score, it might have a larger impact regarding sustainable change in the end. According to Pacheco, Dean, & Payne (2010) the sustainable entrepreneurs are the ones able to transform institutions by altering and/or creating norms and standards, therefore focusing on impact creation. They set the standard which will be followed by others who are able to support the impact, but are not the frontrunners creating the impact in itself (Pacheco et al., 2010, p. 470).

If being sustainable is the most important goal, putting emphasis on local sourcing, it is wise to work with the organic sugar beet from Germany, but if the goal is to have an impact on local development, and transform unsustainable practices into more sustainable practices, the impact on local livelihoods could be larger if sugar is imported from Brazil. These of course are the two extremes, but the balance these two extremes represent, is important to consider.

GOALS

The data coming from this sustainable sourcing framework can be used in two distinct ways: in the first place it can be used to make an open-minded assessment to see which options there are and how sustainable they already are, and in the second place, the outcome of the framework can be used to support choices the user already has in mind.

If the user is using the framework as open-minded assessment, the better the user has defined what is to be done with the data derived from the framework, the more useful the data is for interpretation. Tony's Chocolonely mainly focuses on social issues in the cocoa sector, including improvement of local livelihoods, organisational structure and the extermination of child labour. The question is, whether this same approach should be taken in sourcing other ingredients as well. Even though social issues in the definition of sustainability will remain of great importance for the company, other sectors might have different pressing issues in terms of environmental or economic sustainability. The user of this framework should know why they are using the framework to get most meaningful results. The following paragraph will focus on the importance of the user of this framework to have a vision regarding making, or supporting an impact on a developing a local community in a sustainable way.

If the framework is used to provide arguments for choosing a commodity from a certain origin; whether this may be the most sustainable option, or the worst; the framework can be used to make the choice more transparent. The danger however is that the user is able to manipulate the data by only presenting data on the indicators reflecting their interest, instead of giving an overview of the situation as a whole.

CONSTRUCTING A FRAMEWORK

The purpose of a framework is to make a simplified representation of a much more complex situation. The compromise that takes place in doing so, has influence on the outcome of the framework and whatever you try to measure. In this framework the concept of sustainability is central. As described in the theoretical framework there are many different views on sustainable development and how it should be achieved. Because of the wide range of definitions, there are many different ways of operationalizing and measuring the concept, in which a trade-off between the three pillars of sustainability almost always takes place (Hahn, Figge, Pinkse & Preuss, 2010). Especially when a company aims to contribute to sustainable development, it is difficult to achieve a win-win situation

The framework on the basis of the framework constructed in this research, the SAFA guidelines defined by the FAO has defined sustainability in the following way: "the management and

conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable". (Scialabba & Nemes, 2013).

The SAFA guidelines are based on a very wide definition of sustainability, which is reflected in a framework with 118 indicators. Using so many indicators makes it possible for the FAO to reach a wide range of users. Because of the large amount of indicators used in the SAFA framework, the framework is able to give attention to each aspect of sustainability, without losing focus or staying too general. Even if a user is only interested in one aspect of sustainability, the framework can still give an in-depth overview of that single topic. The downside however, is that the framework becomes less comprehensive, and requires more time and information to fill in. As Schneider & Wallenburg (2012) argue emphasizing sustainable sourcing in a practical context can be achieved by increasing the number of sustainability criteria that are considered in certain sourcing processes, and by increasing the number of sourcing activities in which the particular sustainability criteria are explicitly considered. This framework takes the sustainability criteria as a starting point to assess the state of sustainable sourcing.

When constructing the framework for this research, the definition of sustainable development as proposed by the Brundtland report has been used as a base line, namely: *Development that meets the needs of the present without compromising the ability for future generations to meet their own needs* (World Commission on Environment and Development, 1987). Tony's Chocolonely has a particular vision towards social sustainability. Therefore, indicators are selected with particular care in order to ensure the social dimension is included in the framework. Social sustainability has long been neglected in the holistic definition of the concept; economic and later environmental sustainability received the main attention (Colantonio, 2007). Since the early 2000s social sustainability has been used in this research: "social sustainability refers to the personal and societal assets, rules and processes that empower individuals and communities to participate in the long term and fair achievement of adequate and economically achievable standards of life based on self-expressed needs and aspirations within the physical boundaries of places and the planet as a whole" (Colantonio, 2007, p. 7). If a framework is to stay comprehensive, a possible solution would be to narrow down the definition of the concept under research, therefore needing less indicators to still give a meaningful measurement.

Even though the main definition of sustainability is more or less the same as in the framework of the FAO, with an additional focus on social sustainability, a more balanced view of the three pillars of sustainability is given. There is always a trade-off between the detail of the information the framework can give, and how easy to use the framework is. When putting additional attention on social sustainability, and leaving out the component of Good Governance, used in the SAFA guidelines, the definition of sustainability is aimed to be narrowed down, and create a comprehensive, but still holistic framework. The key is to keep a balance between making a comprehensive framework, easy-to-use for its user, and giving enough detailed information about what you want to research.

The basis of this framework is the definition of sustainability proposed at the very emergence of the concept, which might give the impression that this framework does not recognize the changes in the debate since that time. However, as Meybeck & Redfern (2014) write, the challenges to integrate sustainability in one coherent approach remain at the present time. Since there are still so many challenges to be overcome, by sticking to the holistic approach of the concept, steps can be made to overcome these challenges one by one, without overseeing a certain issue, viewpoint or debate. At the same time, history has shown that trying to tackle the concept in a holistic way can make it difficult to achieve meaningful results (Vallance, Perkins, & Dixon, 2011).

INDICATORS: WEIGHTING

A framework is composed of several indicators aiming to measure a certain concept. The fewer indicators there are in a framework, the more important each indicator becomes for the category. A good framework should not depend too heavily on certain indicators; in other words if one indicator is removed, or another one is added, this should have a limited influence on the outcome of the framework as a whole. In this framework the environmental category has fewer indicators than the social and economic category. The indicators in the environmental category therefore, all individually have more influence on the total score than each individual indicator in the economic or social category, because it was chosen to not add weight to the individual indicators. This however, inherently implies that the indicators in the environmental category have a larger weight than the indicators in the other two categories, which can result in an unbalanced view.

Hence it is even more important for the indicators in this category to accurately measure what they are set out to measure. This is aimed to be done by covering the main themes in environmental sustainability used in the literature, such as pollution (air, water), land use, biodiversity and energy use. To make the framework more balanced however, it would be worth considering adding two more environmental indicators, without losing the comprehensiveness of the framework, or to add weight to the indicators.

LIMITS TO A FRAMEWORK: LOCAL COMPLEXITIES

Presenting data in the form of a framework can be useful to construct a simplified image of a complex situation. However, because the framework shows a general overview of the situation, good practices in a bad environment are not acknowledged. The influence of a large investment in a small community, and the dynamics of this investment over time, are not incorporated in this framework, which immediately shows the limitations of working with, and using a framework. Local cooperatives stimulating sustainable practices, operating in an environment with unsustainable practices, are not rewarded for their good practices. It is important to keep in mind the strong points of using a framework, as well as looking at the local context, and not lose sight of the complexity of the situation. Paraguay is an example for a country that does not score high in the framework at the moment, but, with a little support, has a high potential to make a meaningful change in their local context.

Continuing on the issue of local complexities, in this framework, a country as a whole is assessed, and the complexities within the country, for example the poor areas within Brazil, or the rich areas in Germany, are not shown. The purpose of this framework is to get a general overview of issues within the sector of a certain country, its challenges and its opportunities. Therefore, the framework uses data looking at a national level. Even though the results of the framework remain quite general, this level of measurement serves the purpose of the framework, namely giving a first general overview of the practices within the sugar sector in the case-country. It would be very interesting to look at a more local level and to assess cooperatives on a local or regional level as well, but that will make data collection more difficult and less reliable, especially if data is collected through secondary data collection and literature study. It would be recommended therefore, after using this framework for a first assessment, to select one country and further examine five individual cooperatives. Data collection in the form of field work would be better suitable for this level of measurement.

Comparing cooperatives on a local level becomes more difficult because of the increasing role of the context in which the cooperatives are situated. Added complexities for example are related to water use and water availability, land use, or optimal yields. Important to note as well, are the influences of sustainability measures on a local environment. From a national perspective some sustainability policies may seem to be the best choice, while on a local level it can even harm the environment or local community (Reed, Fraser, & Dougill, 2006). If measurements are specifically focused on local communities bottom-up approaches should be in place (Marschke & Berkes, 2005), in which the local context is central.

DATA COLLECTION & ANALYSIS

A framework makes it possible to present data in a comprehensive and clear way. The downside however, is that data is provided without context, as mentioned in the previous section. Therefore, using reliable data is of particular importance in the use of a framework. Methods used to ensure and enhance reliable data include triangulation, and using well-established and acknowledged databases. Databases by, for example the World Bank, FAO or Fairtrade were used. However, even though these are well-respected sources, data can be collected from within, or aimed to support a certain standpoint, meeting specific interests. To minimize these risks, reports and databases from interest groups, the industry or biased actors are used as scarcely as possible in this research. To further limit biased data, reports from interest groups were triangulated as much as possible to increase validity.

Triangulation is a good way to increase data reliability, and increase data quality. Even so, information derived from databases or found through triangulation, might sometimes not seem in line with the researchers' expectations. In those cases, looking at the data in the given context might give more insight into how the data came about. An example: based on information from the American Labor Department, the scores in the framework indicate that child labour does not occur in the researched countries. It is well-known however, that child labour is still a widespread problem, especially in developing countries. On a first glance therefore, it is somewhat questionable whether the information provided by the American Department of Labor is correct information. However, taking a look at the sugar sector in particular; work on the sugar plantations and farms consist of intensive manual labour. Especially cutting the cane for harvest requires hard manual labour, often executed by men. The work on the sugar fields is so hard and physically intensive, that this might explain why child labour does not exist in this sector; it is simply too hard for children, even though child labour still occurs in other (agricultural) sectors in the researched countries.

To shortly reflect on the data analysis used in this framework, it would be worth delving deeper into the world of weighting and statistical analysis in a further study. This research focused on equal weighting, but it would be interesting to see how the framework would be affected when a different weighting strategy was used, in which certain indicators or even categories were weighted heavier. Another recommendation for further research would be to assess whether the outcomes are valid and the differences between countries significant. Now it can be difficult to assess how meaningful the difference between two outcomes actually is, and what that means for the framework as a whole.

In short this paragraph gave an overview of the use and limitations of using a framework in general, related to this framework in particular. Important to stress is the importance of a vision regarding the goal of the framework, whether that is supporting impact, or making the impact. This has a large influence on how to interpret the results of the framework. Moreover, it is important to keep in mind

that local complexities are not reflected in a framework on a national level, which has an influence on the outcome of the framework. In all, triangulation improves data quality, but a critical view on data remains of crucial importance to ensure meaningful results.

THE FRAMEWORK AND SUSTAINABLE DEVELOPMENT.

SUSTAINABLE DEVELOPMENT.

In an increasingly globalized, and intertwined world, the division between 'developing' and 'developed' countries becomes increasingly blurred (Youngs, 2009), and development becomes a relevant concept for countries all over the world in the context of sustainability. Next to responding to the current trend in which the private sector contributes to development, this framework is able to show the link between sustainable development and international development: an increasingly important connection.

International development and sustainable development are two different concepts, but are increasingly interlinked. The definition of the OCED in Our Common Future (1987) only describes what sustainable development should look like, not how it should be established, which would be particularly interesting in a context of international development. International development is a wide concept describing the level of development on an international scale. How to achieve development, or when a country is 'developed', is very much open to debate. In a broad way, international development has been associated with economic development which also has various competing perspectives (Todaro & Smith, 2005). According to Bebbington (2001) sustainable development was originally thought to address the question: 'what kind of economic system would lead to everyone's needs being met in an environmentally sustainable and socially just manner?' International development though, is just describing the level of development – not necessarily economic development – on an international scale. Daly & Goodland (1996) stress the importance of the concepts growth and development in a context of sustainability. As they state; "While development can and should go on indefinitely for all nations, throughput growth cannot. Sustainability will be achieved only when development supplants growth".

Contributing to development does not automatically mean this development will be sustainable, as sustainable development does not automatically lead to growth and development as a whole, as Daly & Goodland (1996) argue. Even though both concepts are becoming increasingly intertwined, they are still not equal to each other. Sustainable development can contribute to development in a region or community, but at the same time development can take place which is not sustainable, or sustainable development can occur without brining development to the region or community. Moreover, historically seen development is mainly used in a Third World context, while sustainable development can take place anywhere in the world; in developing as well as developed

countries. Relating this to the framework central in this study; increasing product quality, by stimulating producers to produce according to organic standards, can result in farmers having to make longer working days, or a lower price for their produce, which will not improve community development. Or the other way around; when production capacity is increased, this can support local development, but have a bad influence on the environment and contribute to land degradation for example.

SUSTAINABLE SOURCING & THE VALUE CHAIN

This paragraph focuses on sustainable sourcing and what this framework can add to that debate. Sustainable sourcing encourages companies to go beyond legal compliance with regards to responsible sourcing, and by doing so contribute to a more sustainable value chain. As Pagell, Wu, & Wasserman (2010) describe, sustainable sourcing entails "*managing all aspects of the upstream component of the supply chain to maximise triple bottom line performance*". In the context of sustainable sourcing, this framework can make the considerations a company can take into account regarding sustainable sourcing more transparent. By operationalizing the different aspects of sustainability into measurable indicators, a company is forced to formulate a vision regarding their sustainability goals, and can make a considerate choice which issues are central to this vision and should receive more, or less attention.

An institution, who formalized their vision of sustainable sourcing in elaborate standards, is the Fairtrade movement. The Fairtrade movement attempts to create better working and living conditions for farmers in developing countries through the investment in trade relations. By giving guarantees to both farmers (price) and buyers (quality standards), a win-win situation is aimed to be created. The Fairtrade movement has chosen to put their particular attention on improving living conditions and trade relations of farmers, especially relating to social sustainability.

The concept of sustainable souring aims to take a holistic approach regarding sustainability; social, environmental and economic links are all addressed. The concept however, does not imply guidelines on how to achieve sustainable sourcing, or when sourcing is effectively sustainable, and when it is not. If a company is able to set its own standards regarding sustainable sourcing, the question remains what the added value is of using the standards of Fairtrade. Noteworthy is that even though the Fairtrade movement started off with a particular social mission, their standards and measurement indicators are including more and more indicators and standards measuring sustainability as a whole. Environmental and economic indicators and standards are continuously added to their requirements of production. However, relating the framework designed in this research to the Fairtrade standards, it is worth mentioning that Fairtrade does not automatically mean sustainable. A different vision is kept in mind when designing those standards, where the focus is placed on equal trade

relations and improving living standards of farmers in developing countries, which lies in line with to social sustainability. But overall, one cannot say that Fairtrade is equal to sustainability as a whole.

Comparing the standards of Fairtrade to a set of sustainable sourcing standards proposed by the company itself, arguments can be made for both strategies. The Fairtrade label gives certain guarantees regarding quality and monitoring of production, which are not included in own sustainability standards. The downside is however that the standards, or focus areas set by the company might not be reflected by the Fairtrade standards. This framework is able to give guidance and focus in determining what issues are most important for a company in particular, thereby reflecting their own vision and standards, after which an assessment can be made whether to continue to invest in developing own standards, or choosing to work with the set standards of Fairtrade.

The remaining question is whether sustainable sourcing is contributing to economic gains of the company implementing these standards, or is an ideological base to sustainable sourcing required to make it a promising concept for companies to invest in. Sustainable development asks for an integrated approach where not only the economic gains for the investing company are included, but the social and environmental components are equally important. The aims of the private sector to invest in sustainable sourcing however, remains ambiguous; some companies will use sustainable sourcing as a core element of their business, while others only use it as business opportunity, without fully committing to the cause.

TRADE AND AID.

In this research the concepts of international development in a context of trade and aid, are tied together with sustainable development. The current trend of Western governments to emphasize and stimulate the role of the private sector in an international development context is operationalized in this framework. It gives insight into the sustainability issues in the value chain, which, when improved, can have a large impact on the livelihoods of local communities; the framework is a tool to contribute to enhancing the impact of international trade in a local community. Moreover, this framework exemplifies the interconnectedness of both sustainability and development in the trade and aid debate, and can serve as a tool to monitor and measure progress towards (sustainable) development, and at the same time show the urgency of deepening this connection. The value chain is central in the trade and aid debate, and is operationalized in this research through the concept of sustainable sourcing. Sustainable sourcing can be seen as part of the shift towards aid through trade since it can have a large impact on the development of local communities.

In all, in this discussion the framework, its use, its limitations and how to interpret the results have been discussed. Proposing that having a vision regarding how to use the framework and for what purpose is of crucial importance to use the framework optimally. Next the framework is placed in the context of the value chain, discussing the role of a framework in the context of sustainable value chain management, and using a framework as a tool to increase transparency. This discussion is concluded with a paragraph discussing this framework in light of sustainable development, where the interconnectedness of sustainable development, social sustainability and international development has been central.

CHAPTER NINE: CONCLUSION.

Tony's Chocolonely, the social enterprise for which this study was conducted, already had an elaborate vision on sourcing with regards to their cocoa beans, focusing mainly on social sustainability. They commissioned for a framework which they could use to assess which location or production system would be most sustainable to source their agricultural products from. For this purpose sugar has been used as a case-study.

This research has been focusing on constructing a framework to make the trade-offs regarding sustainable sourcing more insightful. It tries to answer the question on how to make a good measurement framework for the sustainable sourcing of agricultural products, and thereby answering the question what the most sustainable source of sugar is. The second question addressed in this research is what this practical example means in the broader theoretical debate of sustainability and international development, serving an academic purpose. The conclusions drawn from those two questions are central in this chapter.

The process of constructing the framework started with the selection of nineteen indicators measuring sustainability, covering all three pillars of the concept: economic, environmental and social sustainability. Indicators were selected based on literature studies and expert interviews, taking the SAFA Guidelines of the FAO as guidance. In the indicators selection process considerations were taken into account regarding usefulness, effectively measuring the concept, the vision of Tony's Chocolonely, and the verifiability, and availability of data.

To create a balanced framework it is important to keep a balance between the chosen indicators for the framework. Not only should the amount of indicators be balanced between the categories, but within a category a too large dependency on one indicator is not preferred. Even though the SAFA framework by the FAO used over 100 indicators to measure sustainability, this research showed that a larger amount of indicators will undercut the comprehensiveness of the framework.

In order to measure economic sustainability the following indicators were chosen: world market price, export capacity, cooperative structure, import duties, traceability system, product quality and premium paid. Indicators measuring environmental sustainability are greenhouse gas emissions, energy consumption, water withdrawals, human induced soil degradation and wildlife friendly agriculture. Lastly, the social indicators include wage level, forced labour, child labour, fair pricing, safety of workplace, producer price and farm profitability. For Tony's Chocolonely issues regarding social sustainability were more defined already, making indicator selection for this category more straightforward.

In order to compare all data from those 19 different indicators, each indicator was scored on a five-point scale, where 0 is the lowest possible score, indicating a not-so sustainable practice, and a 4 is the highest possible score indicating a very sustainable practice (relative to other data).

A framework often overlooks local complexities; this framework looks at production systems on a national level, thereby ignoring the situation on a local or cooperative level. Moreover, the influences of a large investment in a small community, and the dynamics of this investment over time, are not taken into account, which immediately shows the limitations of working with, and using a framework. However, since this framework is designed to give a general overview and being able to compare situations, this 'non-contextualized' vision can be an addition in the field, and different sources can be compared.

The level of assessment chosen for this framework, namely a national level, and the chosen way of data collection, namely through literature and data research showed the importance of triangulation. Especially because raw data in a framework **are** generally presented without a given context, the validity of the data had to be ensured through data triangulation.

During the process of filling in and weighting the framework it became clear that the goal identified by the user for the use of the framework is of crucial importance to optimize results, and to be able to give the results of the framework more meaning. Using the framework to support impact, results in a different strategy regarding sustainable sourcing than when the goal is to initiate the impact. Even though Tony's Chocolonely has formulated their goal towards making an impact in the cocoa sector, it was found that the choice to either support impact or create impact should be made for each ingredient separately.

Five countries have been selected for the case study regarding sugar, which were Brazil (conventional sugarcane), Paraguay (Fairtrade Organic sugarcane), Mauritius (Fairtrade sugarcane), Netherlands (conventional sugar beet) and Germany (organic sugar beet). Results showed that sugarcane from Mauritius received the highest overall score with a 2.16, closely followed by organic sugar beet from Germany (2.06). Conventional sugarcane from Brazil received a 1.42, in relation to a score of 1.83 for conventional Dutch sugar beet. Paraguay finally received a score of 1.75 for its Fairtrade organic sugarcane.

Sustainability is becoming increasingly important in the private sector as it is seen as a business opportunity. By operationalizing the different aspects of sustainability into measurable indicators, Tony's Chocolonely forced itself to formulate a vision towards sustainability, and it added up to an informed choice about which issues should receive more, or less attention. Therefore it showed that

sustainable sourcing encourages companies to go beyond legal compliance and by doing so it contributes to a more sustainable value chain. The framework comprised in this research contributed to making the characteristics of several sugar sources more transparent, thereby giving Tony's Chocolonely insight in what sustainable sourcing means for the sugar sector, and how it relates to their vision regarding sustainable sourcing.

Constructing and applying this framework on the sugar sector has brought several, more general, dynamics to light. Nowadays companies want to know under which conditions their produce is produced, consumers want to know where products come from. This has stimulated companies to invest in their value chain aiming to make it more transparent in order to exemplify their progress regarding sustainable development. It turned out that this framework contributes to this transparency, and encourages companies to set standards, and communicate these standards internally and externally. Those standards contribute to a growing awareness of current issues in the value chain, and in the local communities where products are sourced. With more transparency and awareness steps towards sustainable development can be made.

A second general dynamic shown in this research is the role of the private sector in the trade and aid debate. Current governments are encouraging the private sector to invest in trade with developing countries in order to kick-start local development. The framework based on sustainable sourcing exemplified how the private sector can use a framework to enhance transparency and awareness and by doing so contributing to sustainable development.

Recommendations in response to the contribution of this framework can be given to the private sector, as well as academic scholars. Regarding the private sector, the main recommendation would be to invest in the creation of an elaborate vision towards sustainable sourcing when using this framework. When a company has a vision, effective measurement of the value chain can improve meaningful progress regarding sustainable sourcing. Whether this vision only addresses social sustainability or sustainable development as a whole; having a vision on how to contribute to sustainable development can make a large impact on the future outcomes of the debate. Sustainable sourcing and transparency are the current trend in business, and has the potential to change not only the value chain, but also the private sector. Therefore, it would be recommended to act upon the opportunities presented by sustainable sourcing and sustainable investment.

This research focused on sustainable sourcing as a tool for the private sector to contribute to sustainable and international development. Further research is needed to advance this relation, and to look for other ways the value chain, or indicators can be used to increase transparency and awareness and by doing so contributing to sustainable development.

The private sector has a huge potential to contribute to the sustainability and international development debate. With this framework, a first step into connecting both concepts has been set, in both an academic and a practical way.

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A: Indicators selection

This digital appendix describes all 118 indicators used by the SAFA guidelines, spread across four themes: good governance, economic sustainability, environmental sustainability and social sustainability. Placing the indicators used in 4 different studies next to the indicators used by SAFA highlighted which indicators were most important. The more indicators were used in the study, the smaller the weight of each separate indicator. The highest ranked indicators in the end, were considered for this framework.

This appendix is digital, if interested in the actual scores, please contact the author.

B: water footprints

Appendix II. Water footprint per ton of crop or derived crop product at national and sub-national level (m3/ton) (1996-2005)

6.0	- Girt]		~	~	~					
Paragu ≥	SVE1306 CNTRY-		223	23	12	1773	181	6			
Netherl ands	average CNTRY-								358	-	93
itinsM su	average CNTRY-		140	ى ك	0	1112	40	2			
uy Germa	аverage СИТRY-								392	18	134
Brazil	аveгаде СИТRY-		122	S	10	968	43	80			
Global averag e	Global average		139	57	13	1107	455	104	535	167	162
Country >>>	Province/ state >>>	WF type	Green	Blue	Grey	Green	Blue	Grey	Green	Blue	Grey
	Value fraction (vf)		1,00			0,87			0,92		
	Product fraction (pf)		1,00			0,11			0,14		
	Root product (HS)		121292			121292			121291		
	Product description (FAOSTAT)		Sugar cane								
	Product description (HS)		Sugar cane, fresh or dried.	whether or not ground		Raw sugar, cane			Raw sugar, beet		
	Product code (SITC)		05488			06111			06112		
	Product code (HS)		121292			170111			170112		





D: Definition of scores

Economic indicators

		0	> 25% world market price
		1	10-25% more than world market price
Market price		2	general world market price +-10%
		3	10-25% less than world market price
		4	< 25% world market price
	% sugar in total export	0	<0,0001
Export conscitu		1	0,00033-0,00001
		2	0,00034-0,00067
		3	0,00067-0,001
		4	>0,001
	Large cooperatives	0	weak financial position cooperative
Cooperativo		1	
structure		2	financially healthy cooperative
Structure		3	
		4	financially strong cooperative
		0	exception > high import duties
		1	
Impot duties		2	normal import duties
		3	
		4	no import duties / ACP or EU
		0	no
		1	
Traceability system		2	mass balance
		3	
		4	segregation
		0	no quality label
		1	own quality label
Product quality		2	ISO certification
		3	Fair Trade or Organic label
		4	Fair Trade and Oragnic label
		0	no premium
([-::		1	lower than normal premium
(Fairirade)		2	normal premium
Premium		3	10% higher than normal premium
		4	>10 higher than normal premium

LIIVII OIIIIICIICUI	malculors.		
	GHG > CO2 + N2O + CH4	0	>650
		1	500-650
GHG balance		2	350-500
		3	200-350
		4	<200 kg
		0	>250.000 kg CO2
En aver		1	168.666-249.999 kg CO2
Energy		2	87333-168.666 kg CO2
consumption		3	6000-87.333 kg CO2
		4	<6000 kg Co2
	Green, blue and grey	0	>20%
	percentage grey and blue in relation to all		
Water	water withdrawals	1	14 tot 20
withdrawals		2	7 tot 13
		3	1 tot 6
		4	<1%
		0	very high
Human		1	high
induced soil		2	medium
degradation		3	low
		4	none
	Is production taking place in marginal areas?	0	5x yes
	Are agrochemicals used in producing the		
Wildlife	product?	1	4x yes
friendly	Are un-improved irrigation systems used?	2	3x yes
agriculture	Are sugar fields burned after harvest?	3	2x yes
	Are fields cleared before the sugar		
	cultivation?	4	<2x yes

Environmental indicators:

Social indicators

	workers on the farm	0	Less than standard minimum wage
		1	Standard minimum wage
Maga laval			More than standard minimum wage, but less than
wage ievei		2	living wage
		3	Living wage
		4	More then living wage
		0	No actions against forced labor are taken
		1	
Forced Johor			Problem is acknowledged and actions against it are in
Forceu labor		2	place
		3	
		4	Guarantee that no forced labor occurs
		0	Worst forms of child labor practices occur
		1	Child labor occurs
		2	Child labor occurs, but problems are recognized
Child labor			Child labor occurs, but problems are recognized and
		3	policies are made to improve
			There are no children < 14 working permanently on the
		4	farm
		0	Buyers set prices and determine contracts
			Price is negotiated upon but does not cover cost of
		1	production
Eair pricing			Buyers set prices but producers have some room to
		2	negotiate – price does not cover costs of production
			Producers can negotiate price but buyers determine
		3	contracts
		4	Producers can negotiate their own price and contracts
		0	no safety measures set at all
Safaty of		1	
workplace		2	informal safety measures formulated
workplace		3	
		4	written and practiced safety measures
		0	does not cover cost of production
		1	
Producer price		2	just covers cost of production
		3	
		4	more than cost of production
	can farmer live off		
	this amount of		
	hectare of land?	0	no: earns <25% less than national GDP
Farm size		1	no: earns between 5-25% less than national GDP
		2	yes: earns +-5% national GDP
		3	yes: earns between 5-25% more than national GDP
		4	yes: earns >25% above national GDP

E: Sensitivity Analysis

Percentages

Economic	Environmental	Social
33	33	33
50	25	25
25	50	25
25	25	50
60	20	20
20	60	20
20	20	60
50	30	20
20	50	30
30	20	50
60	30	10
10	60	30
30	10	60
70	15	15
15	70	15
15	15	70
40	30	30
30	40	30
30	30	40
40	50	10
10	40	50
50	10	40
40	40	20
40	20	40
20	40	40

Fconomic	Environmental	Social
1	1	1
1,515	0,757	0,7575
0,757	0,757	1,515
0,757	1,515	0,757
1,818	0,606	0,606
0,606	1,818	0,606
0,606	0,606	1,818
1,515	0,909	0,606
0,606	1,505	0,909
0,909	0,606	1,505
1,818	0,909	0,303
0,909	0,303	1,818
0,303	1,818	0,909
2,121	0,454	0,454
0,454	2,121	0,454
0,454	0,454	2,121
1,212	0,909	0,909
0,909	1,212	0,909
0,909	0,909	1,212
1,212	1,515	0,303
0,303	1,212	1,515
1,515	0,303	1,212
1,212	1,212	0,606
1,212	0,606	1,212
0,606	1,212	1,212

Brazil

Economic	Environmental	Social	average
1,632	1,2	1,428	1,42
2,47248	0,9084	1,08171	1,48753
1,235424	0,9084	2,16342	1,435748
1,235424	1,818	1,080996	1,37814
2,966976	0,7272	0,865368	1,519848
0,988992	2,1816	0,865368	1,34532
0,988992	0,7272	2,596104	1,437432
2,47248	1,0908	0,865368	1,476216
0,988992	1,806	1,298052	1,364348
1,483488	0,7272	1,311033	1,173907
2,966976	1,0908	0,432684	1,49682
1,483488	0,3636	2,596104	1,481064

Netherlands

Economic	Environmental	Social	average
1,632	1,6	2,24	1,824
2,47248	1,2112	1,6968	1,793493
1,235424	1,2112	3,3936	1,946741
1,235424	2,424	1,69568	1,785035
2,966976	0,9696	1,028261	1,654946
0,988992	2,9088	1,35744	1,751744
0,988992	0,9696	4,07232	2,010304
2,47248	1,4544	1,35744	1,76144
0,988992	2,408	2,03616	1,811051
1,483488	0,9696	3,3712	1,941429
2,966976	1,4544	0,67872	1,700032
1,483488	0,4848	4,07232	2,013536
		• 94	•

0,494496	2,1816	1,298052	1,324716
3,461472	0,5448	0,648312	1,551528
0,740928	2,5452	0,648312	1,31148
0,740928	0,5448	3,028788	1,438172
1,977984	1,0908	1,298052	1,455612
1,483488	1,4544	1,298052	1,41198
0,898994	1,0908	1,573239	1,187678
1,977984	3,305124	0,39331	1,892139
0,494496	1,4544	1,966549	1,305148
2,47248	0,3636	1,573239	1,469773
1,977984	1,4544	0,865368	1,432584
1,977984	0,7272	1,730736	1,47864
0,988992	1,4544	1,730736	1,391376

Paraguay

Economic	Environmental	Social	average
1,632	1,6	2,04	1,757333
2,47248	1,212	1,5453	1,74326
1,235424	1,2112	3,0906	1,845741
1,235424	2,424	1,54428	1,734568
2,966976	0,9696	1,23624	1,724272
0,988992	0,9696	1,23624	1,064944
0,988992	0,9696	3,70872	1,889104
2,47248	1,4544	1,23624	1,72104
0,988992	2,408	1,85436	1,750451
1,483488	2,408	3 <i>,</i> 0702	2,320563
2,966976	1,4544	0,61812	1,679832
1,483488	0,4848	3,70872	1,892336
0,494496	2,9088	1,85436	1,752552
3,461472	0,7264	0,92616	1,704677
0,740928	3,3936	0,92616	1,686896
0,740928	0,7264	4,32684	1,931389
1,977984	1,4544	1,85436	1,762248
1,483488	1,4544	1,85436	1,597416
1,483488	1,4544	2,47248	1,803456
1,977984	2,424	0,61812	1,673368
0,494496	1,9392	3,0906	1,841432
2,47248	1,9392	2,47248	2,29472
1,977984	1,9392	1,23624	1,717808
1,977984	0,9696	2,47248	1,806688
0,988992	1,9392	2,47248	1,800224

0,494496	2,9088	2,03616	1,813152
3,461472	0,7264	1,01696	1,734944
0,740928	3,3936	1,01696	1,717163
0,740928	0,7264	4,75104	2,072789
1,977984	1,4544	2,03616	1,822848
1,483488	1,9392	2,03616	1,819616
1,483488	1,4544	2,71488	1,884256
1,977984	2,424	0,67872	1,693568
0,494496	1,9392	3,3936	1,942432
2,47248	0,4848	2,71488	1,89072
1,977984	1,9392	1,35744	1,758208
1,977984	0,9696	2,71488	1,887488
0,988992	1,9392	2,71488	1,881024
	0,494496 3,461472 0,740928 0,740928 1,977984 1,483488 1,483488 1,977984 0,494496 2,47248 1,977984 1,977984 1,977984 0,988992	0,4944962,90883,4614720,72640,7409283,39360,7409280,72641,9779841,45441,4834881,93921,4834881,45441,9779842,4240,4944961,93922,472480,48481,9779841,93921,9779840,96960,9889921,9392	0,4944962,90882,036163,4614720,72641,016960,7409283,39361,016960,7409280,72644,751041,9779841,45442,036161,4834881,93922,036161,4834881,45442,714881,9779842,4240,678720,4944961,93923,39362,472480,48482,714881,9779841,93921,357441,9779840,96962,714880,9889921,93922,71488

Mauritius

Economic	Environmental	Social	Average
1,836	2,8	1,836	2,157333
2,78154	2,1196	1,39077	2,097303
1,389852	2,1196	2,78154	2,096997
1,389852	4,242	1,389852	2,340568
3,337848	1,6968	1,112616	2,049088
1,112616	5,0904	1,112616	2,438544
1,112616	1,6968	3,337848	2,049088
2,78154	2,5452	1,112616	2,146452
1,112616	4,214	1,668924	2,331847
1,668924	1,6968	2,76318	2,042968
3,337848	2,5452	0,556308	2,146452
1,668924	0,8484	3,337848	1,951724
0,556308	5,0904	1,668924	2,438544
3,894156	1,2712	0,833544	1,999633
0,833544	5,9388	0,833544	2,535296
0,833544	1,2712	3,894156	1,999633
2,225232	2,5452	1,668924	2,146452
1,668924	3,3936	1,668924	2,243816
1,668924	2,5452	2,225232	2,146452
2,225232	1,925868	0,556308	1,569136
0,556308	3,3936	2,78154	2,243816
2,78154	0,8484	2,225232	1,951724
2,225232	3,3936	1,112616	2,243816
2,225232	1,6968	2,225232	2,049088
1,112616	3,3936	2,225232	2,243816

Germany

Economic	Environmental	Social	Average
1,63	2	2,55	2,06
2,46945	1,514	1,931625	1,971692
1,23391	1,514	3,86325	2,20372
1,23391	3,03	1,93035	2,064753
2,96334	1,212	1,5453	1,90688
0,98778	3,636	1,5453	2,05636
0,98778	1,212	4,6359	2,27856
2,46945	1,818	1,5453	1,94425
0,98778	3,01	2,31795	2,105243
1,48167	1,212	3,83775	2,17714
2,96334	1,818	0,77265	1,85133
1,48167	0,606	4,6359	2,24119
0,49389	3,636	2,31795	2,14928
3,45723	0,908	1,1577	1,840977
0,74002	4,242	1,1577	2,046573
0,74002	0,908	5,40855	2,35219
1,97556	1,818	2,31795	2,03717
1,48167	2,424	2,31795	2,07454
1,48167	1,818	3,0906	2,13009
1,97556	3,03	0,77265	1,92607
0,49389	2,424	3,86325	2,26038
2,46945	0,606	3,0906	2,05535
1,97556	2,424	1,5453	1,98162
1,97556	1,212	3,0906	2,09272
0,98778	2,424	3,0906	2,16746

Category	Brazil	NL	Paraguay	Mauritius	GE
Economic	1,632	1,632	1,632	1,836	1,63
Environmental	1,2	1,6	1,6	2,8	2
Social	1,428	2,24	2,04	1,836	2,55
Total	1,4204	1,825	1,75	2,158	2,06