



# Sustainability in the cattle sector of Paraguay

The perception of cattle producers and the influence of the institutional setting

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*Gemma Verijdt*



## SUMMARY

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This research discussed how Paraguayan cattle producers perceive the demand for sustainability in the supply chain of meat and how the institutional setting of Paraguay affects the implementation of sustainability standards. Different international and national sustainability standards in the cattle sector of Paraguay were assessed using the SSCM framework. Awareness among and perceptions of Paraguayan cattle producers were reviewed. The influence of the institutional setting of Paraguay was taken into account by using the VoC approach. To answer the research question, several semi-structured interviews with cattle producers and key figures of the private sector, governmental institutions, experts and, NGOs were conducted, together with an analysis of literature and secondary data.

Paraguayan cattle producers are often not aware of international sustainability standards and international standards are hardly present in the cattle sector of Paraguay. National sustainability standards are more well known. Producers perceive the national standards as easier to implement than the international standards. The national standards are however less holistic and mainly focus on economic performance and to a lesser extent on either environmental or social performance.

Most producers mention that sustainability is to find a balance between economic revenues and respecting the environment. The social aspects of sustainability were almost never. Sustainability issues and standards are almost only perceived positively or included in the long-term strategy of cattle producers if it contributes to profit. The institutional setting of Paraguay can provide an explanation concerning this perception on sustainability and implementation of sustainability standards. There is a certain hierarchical structure in the cattle sector in which the business elite has a lot of influence. The hierarchies create some obstacles for coordination of markets that require extraordinary efforts to overcome. The presence of family owned businesses, the low skilled labor, the little coherence between institutions and the weak enforcement of the law create negative complementarities that make implementation of sustainability standards hard.

In order to improve implementation of sustainability standards it is important to create a market in which there is a price differentiation between sustainable produced meat and non-sustainable produced meat. Also improved awareness, education, and technology among cattle producers could create a setting in which sustainability standards can be implemented. Lastly, stricter enforcement of the law, greater coherence between institutions and the establishment of an organization that represents small producers could overcome negative complementarities.

## RESUMEN

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Esta investigación analiza la percepción de los productores paraguayos de ganado en cuanto a su sustentabilidad basada en la demanda dentro de la cadena de suministro de carne y cómo la estructura institucional de Paraguay afecta a los estándares de implementación de dicha sustentabilidad. Se utilizaron diferentes estándares nacionales e internacionales dentro del marco SSCM. La percepción y el conocimiento de los productores paraguayos de ganado fueron examinados. Se tomó en cuenta la estructura institucional de Paraguay utilizando el enfoque VoC. Para responder a la pregunta de la investigación, se efectuaron varias entrevistas semi-estructuradas con los productores de ganado y figuras claves del sector privado, de instituciones gubernamentales, expertos y de ONGs, simultáneamente a la revisión de literatura y datos secundarios.

La mayoría de los productores paraguayos de ganado no están en conocimiento de los estándares internacionales de sustentabilidad y los mismos se encuentran difícilmente presente en el sector ganadero paraguayo. Los estándares nacionales de sustentabilidad son muy bien conocidos. Los productores perciben los estándares nacionales como más fáciles de implementar que los estándares internacionales. Los estándares nacionales son, sin embargo, menos holísticos y se enfocan principalmente en el desempeño económico y a un nivel muy inferior al desempeño ambiental o social.

La mayoría de los productores mencionan que la sustentabilidad se refiere a encontrar un balance entre el ingreso económico y el respeto al medio ambiente. Los aspectos sociales casi nunca fueron mencionados. Los temas y estándares de sustentabilidad son apenas percibidos positivamente o incluidos en la estrategia a largo plazo de los productores de ganado sólo si éstos contribuyen a una ganancia. La estructura institucional de Paraguay es capaz de proveer una explicación con respecto a esta percepción de la sustentabilidad y su implementación dentro de los estándares. Existe una cierta estructura jerárquica dentro del sector ganadero en la cual la élite comercial tiene mucha influencia. Estas jerarquías crean algunos obstáculos para la coordinación de los mercados que requieren de grandes esfuerzos para superarse. La presencia de negocios familiares, la baja calificación de la mano de obra, la poca coherencia entre las instituciones y la débil implementación de las leyes crean agregados negativos que hacen difícil la implementación de los estándares de sustentabilidad.

De manera a mejorar la implementación de los estándares de sustentabilidad es importante crear un mercado en el cual haya una diferencia entre el precio de la carne producida dentro de los estándares de sustentabilidad y la carne no producida dentro de los mismos. Además, el mejoramiento en la conciencia, educación y tecnología entre los productores de ganado podría crear una estructura en la cual los estándares de sustentabilidad puedan ser implementados. Finalmente, una aplicación más fuerte de la ley, mayor coherencia entre las instituciones y el establecimiento de una organización que represente a los pequeños productores podrían superar los agregados negativos.

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## LIST OF ACRONYMS

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<b>ARP</b>	Asociación Rural Paraguay
<b>CPC</b>	Centro Paraguayo de Cooperativistas
<b>CME</b>	Coordinated Market Economy
<b>EIA</b>	Environmental Impact Assessment
<b>GDP</b>	Gross Domestic Product
<b>GHG</b>	Greenhouse Gas
<b>GRSB</b>	Global Roundtable for Sustainable Beef
<b>GVC</b>	Global Value Chain
<b>HME</b>	Hierarchical Market Economy
<b>HDI</b>	Human Development Index
<b>IFC</b>	International Finance Corporation
<b>INDERT</b>	Instituto Nacional de Desarrollo Rural y de la Tierra
<b>INFONA</b>	Instituto Forestal Nacional
<b>INTN</b>	Instituto Nacional de Tecnología Normalización y Metrología
<b>LME</b>	Liberal Market Economy
<b>MAG</b>	Ministerio de Agricultura y Ganadería
<b>MERCOSUR</b>	Mercado Común del Sur
<b>MNC</b>	Multinational corporations
<b>NGO</b>	Non Governmental Organization
<b>SEAM</b>	Secretaria del Ambiente
<b>SENACSA</b>	Servicio Nacional de Calidad y Salud Animal
<b>SITRAP</b>	Sistema de Trazabilidad de Paraguay
<b>SSCM</b>	Sustainable Supply Chain Management
<b>TBL</b>	Triple Bottom Line
<b>VoC</b>	Varieties of Capitalism

## 1. INTRODUCTION

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Livestock production significantly contributes to the emission of greenhouse gas (GHG). Meat and dairy production account for half of the food-generated GHG emissions and for 18 per cent of the global GHG emissions. In addition, more land is needed to grow crops to feed livestock. Estimations show that already in 2004 livestock consumes a third of the world cereal output. Scarcity of land and food can occur, taking into account that the world population will reach 10 billion in 2050 (Garnet, 2011). Questions have been raised on how to adequately feed this growing world population. Considering that a large amount of land is already used to feed livestock and considering that the demand for dairy and meat is expected to double by 2050, it is important to improve production processes. Also taking into account that livestock production is one of the main causes for deforestation, it is important to think about how livestock production and especially the cattle sector can be more sustainable.

Sustainability has gained enormous popularity in the last decade as a reaction to environmental concerns such as the ones related to livestock production. But not only the environmental aspect of sustainability receives growing attention. Social issues, such as labor conditions in low-wage countries, are being condemned and discussed. As a result, academic research has increasingly focused on sustainability alongside the supply chain. In addition, social and environmental aspects of doing business have become highly prominent in policy-making. Many countries have implemented the concept of sustainability in their legislation and jurisdiction (Linton, Klassen & Jayaraman, 2007). Besides academia and governments, the private sector has picked up these concepts. Because customers in the North demand that firms address and manage the negative impact of their operations, sustainability issues have become more prominent in doing business. Violations of social and environmental standards by companies in the supply chain have led to adverse publicity, reputational damage, and costly legal obligations. This has resulted in the argument that businesses that do not solely focus on economic return, but also take the impact of their actions on the environment and society into account, will attain a long-term competitive advantage (Reuter, Foerstl, Hartmann & Blome, 2010). This growing awareness of sustainability has resulted in the establishment of sustainability standards and certification schemes that are often defined in the global North. This has led to the creation of a new market in which the commodities produced

in the global South can only enter this new market if they comply with standards and certification schemes set by the global North (Raynolds, 2004).

With the growing awareness of the importance of sustainability, there is a large opportunity for the livestock sector to implement sustainability standards, especially in those areas in which the livestock sector is developing. This is also the case for Paraguay. The cattle sector of this country has grown rapidly in the past years. Where the export of beef of other countries such as Brazil, Uruguay, and Argentina only grew 2 to 3 times between 2003 and 2010, the export of beef of Paraguay grew 14.7 times in the same period (ARP, 2015).

### THE IMPORTANCE OF SUSTAINABILITY IN THE SUPPLY CHAIN

Over the years the interest in sustainability in the supply chain has been of great interest for both practitioners and academia. As a result there is an extended body of literature around sustainable supply chain management (SSCM).

The supply chain is crucial in the establishment and adaptation of sustainability standards. Originally, the current cost perspective was the main focus in the supply chain. By optimizing the entire sequence of steps in the supply chain, the greatest value at the lowest possible costs could be achieved. However, with the growing awareness of climate change and the negative effects of the private sector on the environment, the concept of supply chain management has been stretched. The trend towards integration of sustainability standards into legislation has forced firms to look at the supply chain from a broader perspective and changed the nature of competition in the supply chain. Firms can no longer look at the current costs of products, but also have to take into account the total costs, such as the effects of resource depletion and other effects that products may have on the environment (Linton, Klassen & Jayaraman, 2007).

However, to assure that sustainability is also economically viable, firms first need to establish certain elements. Green, Zelbst, Meacham & Bhaduria (2012) show in their research that environmental sustainability needs to be incorporated as a key part of the organization's mission statement. Unilever, for example, committed to source 100 per cent of their agricultural raw materials, such as soy, sustainably by 2020 (Unilever, 2013). In order to enhance environmentally friendly services, communication throughout the supply chain is needed. Organizations need to develop information systems that are

capable of integrating and coordinating environmental sustainability initiatives with suppliers and customers.

#### ANOTHER PERSPECTIVE: GLOBAL VALUE CHAIN

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While it has been stressed in SSCM research that both environmental and social sustainability are important, the main focus in SSCM research is on environmental sustainability. Social sustainability has received little attention. Global value chain (GVC) research has its roots in development studies and does incorporate the social dimension in sustainability. The terminology of GVC research is slightly different from SSCM research. SSCM research talks about supply chain management, while GVC research speaks of value chain governance.

GVC research addresses the creation of global production networks. It has a history of analyzing social standards in the context of outsourcing labor-intensive segments of production to low-wage countries. GVC research discusses how the chain is governed and how firms and farms of developing countries are increasingly integrated in the global value chain. It is stressed that different types of value chain governance can result in opportunities for developing countries (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010). This is where the main difference with SSCM research appears: GVC research looks at power relations and distribution along the value chain and is therefore more people centered, while SSCM focuses on the logistics. GVC research highlights the power of large firms that shape the global economy. These firms in the chain set and/or enforce the parameters, e.g. sustainability standards, under which the others operate (Humphrey & Schmitz, 2008). This has also been the case in the agri-food sector. In the last two decades sustainability standards have emerged in the agri-food sector. Firms from developed countries influence the governance of agri-food value chains, which has resulted in controlling production systems in developing countries (Henson & Humphrey, 2010).

Sustainability standards in the cattle-sector are hardly present at the moment. But as Paraguay is setting foot in the global market, in which sustainability standards are becoming part of doing business, it is important that the business models of the Paraguayan cattle-farming sector are revised.

## RESEARCH QUESTIONS

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While sustainable management in the supply chain is growing in importance, not all firms encounter it as a precondition of doing business. The institutional setting has to be right. Companies are often still hesitant to commit to sustainability standard, because they see it as a costly operation. Often it is unclear whether the market is willing to pay more for higher sustainability standards in production. In addition, companies are often not forced to implement sustainability standards by law. Even when there are laws concerning sustainability, enforcement of these laws is often lacking. This undermines the business case, because costs to comply with the law are considered as additional costs (KPMG, 2013). This is enhanced by the fact that firms often do not have a common standard for evaluating sustainability standards. Since performance measures are of great importance for companies, they are hesitant to adapt sustainability standards (Hassini, Surti, & Searcy, 2012).

This is also the case for the cattle sector in Paraguay. The Paraguayan cattle sector is mainly situated in the beginning of the supply chain and it is questionable whether sustainable management is occurring. Sustainability standards are often developed and set by actors in the global North. The demand for sustainability from these far away markets in Europe and America is not always tangible for producers of the South. This research therefore examines the perspective of Southern producers, more specifically of Paraguayan cattle producers, on the demand for sustainability from the North. Important to include is the institutional setting, since institutional regulations are central to chain governance and the occurrence of sustainable management. As is stated in GVC research, institutional actors can potentially transform the production process in the global South to match demands of the global North (Reynolds, 2004). Therefore, this research discusses how the institutional setting of Paraguay affects the implementation of sustainability standards in the cattle sector.

The view of Paraguayan cattle producers concerning sustainability can give insights in the occurrence of sustainable management in the Paraguayan cattle sector. This research assesses how cattle producers perceive the demand for social and environmental sustainability in the supply chain of meat. First the currently available sustainability standards that are present in the cattle sector and Paraguay in specific are reviewed. Secondly, this research will establish if cattle producers are aware of these sustainability standards. The perception of cattle farmers concerning sustainability standards and the

perceived advantages and disadvantages of these sustainability standards will be included. Also the experiences of Paraguayan cattle producers concerning certain sustainability issues, like conservation of forest, will be discussed. Questions about reasons why producers want or do not want to comply with standards are addressed. Thirdly, the perceptions of Paraguayan cattle producer are put in the context of the institutional setting of Paraguay. The institutional setting will affect the degree of implementation of sustainability standards in the cattle sector. Lastly, this research looks how implementation of sustainability standards could be improved in the Paraguayan cattle sector, taking the results of the other questions into account. The main research question is two-sided and is further broken down to four sub-questions.

#### **Research Questions:**

(a) How do Paraguayan cattle producers perceive demand for social and environmental sustainability in the supply chain of meat and (b) how does the institutional setting of Paraguay affect the implementation of sustainability standards?

1. What are the current international and national sustainability standards present in the Paraguayan cattle sector?
2. To what extent are Paraguayans cattle producers aware of sustainability standards and how do Paraguayan cattle producers look at environmental and social sustainability?
3. How does the institutional setting of Paraguay affect the implementation of sustainability standards in the Paraguayan cattle sector?
4. How can the implementation of sustainability standards in the Paraguayan cattle sector be improved?

#### **SOCIETAL AND SCIENTIFIC RELEVANCE**

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This research will add to the literature of SSCM research, by including elements of GVC research. Most of the SSCM research is focused on the environmental dimension, while the social dimension of supply chain management is often ignored (Brandenburg, Govindan, Sarkis & Seuring, 2014). This research will provide insights for SSCM research by taking both dimensions into account. In addition, this research will focus on the producer's side of the supply chain. Instead of looking how sustainability issues affect the organization of a business, this research will focus on how sustainability issues affect the organization of producers. The main focus will therefore not lie on management of

the supply chain at a high level, but more on management of the supply chain at the beginning of the supply chain.

Consequently, this research can provide insight for business and actors from the global North in how implementation of sustainability standards can be improved. If sustainability is the way of doing business in the 21st century, it is important that producers are aware of environmental and social standards. In addition, it is important to know for businesses and actors in the global North on how producers from the global South perceive the sustainability standards set by the global North and how the institutional setting of a country affects implementation of sustainability standards. The findings of this research can be used to enhance communication concerning the demand for sustainability to producers in the Paraguayan cattle sector.

In addition, this research is relevant for environmental and societal reasons. This research can provide information about how the environment and the society can be taken into account in a fast growing economy, such as Paraguay, that relies on agriculture. Knowing how producers look at sustainability and how implementation of standards can be improved can contribute to achieving long-term development.

## STRUCTURE

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In the following chapter the theoretical framework underlying the research questions will be explained. In chapter 3 concepts will be defined and the methodology will be explained. Chapter 4 provides relevant contextual information about the Paraguayan cattle sector and governmental institutions. Chapter 5 to 8 will include the analysis of the results and answers the sub-questions of the research question. Lastly, chapter 9 will contain the conclusion and discussion, in which the main research question will be answered and recommendation for future research will be discussed.



## 2. THEORY

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Two theoretical concepts are used to answer the research question: triple-bottom-line and varieties-of-capitalism approach. The triple-bottom-line is often used as a concept in SSCM. For this research elements of GVC are added with regards to SSCM. The varieties-of-capitalism approach is more focused on the institutional settings businesses have to operate in. The theories will be tested by applying the main principles of these theories to the cattle sector in Paraguay.

### TRIPLE-BOTTOM-LINE

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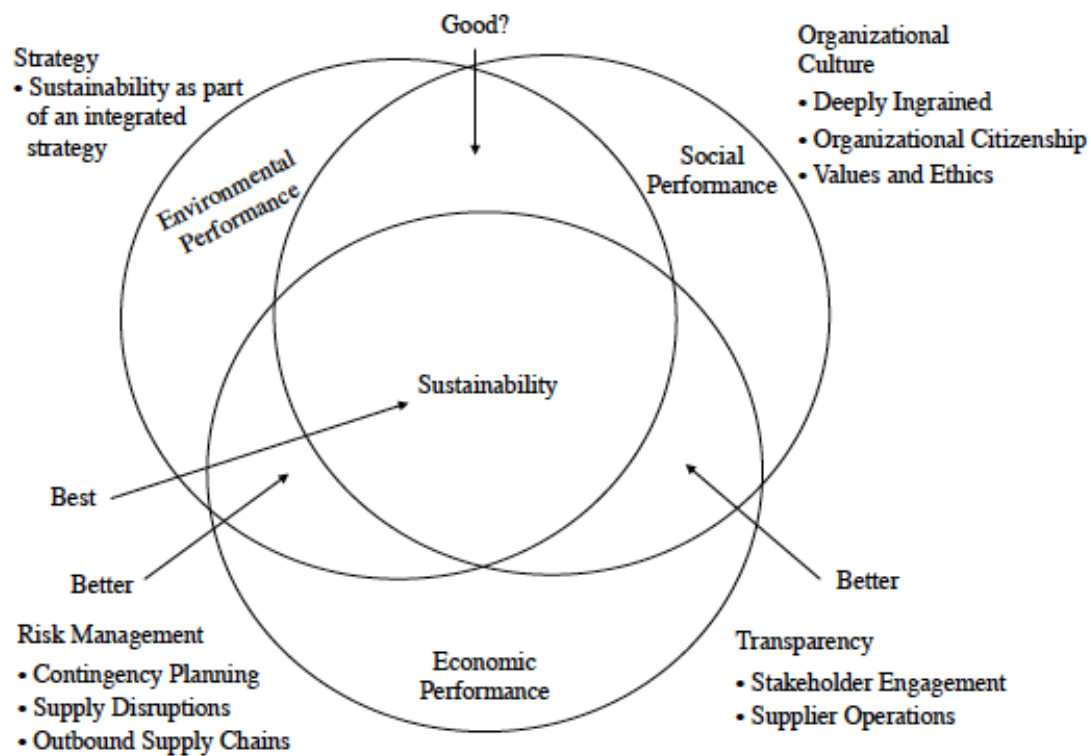
For a long time much of the supply chain research did not focus on the interrelationships with the environment, human rights, philanthropy, and safety. However, in the last decade a growing awareness appeared that these components are part of a larger, more holistic concept of sustainability and that they should be applied to manage the supply chain (Carter & Jennings, 2002).

At the core of the conceptualization of SSCM is the triple-bottom-line (TBL) of Elkington (1998; 2004). This line addresses the intersection of social, environmental, and economic performance, also known as people, planet, and profit. Carter and Rogers (2008) address the intersection of these performances in their paper and at this intersection, there are activities that organizations can engage in which not only results in economic benefits, but also positively affect the environment and society. SSCM incorporates long-term improvement of an organization's economic bottom line. However, Carter and Rogers state that also other aspects of sustainability need to be included in SSCM:

1. Risk management: besides short-term financial risk, an organization also has to take long-term risks resulting from for example environmental waste and worker safety into account. Firms therefore need to be able to understand and manage its economic, environmental, and social risks in the supply chain;
2. Transparency: includes communication to and engaging stakeholders. Their feedback can be used to secure buy-in and improve supply chain processes.
3. Strategy and organizational culture: sustainability initiatives and the corporate strategy must be closely related, rather than being managed independently. Environmental and social responsible purchasing is dependent on the organizational culture of a business.

Carter and Rogers (2008) state that the three supporting facets of the TBL are interrelated and therefore are an integrated part of SSCM practices. In figure 1 one can see how these aspects are merged within the TBL. True sustainability appears at the intersection of environmental, social, and economic performance.

Figure 1. Framework sustainable supply chain management



Source: Carter & Rogers (2008)

In figure 1 social performance takes a prominent role in SSCM. Also the TBL mentions the social aspect as a vital aspect of sustainability. However, as mentioned before, social sustainability is often lacking in SSCM research. Elements of GVC research are incorporated in this research to expand the social aspect. Barrientos, Gereffi & Rossi (2011) analyzed how strategies of social upgrading that benefit both firms and workers can be enhanced. Social upgrading refers to the process of improvement in rights and entitlements of workers, which enhances the quality of their employment. Besides labor conditions other issues are relevant when social sustainability is addressed. To achieve sustainability for everyone it is important that all producers, including small farmers, are incorporated and have access to land, water, and other natural resources. This is something that GVC research addressed.

In addition, GVC research looks at actors outside the value chain and how power relation affect the global value chain. Institutional and social context are incorporated in order to look at their influence on production networks. Those actors that are powerful in the sector have a large say in how the value chain is governed. A government, for example, can assure with one law that all producers have to change their practices. But also powerful sector organizations have the ability to influence practices of producers. Certain actors set, measure, and enforce the parameters under which others in the chain operate. To assure that environmental and social sustainability standards can be integrated in the cattle sector of Paraguay it is important that these actors have knowledge concerning the demands and expectations that compliance with different kinds of standards entail (Bolwig, Ponte, Du Toit, Riisgaard, & Halberg, 2010).

According to Carter and Rogers (2008) the overlap of environmental, social, and economic performance in the SSCM framework illustrates that environmental and social initiatives enhance the economic performance of a business. Based on this, one can assume that a long-term strategy in which environmental and social sustainability as defined in the SSCM framework are included in all parts of the value chain, will not only result in higher economic performances for cattle producers, but also for development in Paraguay. However, including concepts of GVC research, the implementation of environmental and social sustainability standards is only possible if powerful actors in the cattle sector of Paraguay have knowledge about standards and include these standards in their strategy. These powerful actors have a large influence on how the cattle sector in Paraguay is shaped. If these powerful actors do not have knowledge about or do not include sustainability in their strategy, positive effects, such as a higher economic performance, will hardly occur. The same mechanism applies for awareness. If powerful actors have knowledge about and include sustainability standards in their strategy, producers of cattle will be more aware of sustainability standards. It is to be expected that the more producers of cattle are aware of sustainability standards, the more they will perceive sustainability standards positively and include them in their long-term strategy.

#### VARIETIES OF CAPITALISM

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Besides looking at supply chain management it is important to look at the institutional setting of Paraguay. As explained in the concepts of GVC, power relations and actors outside the value chain will affect the value chain. The institutional setting of Paraguay

will determine to what extent producers are aware of the demand for sustainability and how they perceive sustainability standards.

The Varieties-of-Capitalism (VoC) approach provides insight in how the institutional setting of a country influences businesses. The VoC approach has been introduced by Hall & Soskice (2001). In this approach it is assumed that firms are the central actors in the economy. For firms to prosper, they have to establish five spheres of strategic relationships: industrial relations, vocational education and training, corporate governance, inter-firm relations, and employee relations. Because firms do not operate in a vacuum, success in each of these efforts is dependent on efficient coordination with other actors. Hall and Soskice distinguish two different modes of coordination in developed countries:

1. Liberal market economy (LME): Firms coordinate with other actors primarily through market relations in which outcomes are driven by the market;
2. Coordinated market economy (CME): Firms coordinate with other actors through strategic interaction in which outcomes are dependent on the available institutional support for the formation of credible commitments.

The balance between those two types of coordination varies across political economies. According to Hall and Soskice (2001) it is dependent on the institutional setting whether a firm coordinates through market relations or strategic interaction. The institutional structures and types of organizations of a political economy depend on the presence of regulatory regimes. Institutions provide capacities to exchange information, monitoring, and sanctioning, which is relevant for firms. It is the presence of these institutions that are important when nations are compared. In a political economy institutions give strategic capacity to actors.

To understand the features of a mode of coordination, the theory of institutional complementarities has to be explained. One set of institutional practices can be said to be complementary to another when each raises the returns available from the other. This suggests that nations with a particular type of coordination have to develop complementary practices in other spheres as well in order to raise the same returns. This results in a high dependency on institutions. Institutions sustaining coordination in one sphere can be used to support forms of coordination in other institutions. With regards to this research, institutions can, for example, create a situation in which sustainability is

an efficient mode of coordination and give comparative advantage. Institutional practices are not distributed randomly. The coherence between the different institutions is crucial for a mode of coordination (Hall & Soskice, 2001).

A third mode of coordination, the hierarchical market economy (HME), is identified for developing countries. This type of coordination is applicable to countries in Latin America. HME has four key features: diversified business groups, multinational corporations (MNC), atomistic labor and employee relations, and low-skilled labor. These cover the same five strategic relationships of Hall and Soskice (2001). Hierarchy replaces the coordinated or market relation found elsewhere. HMEs also establish negative complementarities and weaker reinforcing tendencies. This means that the set of institutional practices in a HME does not raise the same return as in the other modes of coordination. This is a result of the ruling elite that strongly influence institutional formation and the weak position of labor unions in HMEs. Institutional advantages lie within privileged access to the political access. Since few companies have an incentive to undertake the risks of research and development, HMEs are often moving slow and create obstacles to coordination and markets. Efforts have to be made to overcome the negative complementarities in HMEs (Schneider, 2009; Schneider & Soskice, 2009).

Large domestic firms and family-owned and controlled business groups are often the dominant corporate form in HMEs. These large domestic business groups hierarchically control several other firms that have been in the family for several generations. This results in a small number of groups that account for a large share of the Gross Domestic Product (GDP). On the labor side, the HME is similar to the LME. However, institutions for employment relations within firms and for greater investment in skills and training are absent. The available unions are small and represent a small share of the workers, as a result of the large informal sector in HMEs. The limited presence of unions and collective bargaining increases inequality. Also the large informal sector increases inequality, since workers are denied access to a range of protections and benefits. Education levels are comparatively low and public and private investment in training is minimal. A large amount of children do not participate in secondary education, which makes the inequality gap larger (Schneider, 2009; Schneider & Soskice, 2009). It is these four key features that reinforce hierarchy and make it hard to overcome negative complementarities (Hall & Soskice, 2001).

Paraguay can historically be seen as a HME. The economy of Paraguay is characterized by a small number of domestic firms and family-owned business groups. The current Paraguayan President, Horacio Cartes, for example, owns 21 businesses that are organized in *Grupo Cartes*. These large groups, such as *Grupo Cartes*, are small in number, but account for a large share of the GDP of Paraguay. The Gini-coefficient of the country illustrates this. If one considers that a Gini-coefficient of 0 represents perfect equality and a coefficient of 100 represents perfect inequality, Paraguay scores rather high with a Gini-coefficient of 49.8 for the year 2012 (Inter-American Development Bank, 2015). In addition, MNCs are becoming more present in Paraguay. Investments from MNCs from abroad have grown in all departments of Paraguay in the last decades and became more dominant (Galeano, 2012). However, the foreign investors come from different political economies that have different institutional practices. These practices could be conflicting with local frameworks. Organized labor is often absent and the middle and working class are weak in Paraguay (Rueschemeyer, Stephens & Stephens, 1992). Also the educational level of Paraguay is relatively low. In 2012 only 65 per cent of the children of official school age were enrolled in secondary school. In other countries in the region, such as Argentina, Chile, and Peru, the enrollment of children of official school age is relatively higher with, respectively, 89 per cent, 87 per cent and 76 per cent (World Bank, 2015).

The differences in the economic organization (including complementarities) across countries result in country-specific comparative institutional advantages, since firms exploit institutional support to derive competitive advantages (Hall & Soskice, 2001). This is also what Aguilera and Cuervo-Cazurra (2004) state in their research using among others the VoC approach. They examine how external forces influence the adaptation of improved national corporate governance systems in countries that have deficiencies in their system. Good governance is more likely to occur when a country does not have strong shareholder protection right or when there is a strong presence of foreign institutional investors. However, practices of foreign investors could also conflict with local practices. Adaptation of codes of good governance improves national corporate governance systems and enhances efficiency and legitimization.

On the base of the VoC approach, one can assume that the adaptation of sustainability laws by the Paraguayan state can only occur if the negative complementarities of a HME are overcome. This can create an institutional setting in which codes of good governance

can occur. When the institutional setting of a political economy is suitable for sustainability laws and sustainability standards, companies implement sustainability standards, because the system is backing them up. The institutional setting provides a sphere in which firms can prosper if they produce sustainably. However, Paraguay fits in the description of a HME. Therefore, it is expected that the institutional setting of Paraguay will not be suitable for sustainability standards and negative complementarities are not overcome. The coherence between institutions is lacking and comparative institutional advantage of Paraguay will in this situation be less than those of other countries. Because the institutional setting of Paraguay will not provide competitive advantages for cattle farmers, it is economically less viable for producers to enforce sustainability standards. It is expected that cattle farmers do not perceive sustainability standards as positive.

### 3. CONCEPTUALIZATION & METHODS

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In this chapter the methods used to answer the research question will be addressed. In addition, the concepts of the theories will be operationalized in order to make them measurable.

#### METHODS

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Three different methods are used to provide information to answer the research question. These methods are both quantitative and qualitative. Which method is used depends on the sub-question of the main research question:

1. Literature: existing literature concerning sustainability standards, national legislation and institutional setting was consulted;
2. Semi-structured interviews: with experts and key figures from different stakeholder groups from relevant governmental institutions, private sector organizations, and Non Governmental Organizations (NGO) were conducted;
3. Semi-structured interviews: with producers who work in the cattle-sector were conducted.

Desk-based research is the main method to answer the first research question, which addresses the current sustainability standards. Literature concerning Paraguayan and international sustainability laws and standards were consulted and compared to the concepts of sustainability standards in the SSCM and GVC research. In addition, interviews with professionals from different stakeholder groups, such as key figures and experts of the private sector, NGOs, and governmental institutions, were conducted.

In order to answer the second and fourth research question, concerning the awareness, perception, and implementation of sustainability standards, an interview guide was developed to question producers (see Annex 1). This interview guide is based on the findings of the previous research questions. Producers were asked how they perceive sustainability and if they are aware of the different sustainability standards. Different issues concerning social and environmental sustainability were also addressed. The exact issues will be discussed in the conceptualization. Lastly interviewees were asked about their opinion on some of the Paraguayan laws.

For the third research question, concerning the effect of the institutional setting of Paraguay on sustainability, desk-based research was conducted to look at the institutional



setting. This is linked to the result of the semi-structured interviews with cattle producers and, to a lesser extent, with experts from different stakeholder groups.

Important to note is that the specific interpretation of the methods used to answer the different research questions was dependent on the result of the methods. First there was a need for information on how to conceptualize the research questions. Indicators needed to be developed in order to answer the research questions. For example, to know whether producers are aware of sustainability standards for the cattle sector, one first needs to know which standards are currently relevant for the cattle sector. The same applies to the conceptualization of social and environmental sustainability for the Paraguayan cattle sector. The conceptualization of sustainability, which is further explained below, is the result of the desk-based research to answer the first research question and the interviews with experts who pointed out which issues are important when sustainability in the cattle sector of Paraguay is addressed. The underlying reason for this approach is to ensure that the indicators actually measure the concepts like environmental and social sustainability and sustainability standards for the Paraguayan situation. Sustainability means something different in different contexts. In the cattle sector animal welfare is also an issue, which is not the case in, for example, the clothing industry. The same applies to the geographical context of Paraguay. The climate of Paraguay largely determines the mode of production and is therefore highly context specific. By taking the approach explained above, the validity of the concepts are enhanced.

Experts were identified by doing desk-based research. Producers were selected by consulting a Paraguayan bank that finances cattle farmers. A disadvantage of this sampling method is that these producers are possibly not representative for all producers in the cattle sector. There is a possibility that the bank only selected producers with best practices. However, the bank did provide access to producers, who are otherwise closed and difficult to reach. Three measures were taken to prevent only talking to producers introduced by the bank and to avoid this bias. Firstly, using snowball sampling, producers were asked to identify other producers to talk to. Secondly, desk-based research helped to identify other influential producers in the cattle sector of Paraguay. Thirdly, producers with the most sustainable production method are addressed separately as frontrunners. In total 40 people were interviewed of which 19 were producers. These 19 producers include representatives from 2 Mennonite colonies. These colonies have

established large cooperatives, which include a large amount of producers. The *Volendam Cooperative* has 200 members that practice cattle farming and the *Fernheim cooperative* has 600 to 700 members that practice cattle farming. In table 1 one can see what the characteristics of the interviewed producers are. The cooperatives that were interviewed are not included in this table, since they consists out of more producers.

*Table 1. Characteristics interviewed cattle producers*

	Range	Mean
Farms	1 – 8	3.2
Surface in hectare	2,300 – 45,000	16,357
Heads of cow	1,500 – 20,000	7,840

On average the producers talked to for this research own 3.2 farms that have a surface of 16,357 hectares and have 7,840 heads of cow. In total the interviewed producers (including the cooperatives) own 908,750 hectares of land on which they do cattle farming. This is a surface that is comparable to New York City. While the farms of the cattle producers vary a lot in the amount of hectares and cows, one can conclude that all producers interviewed with regards to this research are large producers. This will be discussed more extensively in the next chapter. The farms of the producers are more or less equally divided over the different departments of Paraguay.

Some of the interviewed producers are considered front-runners with regards to sustainable cattle production. These producers are addressed separately in the analysis. Which producers belong to the category of front-runners was based on suggestions of a consultant and the Paraguayan bank. In total 5 of the 19 interviewed producers can be considered as front-runners: *Payco S.A.*, *Erurales S.A.*, an individual large producer, the Mennonite cooperative *Ferhnheim*, and the Mennonite cooperative *Volendam*. These producers are considered front-runners, because they have a more sustainable production method according to the consultant and the Paraguayan bank.

A full list of the interviewed people and other activities that were relevant for the research can be found in Annex 2.

The largest limitation of the data is that the producers spoken to are all large cattle farmers. Large producers only represent a small amount of the total amount of cattle producers in Paraguay. Small producers are only represented through NGOs. As a result, the producers interviewed for this research are not a good reflection of the actual

distribution. Also foreign cattle farmers are underrepresented. The only foreign producers talked to are one from Argentina and one from Mexico. The sample of this research is, therefore, not representative. Another limitation of the data is that the interviewees and respondents all have their personal opinions and interest and will therefore be partly subjective. To enhance the reliability and objectivity of the data, the specific stakeholder groups is, if necessary, mentioned in the analysis. Finally this study relies heavily on qualitative data. Quantitative data is only used from secondary data sets. This does not cause mayor problems or does not make the data less reliable. The use of qualitative data is only a minor deficiency when the institutional setting of Paraguay is addressed in Chapter 7. It would have been preferable if there was quantitative data concerning large domestic groups, MNCs, level of education of cattle farmers, and employees and labor relations.

## CONCEPTUALIZATION

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Sustainable supply chain management can be defined in the following manner:

*“The control of the supply chain operations, resources, information and funds in order to maximize the supply chain profitability while at the same time minimizing the environmental impacts and maximizing the social well-being” (Hassini, Surti & Searcy, 2012)*

In order to measure how Paraguayan cattle producers look at environmental and social sustainability, environmental impact and social well-being, mentioned in the definition of SSCM, need to be conceptualized:

- *Environmental sustainability* will be achieved if negative impacts on the environment are minimized. This can be achieved by adopting and adapting technologies and practices that result in more efficiently and environmentally friendly material sources in the supply chain (Hassini, Surti, & Searcy, 2012). To ensure that the indicators measure environmental sustainability with regards to the cattle sector of Paraguay, the IFC performance standards (2012) in combination with the principles of the GRSB (2014) and the local context are taken into account. Environmental sustainability in the cattle sector of Paraguay includes:
  - Assessing and managing environmental impacts: this addresses whether cattle producers have an environmental impact assessment that identifies the environmental risks and impacts of their activity, namely cattle farming;
  - Resource efficiency and pollution prevention: in the cattle sector of Paraguay

resource efficiency mostly has to do with the sustainable use of water. Other scarce resources, like energy or petroleum are hardly used in the cattle sector. In addition, this aspect focuses on the emission of GHG. Are the cattle producers aware of the large contribution of emissions as a result of their activities and do they try to reduce that contribution?

- Biodiversity, conservation, and sustainable management of living natural resources: this includes the conservation of forests, prevention of biodiversity loss and respecting wildlife.
- Concepts for *social sustainability* and social well-being will be maximized if workers have access to measurable standards and have enabling rights (Barrientos, Gereffi & Rossi, 2011). Based on IFC performance standards (2012), principles of the GRSB (2014) and the local context, the following variables are important to address social sustainability in the cattle sector of Paraguay:
  - Labor and working conditions: firstly, this focuses on compliance with the Paraguayan labor laws concerning wages and registration. Secondly, this focuses on other working condition such as health insurance, housing and other secondary working conditions such as technology and the ability for workers to get education;
  - Land-acquisition and involuntary resettlement: firstly, this addresses double land titles and how conflicts concerning double land titles are resolved. Secondly, this focuses on the displacement as a result of land acquisition. With regards to this, the issues surrounding campesinos and indigenous communities are addressed;
  - Indigenous people: this is related to land-acquisition and involuntary resettlement, because displacement of indigenous people is one of the problems that indigenous people have to face. In addition, respecting human rights and the culture of indigenous people is included.

In addition to environmental and social standards animal health, hygiene, and welfare and the safety and quality of the meat are important when sustainability in the cattle sector is addressed. The main focus is on how animal are treated, what kind of food animals eat and which vaccination are used.

The supply chain of beef exists out of production, processing, distribution, and retail facilities. It is important to note that although the supply chain of beef is fully present in

Paraguay, this research only focuses on sustainability with regards to the production of meat. This includes the production of calves and fattening of cows, but excludes for example transportation of cattle and slaughterhouses. Also the production of dairy is not included in this research.

## ETHICS

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In order to secure privacy, interviewees were asked beforehand if they object being mentioned by name or organization in the research. In addition, it won't be possible to trace back the results from the interview to a specific interviewee. Besides that this will guarantee the privacy of the interviewees, it will also ensure that harm to the interviewees will be mitigated. All original interviews and surveys were written out and saved in order to ensure that respondents can always read back their original answers. This will also avoid fraud. If information from other sources than the data collected for this research is used, there will be a reference to the source of this information.

#### 4. CONTEXT AND GOVERNMENTAL SETTING

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Paraguay is a land-locked country in South-America, surrounded by Bolivia, Brazil, and Argentina. Paraguay has 6.8 million inhabitants and can be divided into two geographical areas that are separated by the Paraguay River:

- Chaco, the Western part of Paraguay, which makes up 60.7 per cent of the surface of Paraguay, but only holds around 2.7 per cent of the total population (DGEEC, 2012). The Chaco is characterized by a dry climate with a low average rainfall and a high average temperature.
- Oriental, the Eastern part of Paraguay, comprises 40 per cent of the country and contains most of the Paraguayan population. The Oriental is a humid area which has a high to medium potential for rain fed crop production (Glatzle & Rosiek, 2001)

#### BOOMING ECONOMY OF PARAGUAY

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The past few years, the economy of Paraguay has grown. The GDP of Paraguay is rising rapidly. In 2013 the GDP increased with 13.9 points and for 2014 it is estimated that the GDP grew with 4.8 points. For 2015 and 2016 it is also forecasted that the GDP will increase (World Bank, 2015). If one looks at the Human Development Index (HDI) there is a trend of development: between 1980 and 2013 the HDI of Paraguay grew with 23 per cent

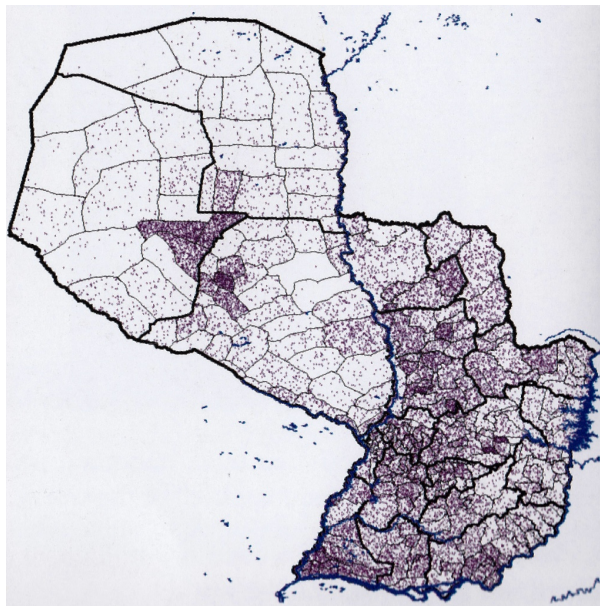


Figure 2. Cattle farms in Paraguay

from 0.549 to 0.676. Paraguay now takes the 111<sup>th</sup> position of 187 countries. However, Paraguay, together with Bolivia and Guyana, are the only countries in South-America who belong to the medium human development countries. All the other countries are either categorized as high human development or very high human development countries (UNDP, 2014). Moreover, in 2013 23.8 per cent of the population of Paraguay still lives in poverty (World Bank, 2015).

Most inhabitants earn their living in the agricultural sector. Cultivation of soy and cattle farming are the two most important agricultural activities in Paraguay. Both sectors have grown over the last few years as a result of the growing global demand for a more protein rich diet. In 2013, the soy sector was the largest exporting agricultural sector with 2,509,104 million US dollars, followed by the cattle sector with 1,059,193 million US dollars. However, the revenue of the soy sector is decreasing, while the revenue of the cattle sector is growing. In 2014 the export of soy generated 204,034 million US dollars less than in 2013, while the export of cattle brought in 310,662 million US dollars more than 2013. This is partly a result of the decreasing prices of soy. The prices of meat, on the contrary, are rising. In 2013 a ton of meat was worth 2,784.28 US dollars. From 2013 to the beginning of 2015 the prices rose with 22 per cent to 3,398.74 US dollars per ton of meat (Banco Central del Paraguay, 2015).

## THE CATTLE SECTOR

As mentioned before, the cattle sector has grown. One can see this in the number of producers and the total number of heads of cow. In 2009, Paraguay counted 119,723 producers and had in total 11,313,388 heads of cow. In 2014, Paraguay counted 147,320 producers of cattle who together owned 14,483,985 heads of cow. In total 26 million hectare of land is used for cattle farming. Most of the producers are situated in San Pedro, a department in the Oriental. The three departments of the Chaco have the largest amount of heads of cow. However, the Chaco does not have a lot of producers. This indicates that the amount of heads of cow per producer is not equally distributed. In the table below producers are categorized in different amounts of heads of cow. For every category it is displayed how many producers fit in this category and how many head of cows all these producers have in total.

*Table 2. Amount of producers by heads of cow in 2014*

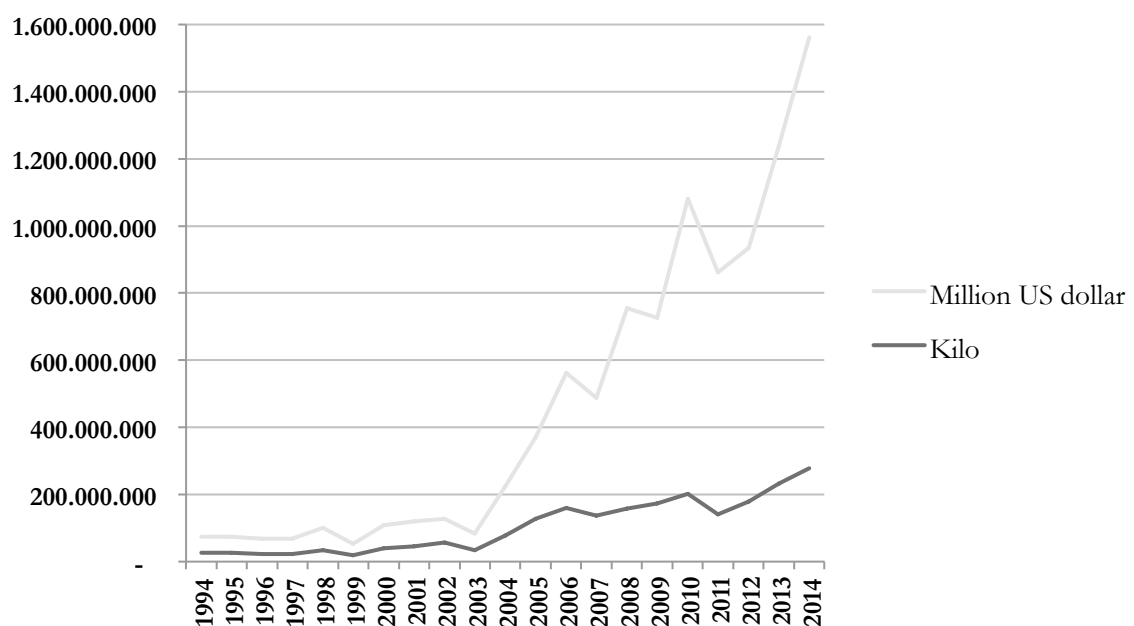
Category	Producers		Heads of cow	
	Amount	Percentage	Amount	Percentage
1 - 20 heads of cow	89,410	60.7	807,757	5.6
21 - 100 heads of cow	41,817	28.4	1,862,525	12.9
101 - 500 heads of cow	11,401	7.7	2,555,750	17.7
501 – 1,000 heads of cow	2,146	1.5	1,500,541	10.4
More than 1,000 heads of cow	2,546	1.7	7,712,412	53.4
Total	147,320	100.0	14,438,985	100.0

*Source: SENACSA 2014*

As one can see in table 2 most producers have 1 to 20 heads of cow. In total 60.7 per cent of the Paraguay cattle producers belong to this category. However, the small producers in this category only own 5.6 per cent of the total amount of heads of cow of the country. It is the producers that own more than 1,000 heads of cow that own more than half of the total amount of cows in the country. These large producers only make up 1.7 per cent of the total amount of producers, but own 53.4 per cent of the total amount of heads of cow. The growth in the cattle sector has not decreased this unequal distribution. In 2010, the producers who owned 1 to 20 heads of cow also had 5.6 per cent of the total amount of heads of cow of the country, while the producers who owned more than 1,000 heads of cow had 52.0 per cent (SENACSA, 2010; 2014). As is explained in the methodology, the producers interviewed for this research all belong to the category of “more than 1,000 heads of cow”. The interviewees have between 1,500 and 20,000 heads of cow and own on average 7,840 cows.

Just as the amount of producers has grown in the past years, the amount of produced meat for export has also been increasing. Paraguay is the sixth largest exporter of beef in the world. The cattle sector now makes up 14 per cent of the total exportation of Paraguay (Banco Central del Paraguay, 2015). In the graph below one can see the trend of export of cattle between 1994 and 2014.

*Graph 1. Export meat between 1994 - 2014*



*Source: Banco Central del Paraguay, 2015*



As can be seen in the graph, the export of meat has rose between 1994 and 2014, both in millions of US dollars as in kilos. This growth of beef export started in 2003, the moment when the European and Chilean market opened up. In 2011 there was a decrease in export because of an outbreak of the foot and mouth disease. As a result prices dropped and the European market closed. In March 2015 the European market opened up again. Currently, Paraguay exports to over 40 destination of which Russia, Chile, Brazil, Hong Kong, and Israel are the largest buyers. However, the exportation to Russia is decreasing at the moment as result of their current economic problems. The amount of meat produced for the internal market has decreased steadily (Banco Central del Paraguay, 2015).

#### RELEVANT INSTITUTIONS AND ACTORS FOR THE CATTLE SECTOR OF PARAGUAY

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Just as in a lot of other Latin American countries, democracy did not occur until late in the second half of the twentieth century in Paraguay. General Alfredo Stroessner came into power in 1954, establishing a regime that lasted for 35 years, making Paraguay the last country in Latin America to establish a democracy. While Stroessner was forced out of power in 1989, the Colorado party remained the supplier of Paraguayan presidents, with one exception (Kleinpenning, 2009). In 2008 Fernando Lugo came into power. As a member of the Patriotic Alliance for Change he had a more social agenda. However, Lugo was deposited in 2012 after an incident in which 15 people, both police officers and indigenous people, died (Guereña & Riquelme, 2013). In August 2013, Horacio Cartes, a powerful Paraguay businessman who has been convicted for fraud in 1986 and is a member of the Colorado party, became the new Paraguayan president and is still in office today.

Paraguay has eleven ministries of which the Ministry of Agriculture and Cattle farming (MAG) is most important for this research. Below, the relevant institutions for and (powerful) actors of the cattle sector of Paraguay that set, enforce and measure parameters are discussed. These institutions or actors are decisive concerning the level of implementation of sustainability standards.

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## SENACSA

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The SENACSA, the national service for quality and animal health, is part of the MAG and is the official veterinary service of Paraguay. It is the authority for the control of animal health, slaughterhouses, and safety of products of animal origin in Paraguay. They are responsible for implementing policies concerning the elaboration, regulation, coordination, implementation, and monitoring programs related to animal health, quality, and safety of products. With regards to this research, the SENACSA is responsible for:

- Monitoring vaccination against the foot and mouth disease. To accomplish this the SENACSA works together with the ARP.
- Executing SITRAP (decree 2504/2004), which is a system of individual traceability of cattle. SENACSA also works together with the ARP on this system.

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## SEAM AND INFONA

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The SEAM, the environmental secretariat, and the INFONA, the national forestry institute are also part of the MAG. They focus on and monitor the management of the lands and forests of landowners. The SEAM is an entity that coordinates and supervises the preservation and management of natural resources and the INFONA handles the administration and promotion of the sustainable development of forest resources. The SEAM and the INFONA are responsible for the enforcement of a number of environmental laws. Some of these laws are a result of commitments that all member states, including Paraguay, have made at international climate conventions. The following laws affect the cattle producers:

- Environmental Impact Assessment (law 294/93): every landowner that wants to change the use of the land needs to do an Environmental Impact Assessment (EIA). The EIA consists out of a scientific study to identify, predict, and estimate environmental impacts of any work or planned activity. A consultancy approved by the SEAM conducts this assessment.
- Forestry law (law 422): every landowner that owns more than 20 hectare must maintain at least 25 per cent of the natural forest on the land. In case the landowner does not have this minimum percentage, the owner must reforest an area equivalent to 25 per cent of the surface of the land. In addition, it is mandatory to have 100 meter of forest surrounding pastures. In the Oriental a

zero deforestation law is in practice, which makes it illegal to clear any forested land in the Eastern part of Paraguay. Every landowner needs a Land-Use-Plan to show how the owner will comply with the forestry laws. Annex 3 has an example of a Land-Use-Plan.

- Wildlife law (law 96/92): establishes a system for the protection, conservation, and management of wildlife and biodiversity.

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## ARP

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The ARP, the rural association of Paraguay, is an organization that represents and defends the interest of the livestock sector of Paraguay. The ARP is not part of the government, but is an interest group that represents Paraguayan cattle producers. The vision of the association is to promote agriculture as the key for the development of the country. Social responsibility and respect for the environment are also included in this vision. In order to fulfill its objectives, the ARP is organized in internal and inter-institutional committees, of which the technical committee, the commission for forest development and the commission for the environment and sustainable production are the most important for this research. In addition, the association has several representations in governmental institutions.

The ARP has around 3,000 members that together own around 30 per cent of the total amount of heads of cow in the country. Most of the producers interviewed for this research, with a few exceptions, are members of the ARP. The producers that are part of the Mennonite cooperatives are more often not members of the ARP, but the cooperatives themselves are represented in the ARP. A producer can become a member of the ARP if it has more than 50 heads of cow. This means that at least 60 per cent of the producers are excluded to participate in the ARP because they only own 1 to 20 heads of cows (see table 2). It is presumably that this percentage is even higher since part of the producers that belong to the category 21 to 100 heads of cow will have less than 50 heads of cow.

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## FRONT-RUNNERS

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Important to distinguish when the Paraguayan cattle sector is addressed are the front-runners with regards to sustainable production. There are some producers or business groups who include all aspects of the TBL in their cattle production and who are more aware of sustainability standards. These front-runners are perceived as a separate actor

since they are influential with regards to implementation of sustainability standards. Of the interviewed producers, the following are considered as front-runners: *Payco S.A.*, *Erurales S.A.*, an individual large producer, the Mennonite cooperative *Ferhnheim* and the Mennonite cooperative *Volendam*.

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#### NON GOVERNMENTAL ORGANISATIONS

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NGOs are another actor in the cattle sector of Paraguay, since they are often the ones who advocate for social and environmental issues. The influence and power of NGOs is significantly lower than that of the private sector or the government. This is partly a result of the approach of most Paraguayan NGOs. Most NGOs do not work together with businesses or governmental institutions for ideological reasons or fundamental differences. In addition, they do often not take economic incentives of businesses into account. For the cattle sector there are three exceptions to this rule: *Guyra Paraguay* and the regional offices of *Solidaridad* and *WWF* are actively working together with businesses and/or governmental institutions.

## 5. SUSTAINABILITY STANDARDS IN THE CATTLE SECTOR

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In this chapter the current sustainability standards present in the Paraguayan cattle sector will be discussed. First, international standards will be explained. Important to note is that this list is not complete, since it is impossible to include all initiatives. Only the two most important are mentioned. Secondly, national standards for the cattle sector of Paraguay will be addressed. Lastly, the international and national standards will be placed in the SSCM framework.

### INTERNATIONAL STANDARDS

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#### IFC PERFORMANCE STANDARDS

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The International Finance Corporation (IFC) is part of the World Bank Group. In 2012 they developed performance standards on environmental and social sustainability in which potential environmental and social risks and impacts that require particular attention are reviewed. The IFC (2012) have eight performance standards on environmental and social sustainability:

1. Assessment and management of environmental and social impacts: in which environmental and social risks and impacts of a project are identified and evaluated;
2. Labor and working conditions: in which non-discrimination, fair treatment, a safe and healthy working place, and compliance with national labor laws are promoted;
3. Resource efficiency and pollution prevention: reducing GHG emissions and sustainable use of resources are the focus;
4. Community health, safety and security: avoid and anticipate adverse impacts on health and safety of the affected community and ensure that safeguarding is carried out in compliance with the human rights principles;
5. Land acquisition and involuntary resettlement: minimize displacement, avoid forced eviction, and avoid adverse impacts from land acquisition;
6. Biodiversity conservation and sustainable management of living natural resources: in which biodiversity is protected and conserved, benefits from ecosystem are maintained, and sustainable management of living natural resources is promoted;

7. Indigenous people: the process should respect human rights, avoid adverse impacts, promote sustainable development, establish free, prior and informed consent, and respect culture of indigenous people;
8. Cultural heritage: project activities should protect cultural heritage.

These standards apply to all advisory and investment clients that receive credit through IFC. Disclosing information concerning the projects of IFC ensures transparency and accountability. They have a disclosure portal in which everyone can see project level environmental and social review summaries.

The performance standards of the IFC are not particularly focused on the cattle or livestock sector. Paraguay has 21 projects with IFC, of which 7 of these projects were initiated after January 2012, the moment the performance standards came into practice. For 9 of the 21 projects an environmental and social review is accessible. Most of the projects after 2012 focus on financing different Paraguayan banks to increase access to finance for micro, small, and medium enterprises. Some of these projects are specifically targeted at Paraguayan farmers and agribusiness (IFC, 2015).

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#### GLOBAL ROUNDTABLE FOR SUSTAINABLE BEEF

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The Global Roundtable for Sustainable Beef (GRSB) is a multi-stakeholder initiative, in which it is envisioned that all aspects of the supply chain of meat are environmentally sound, socially responsible, and economically viable. The GRSB has five principles for their stakeholders:

1. The global beef value chain manages natural resources responsibly and enhances ecosystems health: practices that enhance biodiversity and ecosystem services should be adopted;
2. Stakeholders protect and respect human rights and recognize the critical role that all participants within the beef value chain play in their community;
3. Producers and processors respect and manage animals to ensure their health and welfare: animals need adequate food and water, health care, normal patterns of behavior, and space (including in transportation);
4. Stakeholders ensure safety and quality of beef products and utilize info-sharing systems that promote beef sustainability: improvements need to be made in food safety, beef quality, information-sharing systems, and waste reduction;

5. Stakeholders encourage innovation, optimize production, reduce waste, and add to economic viability: efficiency should be improved through education, partnerships and shared knowledge, and experiences should be underpinned by scientific evidence.

Every principle has several criteria in order to evaluate the principle. These criteria are not a measure of performance and are not monitored. The criteria give meaning and the ability to classify a principle. The GRBSB does not aim to set standards or to create a certification program. It wants to set a common baseline of understanding for sustainable beef (GRSB, 2014). Most participants of the roundtable are originated from Brazil, the US, and Australia. The Paraguayan cattle sector is not represented in the initiative. However, *JBS S.A.*, a Brazilian meat process company who also has a meat factory in Paraguay, and *Solidaridad* and *WWF*, two NGOs that are also active in Paraguay, are part of the roundtable.

## NATIONAL STANDARDS

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### BUENAS PRACTICAS

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In 2013 the INTN, the national institution of technology, normalization and metrology, developed a document concerning the best practices in the Paraguayan livestock sector. The document contains requirements concerning food safety that actors engaged in primary production of livestock have to comply with. The requirements are however voluntary. The document is developed to help to look for solutions concerning socio-economic problems, health of animals, and environmental problems. The document addresses the best practices in:

1. Animal welfare: it is stressed that animals should be free of hunger and drought, free of discomfort, free of pain and sickness, free of stress, and free to express normal behavior. For these 5 issues it is explained how this can be achieved. The document, for example, gives practices designed to prevent contact that can lead to diseases or which supplements animal should use;
2. Management of biological, chemical, and physical hazards: this concerns best practices on animal health and animal products that affect consumers. It explains, for example, what the maximum level of residue can be;

3. Management of livestock: stresses the importance of keeping records and having a plan concerning administration of livestock production, identification of animals and hygiene, and prevention of sickness of animals;
4. Environment and infrastructure: producers must have the right infrastructure and have to ensure that animals have enough space during transportation.

The document first focuses on the welfare of animals and the quality of the product. This is followed by how producers can establish management system that ensures the welfare of animals and quality of the product. In addition, the document focuses on traceability. It states that a traceability program can enhance transparency in the production chain. Lastly, best practices concerning environment and infrastructure are discussed. Concerning environment, best practices on how producers can eliminate biological waste in the right way are included. How to manage the land is not mentioned in this document. Concerning infrastructure, best practices about the type of infrastructure that should be established to assure that animals have enough space are addressed (INTN, 2013).

The document of INTN also states that employees should receive training since practices change all the time. In addition, it is also stressed that employees should be registered and labor laws should be respected. In the document it is emphasized that legal obligations should be followed and that authorities have to be competent to regulate, manage, and control these issues (INTN, 2013). It is not mentioned how compliance with the Buenas Prácticas can be monitored in a different way, other than that the SENACSA is the institution that has the legal obligation to control most of the issues in this document.

Besides the best practices of the INTN, others have established their own best practices. The Mennonite cooperative *Volendam* for example, have set their standards. Also the project Carne Natural includes their own set of best practices in their initiative. These best practices will be discussed later on.

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#### SITRAP

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The ARP and SENACSA have established SITRAP, an auditable information system that allows traceability of cattle in Paraguay. A set of requirements is designed that cattle producers need to establish to find out what the origin, movement, sanitation, and nutrition is of each animal that is identified in the system. The cattle farmer needs to, for



example, provide a list of veterinary products that the farmer uses. The producers also need to provide numerous documents to the SENACSA and ARP. SITRAP is a voluntary program. It is aimed at producers who want to produce for markets that request traceability. The European market is one of these markets. To be part of the system producers have to establish some elements concerning the right infrastructure, files, animal welfare, and animal health. Producers that use hormonal substances are not allowed to participate in this program (SENACSA, 2008). In 2014 the SGS audited ISO 9001:2008 to the office that is in charge of registering livestock establishments for exportation. As a result, producers who participate in SITRAP can receive a certification. There is an inspection in the beginning to determine whether the producer complies with the rules. There are also re-inspections. Only a small amount of producers take part in this program. At the moment 355 producers are included in this program (SITRAP, 2015). For the future the ARP and SENACSA want to include all producers (personal communication, May 20 2015).

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#### CARNE NATURAL

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Carne Natural is an initiative of the ARP in collaboration with the NGO *Solidaridad*. Originally, the objective of this project was to focus on organic beef production. However, cattle in Paraguay is vaccinated to prevent diseases, especially the foot and mouth disease. According to European regulations it is not allowed to classify beef as organic when cows are vaccinated. Because of this, the project now focuses on natural beef production. The main objective of this initiative is to comply with best practices, laws and, welfare and management of cattle. At the moment the project is still developing. In August 2015 a seminar was organized to introduce producers to Carne Natural. The developers stated during this seminar that the standard will include two elements: essential and optional. The essential part requires of producers to not use hormones, antibiotics, and animal byproducts in feed in their production method. All producers who want to be part of Carne Natural have to comply with this. The optional part promotes animals that are bred opencast, are never confined, and are grass- and forage-fed. The optional part is voluntary for producers (ARP, 2015). Two documents are supposed to follow in the near future:

- A document concerning natural beef: the standard will be broad in order to ensure that as many producers as possible can be included in the initiative.

- A document concerning good practices: this will be a revision and update of the best practices of the INTN. It will be expanded with e.g. environmental issues and management of properties.

The ARP and *Solidaridad* want to make a certification scheme that gives producers the possibility to label their meat as natural. The specific content of this is not known yet, since the development of this scheme is not finished. The same applies to monitoring of the initiative. Since Carne Natural is not yet in practice, monitoring is not yet an issue. The ARP and *Solidaridad* are still contemplating whether traceability will be part of the project. If traceability is included a lot of producers will be excluded. A roundtable in which all stakeholders will be participating is something that they want to establish in the future (personal communication, March 17 2015; March 27 2015).

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#### ALLIANZA DEL PASTIZAL

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Allianza del Pastizal is an initiative that aims to establish cattle production based on sustainable use of natural grasslands and conservation of biodiversity. The objective is to boost sustainable cattle farming and promote the integration of the conservation of nature and cattle farming. The main components of the project are:

- Developing best practices for cattle producers;
- Urging certification for natural grasslands;
- Proposing agricultural policies for sustainable cattle production;
- Facilitating information concerning biodiversity and natural grasslands;
- Realizing annual meetings with cattle farmers who have natural grasslands.

It is a program that runs in several countries in South America: Brazil, Argentina, Uruguay, and Paraguay. *Guyra Paraguay*, a NGO, facilitates this program in Paraguay. The program is focused on producers in the South of Paraguay, namely Misiones, Paraguari, and Ñeembucú. In the other South American countries the program is already running, however, in Paraguay the program is still in its initial phase of identifying suitable producers. *Guyra Paraguay* is sharing information with interested producers. At the moment, only producers with more than 1,000 hectares are involved in the program. When there is a sufficient amount of meat that can be sold on the market as meat from natural grasslands, the meat will get a certification. This is however not the case yet, because the program is starting up. This is also the reason that monitoring is not yet an issue (personal communication, April 27 2015).

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## OTHER INITIATIVES

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Besides these official national initiatives, there are some initiatives that are not (officially) linked to a certain program or project, but do deserve attention, because these initiatives strive to greater sustainability in the cattle sector of Paraguay.

There are certain producers that are experimenting with forestry and cattle farming. Where before pastures would be completely cleared, there is now a tendency to leave some trees on the pastures (personal communication, April 21 2015). One of these initiatives is the establishment of a *silvo-pastoral* system. In this system trees are planted on the pastures where cattle grazes. This system helps to integrate economic activities and nature conservation. The type of tree is an important factor to let this system and other initiatives in which forestry and cattle farming are combined succeed. Some trees produce more nitrogen or oxygen than others. The *Leucaena* tree, for example, produces more oxygen and contains nutrients for animals. While this tree is not suitable for every type of soil in Paraguay, the tree is useful for animal production, especially in the dry season, because it provides high protein feed (Shelton & Brewbaker, 1998).

Also banks are promoting sustainability in the supply chain of commodities and specifically in the supply chain of meat. In June 2013 a Paraguayan Roundtable for Sustainable Finance was launched. Within this roundtable sustainable business models are explored (FMO, 2013). The banks that participate in the roundtable are currently developing guides for different agricultural sector, including the cattle sector, which addresses environmental and social sustainability standards. The clients of the banks, such as cattle producers, have to comply with these standards in order to get credit.

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## SUSTAINABILITY STANDARDS IN THE SSCM FRAMEWORK

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In figure 2 all the different sustainability standards that are mentioned in this chapter are positioned in the SSCM framework of Carter and Rogers (2008).

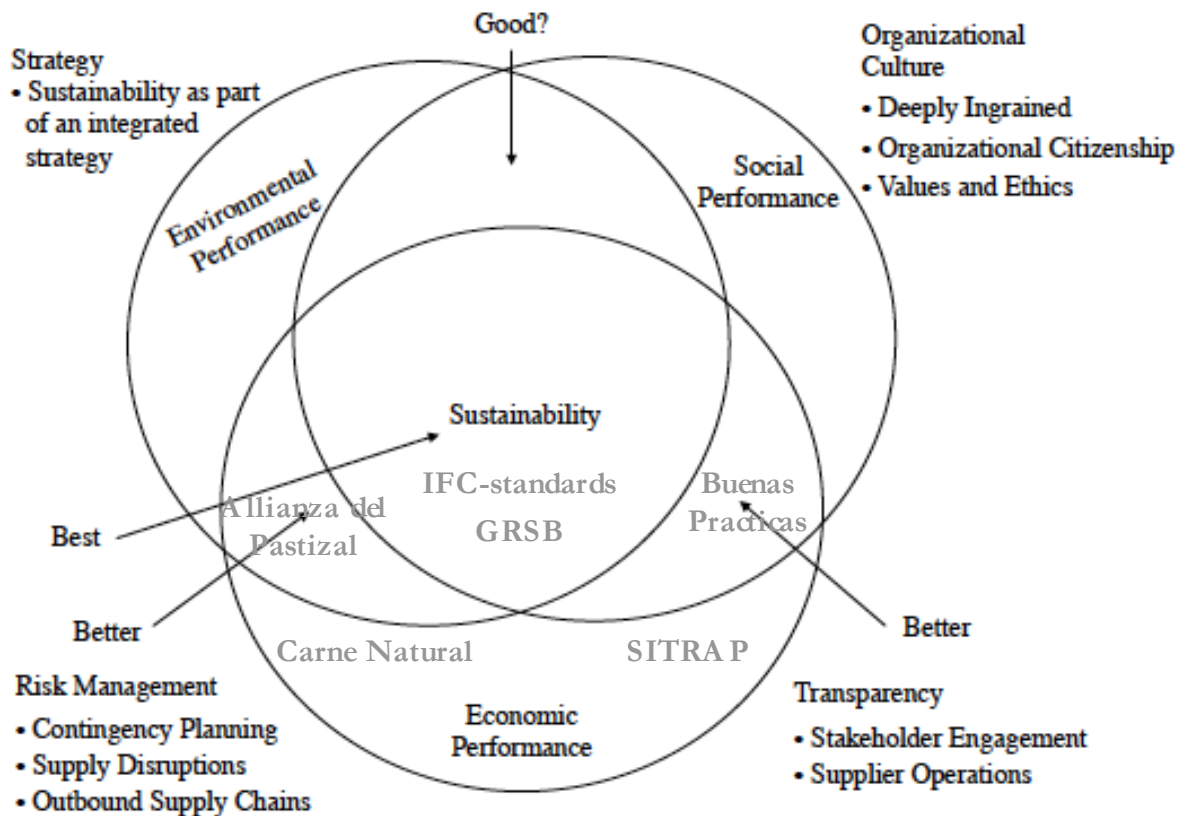


Figure 3. Sustainable standards in SSCM Framework

- International standards (IFC standards and GRSB): the international standards are all addressing all aspects of the TBL. Labor and working conditions; conservation of nature; human rights; waste disposal are all addressed in the international standards. This is why these standards are positioned in the middle of the framework. However, these standards are not specifically developed for a local context like Paraguay. It is questionable if all aspects of sustainability can be applied to the Paraguayan cattle sector.
- Buenas Practicas: besides focusing on economic performance, the Buenas Practicas also addresses elements of social performance. In the document it is stated that producers should comply with labor laws and provide their employees with training. Other elements of social sustainability, such as land-acquisition, involuntary resettlement, and indigenous people are not addressed in the Buenas Practicas. Animal health and welfare is also taken into account. The environment is only addressed by looking at waste disposal. Other relevant environmental issues such as deforestation are not addressed. This is why this standard cannot

be classified as a standard that addresses all three aspects of sustainability.

- SITRAP: the traceability program SITRAP of the ARP and SENACSA is mainly addressing economic performance. The objective of the program is to provide accommodations for producers who want to produce for markets that require the traceability of cattle. Social and environmental performances are not included in this standard. However, while these two aspects of sustainability are excluded, establishing SITRAP does ensure that supplier operations are clearer and the cattle sector becomes more transparent.
- Carne Natural: while the initiative aims to expand best practices regarding environmental issues, the main focus of this standard currently is on economic performance. The intention of the project is to ensure that as many producers as possible can participate in this initiative, in order to be able to classify and sell meat from Paraguay as natural beef. Only the voluntary part of this standard addresses a more natural production method. In the future, this initiative can maybe be categorized as both economical and environmental sustainable, since the developers want to develop a certification scheme and establish a roundtable.
- Allianza del Pastizal: the objective of this initiative is to integrate cattle farming and conservation of nature and biodiversity. This shows that environmental sustainability is seen as a part of an integrated strategy. It focuses on both the economic activity and the environmental performance. The environmental risks of cattle farming are taken into account. Social sustainability is not included in this project.

None of the national standards is including all aspects of the TBL. This implies that the cattle sector of Paraguay is still mainly focused on the current cost perspective and not on the total costs. The broader perspective in which both environmental and social sustainability are included did not yet occur, at least not in the form of a (national) standard for the cattle sector. When other factors than economic performance are included in a standard, the main focus lays on legal compliance. The Buenas Practicas, for example, only stresses that producers should comply with labor laws, but does not ask for any additional labor conditions. The standards do not ask from producers to go a step further. This is also visible in the initiative of Carne Natural. The developers of this standard aim to include as many producers as possible and want the investments of producers to comply with this standard to be as low as possible. As a result, the

requirements to comply with this standard are low. In addition, complying with these standards is voluntary and not complying with these standards does not have any consequences for producers.

## 6. SUSTAINABILITY – THE PRODUCERS PERSPECTIVE

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This chapter entails the perspective of producers on environmental and social sustainability and their knowledge and vision on sustainability standards.

### AWARENESS

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Most of the producers are not aware of international sustainability standards. If the producers have heard about them, they only know them in very general terms. Of the international standards, the standard of the GRSB is most well known. Six of the 19 producers state that they have heard about the GRSB. But even with regards to the GRSB, the specific standards and the interpretation of these standards are not known. The unfamiliarity with international standards is partly a result of the absence of Paraguayan stakeholders in these initiatives. The powerful actors of the Paraguayan cattle sector, such as the ARP, governmental representatives or large producers, are not participating in any of the initiatives. In addition, the ability to implement international standards in a local context like Paraguay could explain the unfamiliarity with international standards. Producers question whether international standards are applicable to a local context. They state that international standards are often developed without participation of locals or without knowledge about local conditions. One producer states that the EU, for example, sets standards that do not consider the actual situation. He also thinks this is the case for the GRSB (personal communication, April 15 2015). This is the reason that many producers do not feel the need to learn about international standards.

Only 4 producers are familiar with the IFC standards. Two of these interviewees state that they work with the IFC-standards. The Mennonite Cooperative *Fernheim* has a contract with IFC to observe environmental and social sustainability. *Payco S.A.*, a group that owns several farms on which it practices agriculture, forestry and cattle farming, implements IFC-standards concerning their activities for forestry. They do not implement IFC-standards with regards to cattle farming. *Payco S.A.* and *Fernheim* belong to the front-runners regarding sustainability. In addition, there is one company that has a meat factory in Paraguay that works with IFC. However, this meat factory originally comes from Brazil and is mainly implementing the IFC standards in their factories in Brazil. The implementation of IFC-standards is thus not far advanced in Paraguay.

The national standards are better known, especially the Buenas Practicas. Seventeen of the 19 producers state that they have heard about the Buenas Practicas. However, not all producers know the exact document of the INTN. This is partly a result of the fact that the document of the INTN is not freely accessible. One has to pay 10 dollars to obtain the document. The INTN also does not promote or communicate the document. The best practices producers know are therefore not always directly linked to the document of the INTN. Some producers have even developed their own best practices. The *Volendam Cooperative*, for example, established their manual for best practices in 2014. This manual addresses more sustainability issues than the document of the INTN does. It also includes guidance on obtaining an environmental license and how to communicate with (indigenous) communities.

Carne Natural is the second most known national standard. Although Carne Natural is not yet in practice, 13 of the 19 producers have heard about the initiative. This is in accordance with what is stated in the theory concerning powerful actors. The ARP is one of the founders of Carne Natural and it integrates the initiative in their strategy. As expected, producers are more aware of this standard than of other standards, since the ARP, as a powerful actor in the cattle sector, develops this standard. In addition, most producers are members of the ARP. With regard to the national standards, *Allianza del Pastizal* is least known. This makes sense, since *Guyra Paraguay* does not have that much influence in the cattle sector. Only 2 of the 19 producers said to have heard about the program. In addition, the project is only in its initial phase and is only focused on three departments of Paraguay.

Besides that producers are more familiar with national standards, it is also considered easier to implement these standards. Most producers state that they already comply with (some of) the requirements of these standards. For both the Buenas Practicas and Carne Natural it is indicated that only small additions have to be made to be able to say that one complies with these standards. Moreover, several producers argue that good management automatically leads to implementation of these standards. Larger investments have to be made for SITRAP. While 12 of the 19 producers have heard about the program, most producers do not comply with the requirements since this takes more effort, especially for those producers who rent land.



In the table below it is shown how many of the interviewed producers state that they have heard about a particular sustainability standard. Front-runners are distinguished separately.

*Table 3. Amount of interviewed producers aware of sustainability standards*

	Front-runners (n=5)	Total (n=19)
IFC	4	4
GRSB	2	5
Buenas Practicas	5	17
SITRAP	5	14
Carne Natural	2	13
Allianza del Pastizal	0	2

Table 3 shows that the front-runners are more aware of sustainability standards if one compares them to the total number of interviewed producers. Concerning the international standards, only the front-runners know about the IFC and their knowledge concerning the GRSB is also relatively high. In addition, all front-runners have heard about the Buenas Practicas and SITRAP. If one would look at the theory of SSCM, it is expected that the front-runners will perceive sustainability more positively, because they are more aware. In the case of Allianza del Pastizal and Carne Natural the front-runners are not more aware than the total number of interviewed producers. The main reason that Carne Natural is only known by 2 of the front-runners is that the front-runners are less actively involved in the ARP. It is presumable that the producers have not heard about Carne Natural since it is not yet in practice it.

## ENVIRONMENTAL SUSTAINABILITY

When producers were asked what sustainability means in their perception, most producers mention that sustainability is to find a balance between economic revenues and respecting the environment. Producers realize that if they do not look after the land, land is degraded, which also results in a lower value of the land. Most producers recognize that they need to be sustainable to a degree in order to stay in business and to ensure that future generations can also still use the lands. In this sense producers try to manage risks by respecting the environment. The vice-minister of agriculture states that since Paraguay is a food producing country and there is a growing concern in food markets regarding sustainability, it is important for Paraguay to take sustainability into account (personal communication, April 7 2015). Taking the environment into account

in the Paraguayan cattle sector is ensuring that the pastures and soils are managed right. Otherwise erosion or saltinization will occur.

Another reason why cattle producers take the environment into account is the nature of investment that has to be made to produce cattle. Producing cattle is a long-term investment that has production cycles of around 14 months. This is way more than agriculture, in which producers can harvest 2 to 3 times a year. To ensure that producers do not lose their investments, it is important for producers to respect the environment. Especially in the Chaco it is important to take the environment into account. The climate in the Chaco is harsher than in the Oriental. It is hot and there is little rainfall. Water is scarce in the Chaco and it is crucial for a producer to manage this well. Producers often have to dig deep in the soil to encounter water. However, using too much of this groundwater can result in salty soils. Producers, therefore, also often have a system to collect rainwater. In addition, desertification and salty soils are a tangible danger if producers do not manage their lands well. To be able to survive as a cattle producer in the Chaco, one has to take the environment into account. Environmental sustainability with regards to resource efficiency and assessing and managing environmental impacts is therefore included in the strategy of producers, especially in the Chaco, since this results in higher economic performance.

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#### CONSERVATION OF FOREST

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The forest is of less importance to producers. Only the front-runners deliberately try to preserve the forest. One of these front-runners states that they leave more forest than is legally obligated since, in their vision, sustainability is taking the next 50 years into account, instead of the next 2 or 3 years (personal communication, April 25 2015). Also the cooperative *Fernheim* has decided to keep several pieces of their land as natural reserves. This is in accordance with the expectation that producers who are more aware of sustainability standards include sustainability in their long-term strategy. The other producers who are less aware of sustainability standards than the front-runners do not prioritize reserving the forest in their long-term strategy. These producers often state that clearing the forest is a necessity for the development of the sector and Paraguay as a country. Leaving the forest, especially in the Chaco, means that the land should be left unused without any economic benefits. Paraguay is a land-locked country without direct access to an ocean and does not have other resources such as oil. This is why producers believe that the meat production should not be stopped. Interference of (foreign) NGOs

is therefore not always appreciated. Although producers realize that their activities have impact on the amount of GHG emissions, Paraguay is still a low emission country and producers feel like it is not only their responsibility to reserve the forest. Other countries with higher emissions should contribute. In addition, they believe that their production method is one of the more natural in the world.

As a result of the growing cattle sector, deforestation is a mayor problem in Paraguay, especially in the Chaco. In the last ten years the amount of forest that has been cleared for pastures has grown immensely (see figure 4 and 5). The possibility of a zero deforestation law for the Chaco accelerates the deforestation even more, because producers are scared that this law comes into practice.

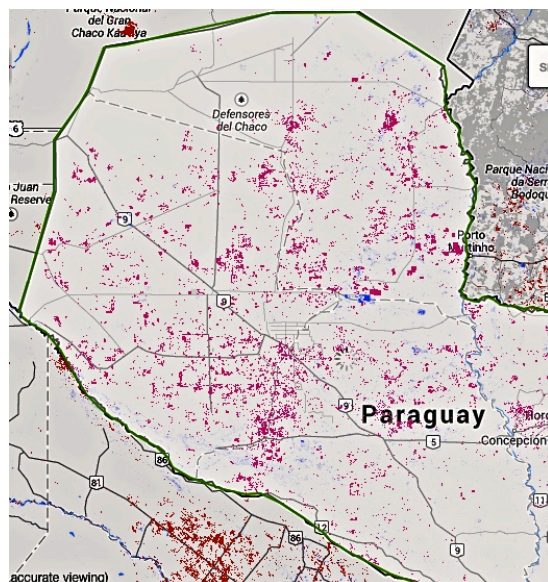


Figure 4. UMD Tree Cover Loss Chaco 2003.

Source: Hansen et al., via Global Forest Watch

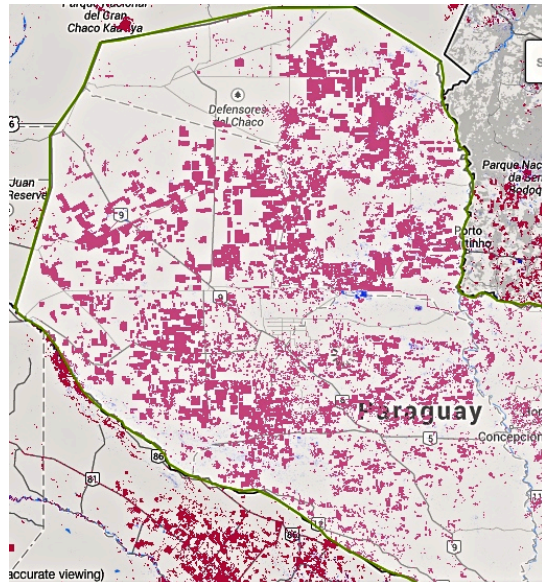


Figure 5. UMD Tree Cover Loss Chaco 2013.

Source: Hansen et al., via Global Forest Watch

Not all producers agree with the image of cattle farming as the instigator of deforestation. The producers claim that only 50 percent of the total amount of their land can be used for production. The rest of the land has to remain forest. The law requires having windbreaks of 100 meters between the pastures besides the 25 per cent of forest reserve. A new trend is to keep some bushes and trees on the pastures to provide cattle of shadow and food in dry periods. A growing amount of producers does not completely clear their pastures anymore. It is, however, more expensive to leave trees and it is easier to completely clear the land. In addition, producers argue that the forest grows back in several years. Keeping the land cleared is the biggest cost according to them. Also the image of loss of biodiversity as a result of deforestation is not true according to some

producers. Because of the establishment of cattle farms, water is easier accessible. The artificial pastures also provide a permanent food supply. These two have not resulted in biodiversity loss, but in more wildlife. Most producers indicate that hunting on wildlife on the farm is not allowed.

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#### PROBLEMS WITH ENVIRONMENTAL LAWS

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The interviewees explain that they comply with the environmental laws. Almost all producers state that they have carried out an EIA and possess an environmental license. Within the Mennonite cooperatives spoken to for this research, it is obligatory for the members to have an EIA. If producers of these Mennonite cooperatives do not have an EIA, they cannot receive credit from the cooperative. Only 3 of the 19 producers do not possess an environmental license. They state that this is because they did not change the use of their lands after the law was in practice. According to unofficial numbers, only 30 per cent of all producers have an EIA (personal communication, March 24 2015). There are two stumbling blocks with the EIA. Firstly, a new law states that if someone owns less than 500 hectares in the Oriental and 2,000 hectares in the Chaco, one does not need an environmental license. Producers play with this by, for example, buying two pieces of land of 500 hectares. Secondly, several producers state that the assessment itself is not done well. They claim that the agencies that carry out the assessment “copy and paste” from the Internet. These agencies, which have to be approved by the SEAM, ask large amounts of money for the assessment. An assessment is around 400 pages and cost around 3,000 dollars. The producers claim that the SEAM approves everything.

This is not the only environmental law that is not enforced. The SEAM does not monitor sufficiently if producers comply with the forest law. While almost all producers state that the SEAM either has visited their farm or checked their farm via satellite images, punishment for ecological crime did not occur. Officially, if a producer does not comply with the law it gets a high fine or, in extreme circumstances, risks imprisonment. Fines, however, are often paid “under the table” and none of the producers know any example of imprisonment as a result of not complying with environmental laws. Moreover, it is stated that some producers risk getting a fine, because the revenues of deforesting are higher than the costs of the fine. Officially these producers have to reforest or buy land with forest as compensation, but also this is not controlled very well. When the producer does buy land as compensation, it is often in the far West of the

Chaco near the Bolivian border where cattle farming is not possible and the forest would have been reserved anyway.

All stakeholders including key figures at governmental institution acknowledge that the SEAM does not function well. It does not have enough resources or capacity. This is a result of the economic interest of the current government. This government wants to grow and produce and puts the environment on a second place. Environmental sustainability is not integrated in their strategy.

## SOCIAL SUSTAINABILITY

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The social aspects of sustainability are almost never mentioned when producers were asked about how they perceive sustainability. Most producers only address profit and planet. This is in line with what is stated earlier in the theory concerning the large focus on only economical and environmental aspects. Environmental issues are receiving more attention at the moment than social issues. Only the front-runners include social aspects when sustainability is addressed. They state that all Paraguayans should have access to land, that you have to take care of your neighbors and that you have to provide in opportunities for work. These producers focus on development for all Paraguayans. Again this is in accordance with the expectation that producers, in this case the front-runners, that are more aware of sustainability standards include sustainability in their long-term strategy. When other producers were specifically asked whether social aspects should also be something to consider, producers reacted positively.

Producers state that they comply with labor laws. Workers on the farm get minimum wage and health security. Wages are lower in the agricultural sector than in other sectors, because workers get free housing, electricity, and often also food. The salary workers receive is pocket money. Often producers ensure that the children of the workers go to school, especially the front-runners. They state that they believe it is important that the children of their employees are able to get more chances than their parents got. Producers state that providing good working conditions is essential. Since the cattle sector is growing rapidly, it is hard to get skilled employees. Supply is smaller than demand, in this sense. This has led to a competition between producers for skilled qualified workers. They try to attract skilled workers by giving them good working conditions. In addition, it is important for producers to have a stable staff, since they are familiar with the cattle. If staff leaves regularly, costs go up. Again one can see that

sustainability, this time with regards to working conditions, is incorporated in the strategy of producers, because it results in higher economic performances.

Most producers stated that they personally did not have bad experiences with double land titling but that they do realize there are problems with double land titling. Problems with double land titles originate from the Triple Alliance War that ended in 1865. The government sold large amounts of state properties to foreigners in order to repay their debts. Over the years these foreigners sold this land to land speculators or left it unused. Because the owners did not pay any taxes over the lands, the government decided to resell some of these lands. As a result, land was sold several times to several owners and it was hard to keep track of who owned which piece of land. The institution that had to keep the cadaster up to date did not have a good overview anymore. Now that Paraguay is becoming more economically interesting (especially the Chaco), landowners who have not done anything with the land for years show up with their titles. This has resulted in lands having two or more legal owners. Only 2 producers had a personal experience with double land titling. One of these producers explained that after 8 years of owning a piece of land that was 10,000 hectares a Chilean came with the legal title for 2,000 hectares of these 10,000 hectares. They had to buy these 2,000 hectares in order to keep the land (personal communication, April 23 2015). This is often the way conflicts concerning double titles get resolved when land is already developed. Other common solutions to resolve the conflict is to divide the land between the legal owners or to look at the historic of the title: the person who has the title the longest will get the title.

Also concerning indigenous people or campesinos all producers state that they never had bad experiences. However, producers are aware that there are problems with indigenous people and campesinos. Concerning the latter, campesinos are only present in the Oriental. Campesinos emerged because they encountered several problems. Members of campesinos are often outsold or outcompeted and have a hard time to find employment. As a result, campesinos started occupying land. When this happens, producers have to pay them to leave again. Several producers state that some politicians or NGOs provoke campesinos to seize a certain land, often land with wood, so that they can extract the land. There is political interest for NGOs to continue doing this, because they get funding for it.

Indigenous people have also seen their living space shrinking with the expanding cattle sector. Indigenous communities have been displaced and rights of indigenous

communities have been violated (Inter-American Court of Human Rights, 2005; 2006; 2010). The interviewed producers all state that they did not experience any conflicts with indigenous communities. Members of indigenous communities often work at the farm if this farm is nearby their community. However, several producers question whether the problems with indigenous communities are legitimate. They state that a lot of reserves have been made for them. One producer states that there are around 30,000 to 40,000 indigenous peoples in Paraguay that have 2,5 million hectares of land in total (personal communication, May 20 2015). This is a substantial larger amount of land than a lot of small cattle producers own. Some producers also think that it is not necessarily good to leave indigenous people in the forest and that indigenous people do not always want to stay hunters and gatherers. According to these producers, indigenous communities have tasted a more modern way of living and now want more modern things, such as telephones etc. The producers believe that indigenous people should decide themselves how they want to live.

#### ANIMAL WELFARE

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Besides environmental and social sustainability, animal welfare is an additional aspect that has to be included when sustainability in the cattle sector is addressed, especially considering the national standards that focus heavily on animal welfare, sanitation, and health. Most cattle in Paraguay is grass-fed. Supplements are only used with calves or added to the diet when it is extremely dry. Cattle in the Oriental get supplements more often than cattle in the Chaco. While hormones are not used, producers do vaccinate their cows of which the vaccination of foot and mouth disease is most important. Unlike other law enforcement, the enforcement concerning foot and mouth vaccination is monitored very strictly. All producers, including small producers, vaccinate their cows against the foot and mouth disease. Almost all producers, with the exception of one, state that they do not use an electric pin or dogs to control the cattle. These measures are stressful to the cows, which can result in weight loss. This is not beneficial for business. This is the main reason why the cows are treated so well. It is good management to keep your cows comfortable in order to reach the target weight as soon as possible. Producers also point out that the large amount of space that the cattle has keeps them happy.

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 REASONS TO IMPLEMENT SUSTAINABILITY STANDARDS
 

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There are several incentives for producers to implement sustainability standards. Table 4 illustrates these different reasons and shows how many of the interviewed producers state that this is a reason for them to implement sustainability standards.

*Table 4. Amount of interview producers by reason to implement sustainability standards*

	Producer (n=19)
Price difference	19
Carbon market/environmental services	10
Higher productivity	4
For future generation	2
Beneficial credit conditions	1

All 19 producers state that they would consider implementing sustainability standards if there would be a price difference. Implementation of sustainability standards is a question of costs and benefits. If meat that is produced sustainably would receive more money, producers are willing to be more sustainable. If this does not happen, producers are less willing to comply, especially because they feel that they are not the main drivers for climate change. They believe that developed countries need to set an example by establishing a price differentiation. At the moment it is not viable yet to produce more sustainable. This is the main driver for producers to not comply with sustainability standards at the moment. This indicates that it is not only the low awareness that shapes the perception of producers concerning sustainability standards. Producers are driven by economic incentives. Sustainability issues and standards are almost only perceived positively if it contributes to profit. That is the main reason they take degradation of land, working condition, and animal welfare into account in their long-term strategy.

There are no certification schemes for sustainable produced meat and sustainable produced meat does not receive higher prices. The current markets that Paraguay exports to, such as the Russian market, do not ask for higher standards. The opening of the European market, which happened in March 2015, could possibly change this. The European market demands traceability and requires implementation of the Buenas Practicas. At the same time the European market pays more per kilo. A producer receives 3,05 dollar per kilo for exportation to the European market, while it receives 3,00 dollar per kilo for exportation to the Chilean market (personal communication, May 22 2015).



The carbon market could also be a way for producers to be more sustainable. Ten producers state that they would consider leaving the forest if they would receive compensation for this. They want an incentive to conserve the forest and several producers mention that the carbon market could be beneficiary. Paraguay knows a law, the environmental services law (law 3001), which should make this possible. This law was approved in 2006 to fulfill international obligations originated from international climate conventions. This law aims to promote conservation, protection of the environment and sustainable development by providing benefits to those that conserve and recover ecosystem functions. However, this law was never implemented and there is no producer at the moment that receives money for environmental services. This is partly a result of the poor implementation of the law and partly a result of the carbon market itself. Producers state that it is very hard to find money for compensation. In addition, some producer state there is a possibility that implementation of this law can result in green washing. As stated before, there is the risk that some producer will buy forests in remote places, which would not have been cut down in the first place, and subsequently deforest in places in the Oriental.

Higher productivity could also be a reason to implement standards. Only 4 of the 19 producers mention this as a reason themselves to implement sustainability standards. Increasing productivity is the way to go according to these producers. At the moment a lot of producers think that the money is in the forest, which has resulted in rapid deforestation. However, according to these interviewees, the money is in the land (personal communication, March 17 2015; March 30 2015). There is however a paradox with intensification of production. While this can assure that less forest is being cleared, there is a high possibility that the feedlot will be introduced and cows are no longer grass-fed. It is questionable which one is more sustainable. *Fernheim* is looking into intensifying meat production. Increasing land prices and nature conservation are underlying reasons for them to focus on intensification in the next years. The president of *Fernheim* thinks that this will mean that the feedlot will be introduced in the cattle sector and that the sector will lose their natural grass-fed status with it (personal communication, April 21 2015).

Two other reasons to comply with sustainability standards are mentioned. Two producers state that an incentive to implement sustainability standards is to ensure that future generations can also still use the land. These two producers belong to the front-

runner category. One producer gives another reason. This producer would consider implementation of sustainable standards if banks would give beneficial conditions concerning credits in the form of decreasing the threshold to get credit or a lower interest rate.

As stated before, producers already comply with some (parts) of the national standards. Parts of Carne Natural, the Buenas Practicas, and SITRAP are implemented. This is mainly because it is economically beneficial for producers to do so. Economical benefits are crucial for producers. In this sense, profit is perceived as more important than people and planet. It is in the interest of the producer to treat their animal well and to sustain their environment to a certain level. Being able to produce also lies in a healthy ecosystem. It is also in the interest of the producer to comply with certain parts of the Buenas Practicas to be able to export to certain markets. The same applies to the SITRAP program. To be able to export to the European market cattle has to be traceable. This shows that the focus of the producers is more on the current cost perspective, instead of the stretched concept of supply chain management in which environmental and social aspects are incorporated. The importance of economy is also illustrated in the law concerning foot and mouth disease. This is the only law that is enforced properly, because it is important for business. If there is an outbreak of the foot and mouth disease, the European market will close up again. The environmental laws on the other hand are not enforced and the institution that is in charge of this is weak. One of the interviewees stated that this focus on economy has resulted in a government that solely has eye for economic growth. It has a very strict policy on the vaccination of cows, but cannot ensure that every Paraguayan child is vaccinated (personal communication, April 31 2015).

## SMALL PRODUCERS

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The findings above only apply to large producers. This is their perspective and these are their experiences. Small producers perceive sustainability differently. This is due to how small farmers approach cattle farming. Small producers look at cattle as a “saving account”. Cattle is only sold when small producers need to have access to money. The cows are a back-up to ensure that there is always immediate access to a larger sum of money. For large producers, cattle belongs to the “checking account”, it is their monthly income. In addition, cattle farming is not the main economic activity of small producers. Cattle farming is often done besides agriculture. Small producers also differ from large

producers in the sense that they mainly produce for the local market and they do not have access to credits from banks.

Small cattle producers are hardly organized or represented by NGOs. An institution that does represent a group of small producers is the Centro Paraguayo de Cooperativistas (CPC). CPC works for the reoccupation and availability of land for Campo Comunales. The establishment of Campo Comunales is a phenomenon that occurred after the Triple Alliance War. Because Paraguay needed to sell large amount of lands to foreigners, Dr. Francia, the Paraguayan president at that time, established a model for common land, under the name Campo Comunales, on which farmers produced for national consumption. Today the lands of the Campo Comunales are still used by small farmers, mainly for cattle farming. The small producers have up to 20 hectares and 20 heads of cow. There are around 400 to 500 Campo Comunales of which the largest Campo has 1,000 hectares. In 1994 4,000 producers belonged to the Campo Comunales. This data has not been updated, but it is to be expected that the amount of producers is higher now (personal communication, May 19 2015). However, the Campo Comunales still only represent a very small amount of the total amount of small cattle producers in Paraguay if one considers that in 2014 there were 89,410 producers who had 1 to 20 heads of cow (SENACSA, 2014).

To be allowed to produce on the lands of the Campo Comunales the farmers have to comply with certain rules. These are mostly general rules about the amount of cows a producer can have and the vaccination against the foot and mouth disease. Standards concerning the environment are missing. Forest laws do also not apply to the Campo Comunales, because the lands are too small. While the Campo Comunales do not specifically take the environment into account, the farmers of the Campo do produce on natural grasslands instead of artificial pastures. In addition, it is not allowed to burn forest. Social issues are more present in the Campo Comunales. Although the Campo Comunales do not have problems with double land titling, since their lands are from the state, they do have to protect their lands. The lands are for communal use, which means that others also have the right to use the land. According to the CPC, sometimes politicians also want part of the land. CPC tries to help the Campo Comunales to defend their land. Their focus is to build the right infrastructure, such as fences, in order to ensure that small producers using the land can stay. They also try, by forming cooperatives, to get recognition of the national institution for land distribution, the

INDERT. In the view of CPC sustainability is a more equal distribution of land. Small producers do not have enough land, while large producers have more than enough (personal communication, May 19 2015). This view advocates a more social approach for sustainability, while the environmental side is underexposed.

CPC acknowledges that small producers often do not focus on environmental sustainability. This is also what several larger producers state. They state that small farmers are not aware and just continue doing what they have been doing for many years. They often do not perceive their farm as a business. Large producers do perceive their farm as a business, which results in more awareness concerning the demands of the market. The reason that small producers are less aware of these demands is because they do not have the education or technology to be more sustainable. They also do not receive any credit from the bank. This is what both NGOs and large producers argue. There are no facilities for small producers to go to and it is too expensive for small farmers to establish more sustainable practices. According to one of the interviewees, small producers would be substantially more sustainable if they would only implement one or two of the best practices (personal communication, March 17 2015). The booming Paraguayan cattle sector did not benefit the small producers in that sense. In addition, the economic benefits from a growing sector are hardly present for small producers. While prices of meat are rising, small producers hardly receive more money for their meat. The intermediary, to whom the small producers sell to, benefits mostly from the growing prices. There is however also a positive effect of the growing sector for small producers. Cattle farming has become a very secure way of investment for small producers to ensure that they are able to provide for themselves.

## 7. SUSTAINABILITY – INSTITUTIONAL COMPLEMENTARITIES

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So far we have seen to what extent Paraguayan cattle producers are aware of sustainability standards and how they look at environmental and social sustainability. This chapter will discuss, taking the VoC approach into account, whether the institutional setting of Paraguay can explain the view and awareness of producers concerning sustainability and if this affects the implementation of sustainability standards. Important to stress is that the analysis in this chapter is based on qualitative data derived from interviews. Statements concerning the institutional setting of Paraguay are derived from the interviews. Secondary quantitative data will be used, if possible, to support the analysis.

### STRATEGIC RELATIONSHIPS IN PARAGUAY

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Four strategic relationships are apparent in a HME: diversified business groups, MNCs, low-skilled labor, and atomistic labor relations (Schneider, 2009). These strategic relationships can also be found in Paraguay and more specifically in the cattle sector of Paraguay.

Diversified business groups: large domestic groups often characterize corporate governance in a HME. These business groups are also highly apparent in the political economy of Paraguay as illustrated by the Paraguayan president who has 21 companies under the name *Grupo Cartes*. Three things need to be emphasized concerning these large domestic business groups in the cattle sector:

- Most groups have hierarchical control over dozens of separate firms: several producers indicated that cattle farming is not their main business activity, but just a side business. Besides owning a farm, they were also active as veterinarian, cultivated other agricultural crops or owned another business, sometimes unrelated to the cattle sector. One of the producers, for example, had a chain of shops that sells construction tools. Another producer owned one of the largest chains in Paraguay that sell products made of cotton such as sheets, pillows, etc.
- Small numbers of groups account for large shares of GDP: as mentioned before, this is illustrated in the very high Gini-coefficient of 49.8 points in 2013 (Inter-American Development Bank, 2015). The producers interviewed for this research all belonged to the 1 per cent that account for a large share of the GDP and own

large amounts of land. Adding the finding that the cattle producers talked to do not solely do cattle farming, but are also active in other practices, it is to be expected that the possessions of these producers are underestimated.

- Groups are mostly owned and managed by families: several producers indicate that the farms are a family business. They often manage the several farms that they own with several members of the family. These farms have been in their possession for several generations and this will also be the case for next generations.

Multinational corporations: MNCs are also apparent in the Paraguayan economy. Companies such as Monsanto, Cargill, and ADM are all present in the Paraguayan economy. However, while these companies are all agricultural companies, they mostly operate in other agricultural sectors, such as the soy sector. MNCs are less apparent in the cattle sector, especially when cattle production is addressed. In the cattle sector there are a lot of foreign investors who are mainly originated from Uruguay and Brazil. However, these are often singletons and are not represented by large MNCs. Some meat factories do belong to larger MNCs. For example, an important meat factory in Paraguay, JWS, is of Brazilian origin. Yet it must be concluded that MNCs are hardly apparent in the cattle sector when production of calves and fattening of cows are addressed.

Low-skilled labor: Paraguay has a labor force that is low educated. In 2013, only 42.9 per cent of people between 18 and 64 completed secondary school (Inter-American Development Bank, 2015). Moreover, the Paraguayan labor market asks for low skilled laborers. This is also the case for the cattle sector.

Atomistic labor relations: In a HME employees often have short-term links to firms. In addition, the informal sector of a HME is large. This is also the case for Paraguay and the Paraguayan cattle sector. In 2010, 70.4 per cent of the Paraguayan working force worked in the informal sector. Honduras is the only country in Latin America that had a larger informal sector than Paraguay in 2010 (ILO, 2011). The informal nature of labor is also apparent in the cattle sector. Some jobs on the farms only ask for a worker for 2 to 3 days. These jobs do not desire a contract and workers do not always have access to protection and benefits that workers with a contract have. These workers have short-term links with the producer that employs them and hardly a link with other workers. This results in a high turnover of the workforce in the cattle sector. However, the high turnover is not only the result of the labor market. Producers also indicate themselves

that workers leave often. Because farms are often isolated and not close to any facility, workers tend to leave when they saved enough money. In addition, the demand for workers is higher than the supply. Producers state that workers also leave if they can work at farms with better working conditions.

Another characteristic of an HME is the low influence of labor unions. Workers and producers in the cattle sector are not unionized and the turnover of workers is high. The only organization that represents producers is the ARP. However, this organization mostly represents large producers and does not specifically represent the employees of these producers. Moreover, large producers are only a small part of the total amount of producers and could be considered as managers instead of farmers as they often do not live on the farms and manage different farms at the same time. As mentioned before, the ARP or any other labor union or organization does not represent small producers.

#### COMPLEMENTARITIES AFFECTING SUSTAINABILITY

The strategic relationships explained above affect the institutional complementarities of Paraguay. According to the theory, one set of institutional practices will be complementary to another when each raises the returns available from another (Hall & Soskice, 2001). Schneider (2009), however, states that HMEs establish negative complementarities.

Negative complementarities arose in HMEs between MNCs and family owned business groups in the second half of the 20<sup>th</sup> century. MNCs invested more in technology and research and development, which resulted in higher returns for them. In addition, family owned businesses maintained voting control. This made it less attractive for (foreign) investors to buy themselves in. A similar development has also taken place in Paraguay. Given that family owned business groups are highly apparent in Paraguay, especially in the cattle sector, investment in technology and research and development have stayed behind. According to a survey of 2010 conducted with Paraguayan firms, the level of investment in obtaining recognized certificates of production and accounting practices is lower in Paraguay than in other Latin American countries. In Paraguay, 15 per cent of the firms indicate to have an internationally recognized quality certification, while 19 per cent of firms in other Latin American countries indicate to have this certification. International quality certificates can open doors to technology and innovation (World Bank & IFC, 2010). The negative complementarity that arose from the low investment in

technology and research and development is also visible in the cattle sector. The former vice-minister of cattle stated that there is a problem with family businesses in Paraguay. A lot of producers who are part of a family business did not industrialize or evolve into larger enterprises. According to him, this is especially the case for Spanish descendants. They kept everything in the family. While MNCs are hardly present in the cattle sector, there is a group of producers that industrialized further and became larger. These are mostly producers from Nordic descent, such as the Mennonites, but also European and American producers (personal communication, May 8 2015). It is presumable that Nordic producers are more likely to have ties abroad and therefore knowledge about developments and innovations in these markets is more accessible. This can explain the larger awareness of these producers and the inclusion of social issues into concept of sustainability.

According to Schneider (2009), the low level of education could be a reason for low investment in technology. Since the level of education in Paraguay is low, it is unattractive for producers to invest in production processes that ask for skilled labor, because skilled laborers are scarce. This, in turn, makes it less attractive for workers to acquire more skills. As a result investment in skills and training of the working force is hardly present. Adding the high turnover and lack of institutional means for negotiating with employers to this, investing in education becomes even less attractive. Cattle producers see the low level of education as a problem. According to them, there is a shortage of qualified employees. Data from a national level confirms this view. Paraguayan firms identified inadequately educated workforce as the second biggest business environment obstacle (World Bank & IFC, 2010). This seems to confirm that the educational level of the Paraguayan workforce and workers in the cattle sector are an obstacle for firms if they want to prosper. However, the low educational level of workers is partly a result of the inaccessibility to education. Producers do not provide their workers on the farm with training. While the producers acknowledge the importance of social sustainability with regards to secondary working conditions such as education and technology, improvement of education or technology is hardly implemented by producers. Also public institutions do not sufficiently provide education for workers in the cattle sector, which has resulted in an institutional setting that does not create a sphere in which social sustainability can be implemented.



The presence of institutions provides strategic capacity in a political economy. The state has been the main external institution that historically reinforced the core features of a HME, since it regulates markets for capital, labor, and technology. States have been enablers of distribution of capital and creators of a setting in which businesses have to move in. The state is more apparent in a HME than in the other modes of coordination. This is a result of the history of high socio-economic inequality in HMEs. States have reinforced elements of hierarchy in several spheres of the economy. This is also the case for Paraguay and is highly visible in the cattle sector. There is a certain hierarchical structure in the cattle sector in which the business elite has a lot of influence. So far international influences and globalization have not changed this.

The cattle sector is a very old and powerful sector in Paraguay that always had control in institutional formation. It has one leading organization, the ARP, and this organization is highly influential and respected by producers. Most large producers are members of the ARP, which is also the case for the interviewed producers. Besides that the ARP works closely with the government on the implementation of foot and mouth vaccination and the traceability program, the ARP also is in constant contact with people in congress and in the government. The ARP has representations in 14 governmental institutions, such as the INFONA, but also the National Council for Climate Change and the National Development Bank. The ARP also represents Paraguay in international organizations, such as the MERCOSUR. It is for example active in the Forum of Beef of the MERCOSUR. The current vice-minister of cattle, Marcos Medina, was a member of the Central Executive committee of the ARP. Also other prominent figures of the ARP are influential in other spheres of the Paraguayan cattle sector. One of the interviewees has both been the president of the ARP and the SENACSA. This illustrates that the government and the ARP are highly interlinked and that the ARP is highly influential. Several producers stated that the ARP has to participate in an initiative if one wants to make changes. This is exactly what is happening. The ARP is almost always involved in every new initiative, started by either foreign or national institutions, to make changes in the cattle sector. Carne Natural and SITRAP are good examples of this. However, as is stated before. These initiatives are mainly concentrated on economic performance. The main focus of the ARP is on economics and the growth of the cattle sector. The first responsibility of the ARP is producing food. The business elite in the cattle sector, although they have a lot of money, feels little responsibility to improve social and

environmental sustainability. This does not create a sphere in which it is beneficial for producers to implement environmental and social sustainability standards.

It is not per se the case that institutions such as the ARP and the Paraguayan government realize the joint gains they get from hierarchy; it is a result of history. The ex-vice minister of agriculture states that this low responsibility is a result of forgetting small farmers. The situation has become status quo. Hierarchy is the default preference for state and business elites that have influence in initial institutional formation. The hierarchies create some obstacles for coordination and markets that require extraordinary efforts to overcome. Weak enforcement of laws is one of the most important obstacles to overcome in a HME. While the government creates laws for sustainability, the government does not adequately enforce or implements these laws. The environmental services law is an example of that. No cattle producer has received money yet for environmental services. Three different reasons can explain the problem with enforcement of the laws.

Firstly, as is often the case when laws are poorly enforced, the law is undermined by corruption. If you look at the corruption index, that looks at the perceived level of corruption in the public sector, Paraguay scores 24 points on a scale of 0 to 100, in which 0 means that it is perceived as highly corrupt and 100 is that it is perceived as very clean. With this score Paraguay ranks the 150<sup>th</sup> place of 175 countries that are reviewed for this index in 2014 (Transparency International, 2014). Paraguayan firms rank corruption as the third obstacle that constraints the business environment (World Bank & IFC, 2010). The SEAM is associated with taking bribes if producers have deforested above the legally allowed level. Because of the high level of corruption in the public sector, implementation of environmental laws is often lacking.

Secondly, the government does not have the interest to enforce certain laws on producers. Since large producers also have ties with and influence in the government, the economic focus predominates. The government should be the one to protect and look after natural resources. However, it is the private sector that has the resources to do this. The main interest of the private sector is to make money and get high revenues, which creates a setting in which economic growth and productions are the main focus instead of a setting in which environmental or social sustainability laws or standards can be implemented. The government, for example, does not have an overview of basic issues like the cadaster, how land is currently used, what the potential is of land or what should

be done with the land. This makes it difficult to implement environmental laws. The high economic interest is also illustrated in the tax burden for cattle producers. These are very low. Producers only pay one per cent of taxes over the value of their land. The value of the land is often underestimated and sometimes only 5 per cent of the actual value. In addition, cattle producers pay 5 per cent taxes on anything they buy. Also the positive reports on the capacity of the SENACSA are a good example of the high economic interest. SENACSA has to ensure animal health, which is an important aspect to ensure economic revenues of cattle farming. SENACSA is, in contrast to SEAM or INFONA, the only governmental institution in the cattle sector that works adequately.

Lastly, the institutions that are responsible for the implementation do not have enough capacity and the coherence between different institutions is lacking. The SEAM is a good example of this, but also the INFONA, illustrates this. This institute is supposed to manage and monitor the forest. However, nobody works together with this institute. Both the ARP and the SENACSA indicated that they do not talk to the INFONA. The president of the SENACSA acknowledges the lacking capacity and coherence and states that the governmental institutions need to proof that they work concerning sustainability issues. Better coordination between institutions that participate in these initiatives is needed. At the moment this is very weak (personal communication, May 20 2015). Also the ex-president of the SEAM indicates that coherence is often absent. She states that other governmental institutions are not aware of the environmental laws (personal communication, March 27 2015). The lack of coherence between different institutions creates a situation in which the implementation of sustainability standards becomes harder, especially because these institutions that focus on social and environmental issues are hardly cooperating with those institutions that have an economic objective.

The hierarchical structure, the presence of family owned businesses, the low skilled labor and the weak enforcement of the law, has created a set of institutional practices in which it is hard for firms to prosper if they want to be socially or environmentally sustainable. The institutional setting of Paraguay has created negative complementarities that make implementation of sustainability standards in the cattle sector hard. The low awareness of sustainability standards and the perception of sustainability of producers could also be partly explained by this. Since the institutional setting of Paraguay does not provide a sphere in which sustainable practices can be implemented, it is harder for producers to be aware of these practices and perceive sustainability as positive.

## A TURN IN EVENTS?

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While the institutional setting of Paraguay and the Paraguayan cattle sector fit in the description of a HME and while it seems to create negative complementarities that make the implementation of sustainability standards harder, there also seems to be a tendency in which these negative complementarities are starting to be overcome.

Schneider and Soskice (2009) state that the expansion in local stock markets and the growing weight of institutional investors can pressure business groups to specialize, open their capital and professionalize their boards of management. Both the local stock market and the presence of institutional investors are expanding in Paraguay. The amount of producers has grown since 2011 and the amount of produced meat as well (Banco Central del Paraguay, 2015). Also foreign investments, including investments made by businesses, banks, and insurances, but excluding investments made by the public sector, have been increasing between 2010 and 2013. Most of these investments were made in the agricultural sector, including the cattle sector (Banco Central del Paraguay, 2013).

Cattle producers realize that the growth in the sector cannot be endless if certain improvements and innovations will not be made. So far the growth in the cattle sector has mainly relied on expansion of production. Soon there will not be enough land to expand cattle production. Growing efficiency or the opening up of markets that offer higher prices for meat are considered the way to go to continue growing as a sector. Moreover, the opening of the European market is seen as a possibility to keep growing. The desire to keep growing as a sector can possibly lead to an improvement in technology and more investment in research and development, which, in turn, can help to overcome negative complementarities. The realization that future generations need to be able to use the land and the desire to develop Paraguay triggers producers to be open towards sustainability. The business elite in the cattle sector is more open, which can possibly lead to a diminishing effect of the hierarchical structure. However, it is stressed multiple times that sustainability is a new concept in Paraguay. Sustainability in the cattle sector is in the initial phase and awareness and implementation of sustainability standards is still relatively low. There is still a lot of room for improvement.

## 8. CREATING A SETTING FOR SUSTAINABLE BEEF PRODUCTION

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As discussed before producers are willing to be more sustainable and implement social and environmental sustainability standards if it is proven to be beneficial. In order for sustainability standards to be beneficial several things can be improved. This is discussed below.

### CERTIFICATION SCHEMES FOR PARAGUAYAN BEEF

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One of the missing elements in the cattle sector in general is a market in which sustainable produced meat is demanded. At the moment there is no price difference for sustainable produced meat and non-sustainable produced meat. For sustainability standards to be beneficial it is important that there is a market in which sustainable produced beef receives more money, since economic incentives are the main driver for producers to comply with standards. A certification scheme in which sustainable produced beef receives a label could help to create this market. Consumers cannot choose for sustainable produced meat with regards to Paraguay beef. If one looks at the Paraguayan cattle sector one can see differences in the manner of production. In the Chaco, for example, almost all cattle is grass-fed, while cattle in the Oriental more often also eat some mixes containing corn, soy or cotton in addition to grass. Also the management and use of water in the Chaco make the production of meat more sustainable. If a certification scheme would be developed it is these differences that should be taken into account. At the moment there is no distinction between the different production methods. It should be beneficial for producers who produce sustainable to distinguish themselves from producers who do this to a lesser degree. There is a tendency in which this is getting growing attention with the example of Carne Natural.

The Paraguayan banks are one of the actors that could create a certification scheme. Banks provide producers of credit. If banks provide beneficial conditions, such as a low interest rate, for producers who produce more sustainable, producers may be more willing to implement a certification scheme or sustainability standards. Another actor that could set a certification scheme is the meat factory. In the United States there is a grading system in which meat factories label cattle as premium, choice or select. Meat that is classified as premium can be sold for a higher price than meat that is classified as choice

or select. Premium meat is supposed to taste the best. While this certification scheme has nothing to do with sustainability, the meat factories in Paraguay could develop a certain grading system for sustainable produced beef. Meat factories are also one step further in the value chain of meat and closer to the demands of consumers and foreign markets. They can therefore react quicker to new developments and requirements on the demand side of the value chain of meat. There could be a key role for meat factories in the establishment of certification schemes in the Paraguayan cattle sector.

However, some obstacles have to be overcome before this can happen and some side notes have to be placed at the creation of certification schemes. Finding a balance in which the economy, society, and environment are all taken into account is a challenge. Firstly, while grass-fed cows on the first sight appear to be sustainable, there is a large disadvantage of this production method. A lot of land is needed to fatten a cow solely on grass. In the Chaco, for example, farmers on average count one hectare per cow. This has resulted in rapid deforestation, which, as mentioned before, is highly apparent in Chaco. This makes the production in Paraguay less sustainable. Some interviewees therefore suggested introducing the feedlot in the Paraguayan cattle sector. Less land is needed for the feedlot. However, introducing the feedlot means that the beef of Paraguay loses its natural status. This leads to a paradoxical question: what is more sustainable grass-fed natural beef or feedlot beef?

Secondly, the current production method in the Paraguayan cattle sector has an effect on social sustainability. In Paraguay if a producer has less than 50 heads of cow, this producer is perceived as poor. This is partly a result of the fact that cows are often only grass-fed. A result of this is that a producer with, for example, 10 hectares can only have 10 cows. There is still much to win in the Paraguayan cattle sector regarding efficiency. In addition, cows that are solely grass-fed need more time to get on their target weight for slaughtering, which makes the productivity of the production method in Paraguay lower. As several interviewees have pointed out productivity has to increase in the cattle sector of Paraguay in order to get small producers out of poverty.

Thirdly, different markets have different requirements concerning standard. This is something that the developers of Carne Natural ran into. Their aim was to create a standard for organic meat. However, in Europe the production of meat is only perceived organic if cows are not vaccinated. This was in contradiction with the Paraguayan law concerning the vaccination of cows against the foot and mouth disease. In addition, an

outbreak of the foot and mouth disease is an economical disaster. The export of meat completely stopped after the outbreak of the foot and mouth disease in 2011 (Banco Central de Paraguay, 2015). Because of economical and legal considerations, it was not an option to stop vaccinating cattle. The developers of Carne Natural switched to natural beef instead of organic. The American market also had different demands concerning organic meat than the European market. For meat to be considered organic hormones and antibiotics cannot be used. These different requirements concerning sustainable meat of different markets make it difficult to set one standard. To develop a certification scheme for Paraguayan beef it is important that there is more consensus concerning sustainable beef production on an international level.

Lastly, the international power of the Paraguayan cattle sector has to be taken into account. Paraguay is a small country that borders to two powerful countries: Argentina and Brazil. When South America is addressed, all eyes are mostly on these two countries. Moreover, these two countries are apparent in the cattle sector of Paraguay, especially the Brazilians. Brazilians own, for example, most of the meat factories in Paraguay. There are also a lot of Brazilian cattle farmers in Paraguay. Several interviewees argue that these farmers are less sustainable, since they feel less responsibility to be sustainable in Paraguay because it is not their native country. Looking beyond South-America at a global level, the cattle sector of Australia and the United States is substantially larger than the cattle sector of Paraguay. It is mentioned several times that the Paraguayan cattle sector cannot set standards by themselves. They need support from other more powerful countries.

An important factor for producers to consider when implementing sustainability standards or certification schemes is the level of the investment. This should not be too high. However, it is also important to not solely focus on the inclusion of as many producers as possible. The sustainability standards in the end also have to lead to actual improvement with regards to social and environmental issues. Therefore, a balance in which all aspects of sustainability are included need to be found.

#### IMPROVING AWARENESS, EDUCATION, AND TECHNOLOGY

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Besides the creation of certification schemes, improving awareness among cattle producers could create a setting in which sustainability standards can be implemented. At the moment most producers are hardly aware of international standards and generally

aware of national standards. Also sustainability as a concept is often narrowed to profit and planet. People are hardly included in the concept. Several interviewees have stated that the mindset of producers have to change in order to be able to produce more sustainable. Sustainability has to become part of the institutional setting of Paraguay and of the organizational culture of a business. Interviewees often mention that young producers are most easily convinced. They are often more open to new ideas, since they are not set in their production methods. It is harder to change the mindset of someone who has been doing the same thing for over 20 years. In addition, younger people are more connected to global developments. Besides that they are more familiar with and connected to the world through Internet, they also had more opportunities than previous generations to travel and/or study abroad. Often young producers realize that they have to be more sustainable because they still want to be able to use the land in 50 years. It is for the latter reason that it is important to explicitly include and address young producers when sustainability standards are implemented.

Other producer groups are less aware. For these groups education or capacity building concerning sustainable cattle production is important. This is especially the case for small producers. Small producers are not aware of the meaning of sustainability and the existence of sustainability standards. This is partly a result of their low education. Investment in education by states or the private sector could help to overcome negative complementarities and create comparative advantage. To increase social sustainability concerning access to education and to establish social upgrading it is important that small producers have access to education. This can also help small producers out of poverty and increase their ability to sustain themselves. The same applies for employees who work on the farms. There is a high demand for skilled workers, but for workers to obtain skills, they have to have access to education. One of the regional offices of the ARP joined a program of a civil society that focuses on education and improvement of job skills (ABC Color, 2015).

Improved technology can also help small producers to improve their livelihoods. It is mentioned that productivity and sustainability would improve greatly if small producers would be able to implement only one or two best practices (personal communication, March 17 2015). Important is that small producers know how to use these technologies. But it is not only small producers that need to have access to technology. There is also room for large producers to improve technology. Universities could play an important



role with regards to this. It is important that universities include sustainability in their curriculum, especially if you want to reach young people. A professor at the National University of Asuncion states that over the past ten years sustainability grew in importance and is now integrated into several classes (personal communication, May 28 2015). This could be further enhanced.

#### OVERCOMING NEGATIVE COMPLEMENTARITIES OF THE INSTITUTIONAL SETTING

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Overcoming negative complementarities is another factor that is necessary to create a setting in which sustainability standards can be implemented. Firstly, the implementation, enforcement, and monitoring of laws should be improved. The environmental laws of Paraguay that cattle producers have to comply with are in theory not unsustainable. It takes conservation of nature into account and demands from producers to make an assessment of environmental impacts of their activities. Producers acknowledge that the environmental laws in Paraguay are sufficient to produce sustainably. However, as is stated before, it is the enforcement of these laws that is lacking. This needs to be stricter to overcome negative complementarities. This is paired with the level of corruption that is apparent in the institutional organizations. Corruption makes it hard to enforce and implement the environmental laws. It is not only Paraguay that has this problem. In many countries corruption is a large problem, but it has proven to be hard to combat corruption. Another main reasons that enforcement of the environmental laws is lacking, is the little capacity that the governmental institutions in charge have. Many producers indicate that the state is responsible to enhance sustainability in the cattle sector. But taking into account that the state has little capacity and including the low amount of taxes that cattle producers have to pay to the state, governmental institutions do not have the resources that they need to enforce laws. Producers often have more resources.

Secondly, the coherence between different governmental institutions needs to be improved. At the moment this is lacking. The SEAM, INFONA, and SENACSA are all part of the Ministry of Agriculture, but do not work together sufficiently. In addition, coherence and cooperation between different stakeholders should be improved. While there are some public and private partnerships, with the ones between the SENACSA and ARP as the most important ones, cooperation with other stakeholders is still lacking. Cooperation with NGOs is hardly present and they are often not involved in initiatives of the government and the private sector, while they represent the interest of social and

environmental sustainability, NGOs are often shunned. This is visible in the perception of most producers concerning NGOs. They see NGOs as institutions that create problems without wanting to find solutions, because otherwise they won't receive funding anymore. To improve coherence between different stakeholders it is important to first create more understanding for each other. To be able to implement sustainability standards, it is important to improve cooperation between the different stakeholders. A multi-stakeholder initiative, similar to the GRSB, could help to enhance this. However, the cattle sector of Paraguay is not participating in any of these initiatives. To also create more coherence internationally, it is important that the Paraguayan cattle sector participates in these initiatives, also considering that Paraguay is the sixth largest exporter in the world.

Thirdly, for all Paraguayan stakeholders of the cattle sector to be able to represent itself in initiatives mentioned above, it is essential that small producers and employees on the farms are more organized. The establishment of an organization or institution, such as a labor union, that represents the interests of small producers and/or workers could help this cause. The establishment of an organization is significant to create a setting in which small producers, but also employees on the farm have access to education and training. Moreover, it is important to prevent problems regarding land-acquisition. A labor union or organization that represents small producers could enhance social sustainability and could help to make small producers more aware of sustainability.

## 9. CONCLUSION AND DISCUSSION

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Livestock production significantly contributes to the emission of GHG. In addition, more land is needed to grow crops to feed livestock. With a growing world population that is expected to reach 10 billion people in 2050 and a demand for dairy and meat that is expected to double, there is a growing demand, especially from the global North, for sustainability in the supply chain of meat. This research discussed how Southern producers perceive sustainability standards set by actors in the North. It examined social and environmental sustainability in the cattle sector of Paraguay, a country in which the cattle sector is growing rapidly and who is currently the sixth largest exporter of meat in the world. The different sustainability standards in the cattle sector of Paraguay were assessed by placing them in the SSCM framework of Carter and Rogers (2008). Awareness of these standards among Paraguayan cattle producers was reviewed and the influence of the institutional setting of Paraguay on the view of cattle producers was taken into account by using the VoC approach. The research question of this research was:

*(a) How do Paraguayan cattle producers perceive demand for social and environmental sustainability in the supply chain of meat and (b) how does the institutional setting of Paraguay affect the implementation of sustainability standards?*

In order to answer this research question, literature concerning current sustainability standards, national legislation, and the institutional setting was consulted. In addition, semi-structured interviews were conducted with Paraguayan cattle producers and key figures at the government, NGOs, private sector, and knowledge institutions of Paraguay.

The international sustainability standards assessed for this research are the IFC Performance Standards and the GRISB. The international standards are more holistic than the national standards because they include all aspects of the TBL. However, Paraguayan cattle producers, with the exception of frontrunners, are often not aware of these standards and the standards are hardly present in the cattle sector of Paraguay. When producers are aware of the existence of these international standards they know them in very general terms. The absence of Paraguayan stakeholders in these initiatives and the ability to implement international standards in a local context like Paraguay can partly explain the unfamiliarity with international standards.

The national sustainability standards assessed for this research are the Buenas Practicas, SITRAP, Carne Natural, and Alianza del Pastizal. Paraguayan cattle producers are more aware of the national standards, especially the Buenas Practicas. Producers also perceive the national standards as easier to implement than the international standards. The national standards are however less holistic and only address one or two aspects of the TBL. This implies that the cattle sector of Paraguay is still mainly focused on the current cost perspective and not on the total costs.

When producers were asked what sustainability means in their perception, most producers mention that sustainability is to find a balance between economic revenues and respecting the environment. Producers realize that if they do not look after the environment, land is degraded, which also results in lower revenues. The forest is of less importance to producers, because producers see clearing of the forest as a necessity for development. As a result, deforestation is a problem in Paraguay, especially in the Chaco. The social aspects of sustainability were almost never mentioned when producers were asked about how they perceive sustainability. The producers do acknowledge that there are problems with indigenous communities, campesinos, and double land titling. Working conditions on the farm appear to be relatively good as a result of the high demand for skilled workers. Also animal welfare is perceived as important, since it is good management to keep the cattle comfortable. This indicates that it is not the low awareness of cattle producers that shapes the perception of producers concerning sustainability standards. More important is the economic incentive, which is the main driver for cattle producers to be more sustainable. Powerful actors in the cattle sector, like the ARP, include the growth of the sector as priority in their long-term strategy. Sustainability issues and standards are almost only perceived positively or included in the long-term strategy of cattle producers if it contributes to profit. The implementation of the national standards that are focused on economic performance illustrates this.

In contrast, small producers perceive sustainability differently and are less aware of sustainability. Small producers are less aware of the demands of the markets. They often do not focus on environmental sustainability. For them sustainability is a more equal distribution of land.

The institutional setting of Paraguay can provide an explanation concerning the level of implementation of sustainability. Paraguay and the Paraguayan cattle sector fit in the description of a HME. As a result negative complementarities are apparent. There is a

certain hierarchical structure in the cattle sector in which the business elite has a lot of influence, with the ARP as example. The hierarchies create some obstacles for coordination of markets that require extraordinary efforts to overcome. The presence of family owned businesses, the low skilled labor, the little coherence between institutions and the weak enforcement of the law create negative complementarities that make implementation of sustainability standards hard. While the government has developed laws for sustainability, like the environmental services law, the government does not do adequately enforce or implements these laws.

However, there seems to be a tendency in which these negative complementarities are starting to be overcome. Cattle producers realize that the growth in the sector cannot be endless if certain improvements and innovations will not be made. In order for sustainability standards to be beneficial several things can be improved. One of the missing elements in the cattle sector in general is a market in which sustainable produced meat is demanded. A certification system can help to create a market for sustainably produced beef. Also improved awareness, education, and technology among cattle producers could create a setting in which sustainability standards can be implemented. Lastly negative complementarities could be overcome by stricter enforcement of the law, greater coherence between (governmental) institutions and the establishment of an organization that represents small producers.

The main limitation of this research is that small cattle producers were not directly interviewed. The organization that was interviewed that represents small producers only represents a small proportion of the total amount of small producers. Considering that small producers are such a large group of producers and considering that these small producers are not aware of sustainability it would be interesting to focus on small producers in future research. This is also important to enhance social sustainability and to improve the living conditions of small producers. Another disadvantage of this research is the small amount of foreign producers interviewed. It is indicated that these cattle producers are less sustainable, since they are not originally from Paraguay. Despite these limitations this research gives relevant information concerning sustainability in the Paraguayan cattle sector and gives recommendations to improve implementation of sustainability standards in the sector. Moreover, it adds to literature of SSCM research by adding elements of GVC research. Future research could look into other elements of the supply chain of beef that are present in Paraguay. The meat factories, for example, could play an important role in the establishment of sustainability in the cattle sector. In

addition, future research could concentrate on the VoC approach. It would be interesting to expand the knowledge concerning HMEs, taking the Paraguayan setting as an example. But it would also be worth to know more about how institutional complementarities affect the implementation of sustainability standards.

## ANNEX

## ANNEX 1: INTERVIEW GUIDE

1. *Characteristics producer*

- 1.1 Name company/producer:
- 1.2 In which department of Paraguay are you active?
- 1.3 How many farms do you have?
- 1.4 What is the total surface of your farm(s)?
- 1.5 How many heads of cow do you have in total?
- 1.6 From which country do you come from?
- 1.7 Are you a member of the ARP?

2. *Sustainability*

- 2.1 What does sustainability in the cattle sector mean in your perception?
- 2.2 I want to ask you about:

1. Assessment & management of environmental and social impacts

- Do you have an environmental license?

3. Resource efficiency & pollution prevention

- How do you manage water?
- How do you manage waste of animals?

5. Biodiversity, conservation & sustainable management of living natural resources

- How much forest do you have on your farm?
- Is hunting allowed on the farm?
- Do the activities of the farm affect biodiversity?

7. Animal hygiene, health & welfare

- Do you use supplements or hormones?
- What vaccinations do you use?
- Do you use an electric pin or dogs to control the cows?

2. Labor & working conditions

- What are the working conditions on the farm?

4. Land acquisition & involuntary resettlement

- What are your experiences with double land titles?
- What are your experiences with campesinos?

6. Indigenous people:

- Do indigenous people live nearby your farm?
- What are your experiences with indigenous people?

8. Safety & quality of products

- How do you ensure the safety and quality of the meat?

3. *Sustainability standards*

- 3.1 Are you aware of the existence of national and/or international sustainability standards?
  - If yes: which standards do you know?
  - Have you heard about one of the following standards?

- i. IFC-standards
- ii. Global Roundtable Sustainable Beef
- iii. Buenas Practicas
- iv. Carne Natural
- v. SITRAP

→ If heard about: how do you know this standard?

→ Do you comply or are you planning on complying with any of these standards?

- 3.2 If there would be a price difference between meat that is produced in a sustainable manner and meat that is not produced in a sustainable matter, would you consider complying with the sustainability standards?
- 3.3 If productivity would rise when sustainability standards are implemented, would you consider implementing the standards?
- 3.4 What would be another reason to consider implementing sustainability standards?
- 3.5 Is setting a sustainability standard for the cattle sector possible in Paraguay?

#### 4. Laws

4.1 What is your opinion about:

- i. Deforestation law -in either Chaco or Oriental- (law 422/law2524)
- ii. Environmental impact assessment (law 294)
- iii. Environmental services (law 3001)

4.2 How can the government help to improve sustainability in the cattle sector?

#### 5. End

5.1 Who is responsible to create sustainability in the cattle sector?



## ANNEX 2: LIST OF INTERVIEWEES AND OTHER ACTIVITIES

Table 5. List of interviewees

	Name	Organization	Date
1	Silvana Ciotti & Omar Fernandez	Sudameris Bank	17-03
2	Gustavo Ruiz Diaz, Hugo Sanchez & Lorena Ramirez	Solidaridad	18-03
3	Rossana Scribano	Instituto Desarrollo	19-03
4	Luca Eufemia & Marianne Hilders	WWF	24-03
5	Hugo Sanchez	Solidaridad	27-03
6	Christina Morales	Former president SEAM	27-03
7	Guillermo Terol	Consultant	30-03
8	Marcos Medina	Vice-minister of the Ministry of Agriculture and Cattle	08-04
9	Temi Goertzen	Producer	10-04
10	Peter Arturo Beare	Producer at Payco	10-04
11	Dario Baumgarten	Producer; veterinarian	15-04
12	Juan Fernando Peroni & Ernesto Mussi	Producer & consultant	16-04
13	Rosali Goertzen	Agro-ecologist Fernheim	21-04
14	Henrich Ratzlaff	President Fernheim	21-04
15	Norman Loewen	Producer	23-04
16	Norman Rieder	Producer	25-04
17	Lorena Sforza	Guyra Paraguay	27-04
18	Edgar Duarte	Alter Vida	30-04
19	Antonio Espinosa	Producer	30-04
20	Norbert Weichselberger	Volendam Cooperative	05-05
21	Ramiro Meluff	Producer	06-05
22	Felipe Barboza	President of commission of environment and sustainable production of the ARP	06-05
23	Guillermo Cabellero	Producer	07-05
24	Luis Antonio Goiburu	Ex vice-minister of the Ministry of Agriculture and Cattle; producer	08-05
25	Alberto Mendelson	Producer	12-05
26	Juan Maquino	Producer	13-05
27	Hermes Garcia	Centro Paraguayo de Cooperativistas	19-05
28	Carlos Trapani Ocampo	Producer; ex-president ARP; ex-president SENACSA	20-05
29	Hugo Idoyaga	President SENACSA	20-05
30	Raul Antonala	Producer	22-05
31	Carlos Lopez-Moreira	Banco Central del Paraguay	26-05
32	Alberto Rautenberg	Producer	26-05
33	Edgar Gomez	Director public policy analysis	27-05
34	Pedro Paniagua	Professor UNA Produccion Animal	28-05
35	Christian Pascottini	Director of environment public policy analysis	29-05
36	Karim Musalem Castillejos	Producer	01-06

*Table 6. Other activities*

Activity	Place	Date
1. Visit ARP	Mariano Roque Alonso	06-04
2. Visit meat factory	Filadelfia	23-04
3. Book reading Gregg Hetherington	Asuncion	29-04
4. Visit farms and forestry Volendam Cooperative	Volendam	06-05

ANNEX 3: EXAMPLE OF A LAND-USE-PLAN

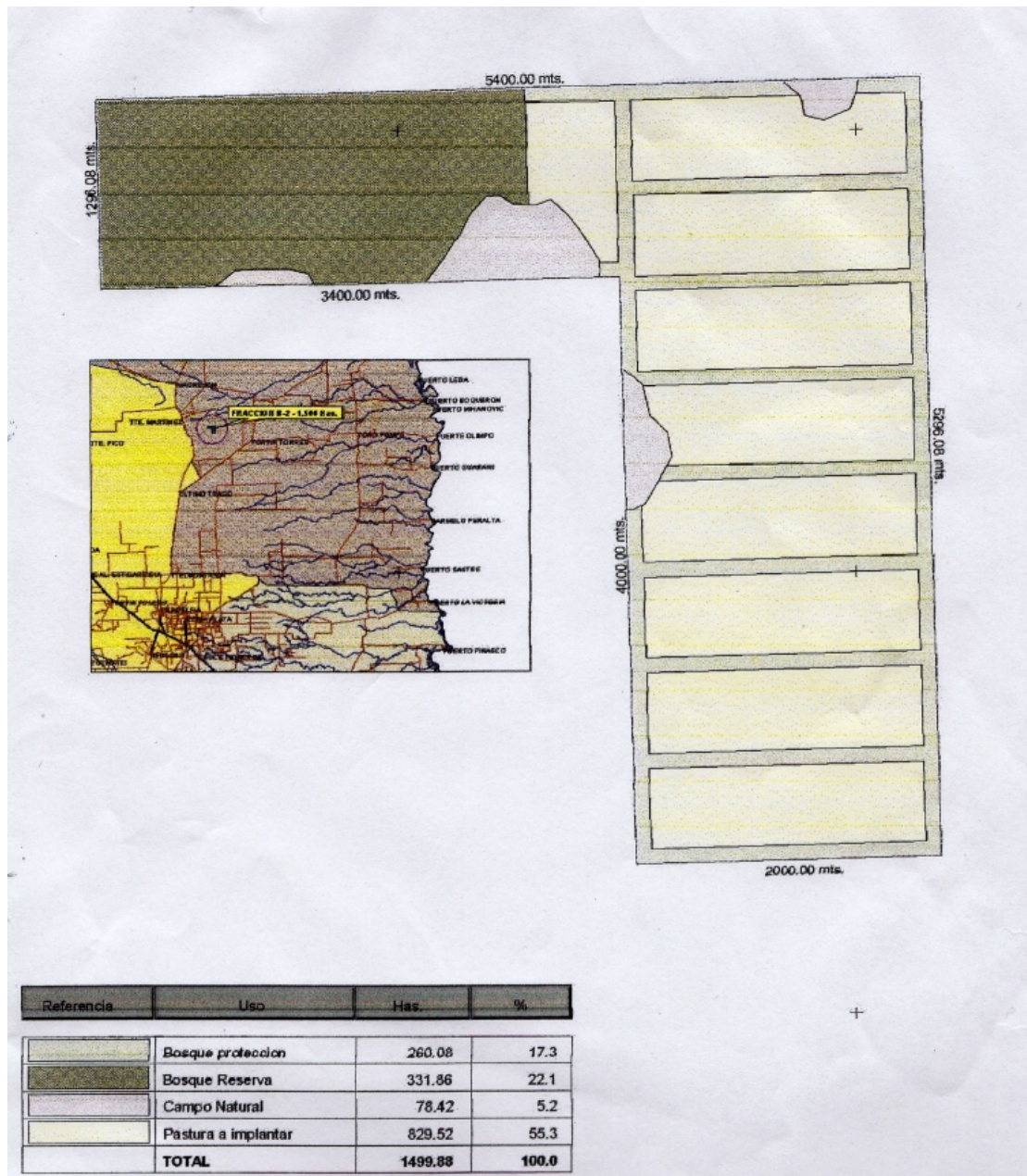


Figure 6. Land-use-plan

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