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Environmental certification: a study in the beef agro industrial system in Brazil

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The present study aims to analyze the environmental certification process in the context of the Agro Industrial System (SAG) of beef production in Brazil through mapping and promulgations. This research become relevant as environmental certifications attest to the implantation of a practical process of environmental management in participating organizations that vision the philosophy of Sustainable Development. Approaches to this qualitative analysis were: Sustainable Development, Environmental Management, Environmental Certification, The Stakeholders Theory and SAG. Semi structured interviews were conducted with those responsible for certification processes in organizations related to agribusiness. Findings show that, in each of these organizations, environmental management was well structured which facilitated the process of certification as most of the requisites had been met economically, environmentally, and socially. It was observed that, in Brazil, the certification process is advancing in the SAG of the beef cattle culture.

Keywords: Agribusiness, Agro Industrial Systems, Stakeholders, Environmental Management, Environmental Certifications.

INTRODUCTION

Pollution generated on the planet, since the beginning of the Industrial Revolution in the XVIII century to this day, has contributed to Global Warming and to the degradation of the environment. Interestingly, until the mid-20th Century, even with Malthus's alert about the limitation of food in the early of 19th as the population of Earth was growing faster than the agriculture was, there were no concerns as to the finiteness of natural resources, used with no manage plan for its renovation.

Such considerations began to become part of the agenda of international forums concerning Sustainable Development (SD), as several studies on the Greenhouse Gases (GHG) effects to the earth's atmosphere and Climate Changes on its biota explain natural disasters in several ecosystems and locations directly affecting food production for all humanity.

Early perceptions of this matter became clearer to the problematic of economy, around 1960 organizations began to discuss on how achieving sustainable development. Considering the large extent of degradation in nature, the need for its recovery and to use it conscientiously, debates focused on a solutions to growing economically while respectfully considering the limitations of available natural resources.

Thus, environmentalists from all over the world discuss the question of environmental impact caused by rampant industry growth in the search for Sustainable Development (SD), in which its concept was given for the first time in the Brundtland Report, observing that society must usufruct of the current natural resources without compromising the needs of future generations (Brundtland 1991).

This issue has proven to be important to many sectors of the economy, not only for its growth and economic development, but also so that there may be a more solid social development and a cleaner environment within the country. The institutions of many sectors are directly related when considering the responsibility of acting in favor of the environment, be it in sanctioning protective laws by the Government or in implementing innovations in sustainability by private organizations (Martha 2015).

However, what may seem more difficult to consider is that this sense of responsibility may go or stem out from part of these organizations (Eyckmans, Kverndokk 2013). It is important to highlight that SD has as main agents its respective Stakeholders, that is, groups or even an individual capable of influencing direct or indirectly, decisions taken by these organizations (Clarckson 1995).

In light of this study, the Stakeholders are the Non-Governmental Organizations (NGOs), which act protecting the environment, the Public Administration, private companies and consumers in addition to International Entities which are also important agents for pro

sustainability, as they make Agreements and Treaties that should be followed by the signing nations, as, for example, The Kyoto Protocol which commits to the reduction of CO_2 emissions in the atmosphere.

Nevertheless, many of these protocols have not been entirely fulfilled, many times not even partially, or even failed to do so, as an example, the USA which only under Barack Obama's administration, committed to making cuts consequently slowing down emissions *per capita* of GHG (Marcovitch 2012).

Accordingly, environmental management must be implemented in these organizations in order to reach the goal of developing sustainably in respect to the sited Protocols. For example, implementation will make it possible for organizations to abide to what is necessary to cut back on what would otherwise impact the environment by using natural resources rationally and moderately.

Regarding agriculture and cattle raising, Waack (2010) highlights Brazil's importance in the current world scenario and explains that these changes in multistakeholder governance bring new perspectives in respect to new concepts such as certification, verification and monitoring, principles and criteria in analyzing contracts. Thus, certification comes as a guarantee that once the product is certified there is a differential in relation to all others.

Brazil is of great importance in the world scenario as a large exporter of commodities, many of which are certified meeting the demands of the foreign market and is no different for beef which has defined market specifications that must be met and conditions *sine qua non* for trade. MAPA – Ministry of Agriculture, Livestock and Food Supply (2014) numbers show the importance of agribusiness to the Brazilian economy. Such numbers show the beef production chain contributing significantly. In 2013, the gross amount of Brazilian agribusiness exportations was U$ 100 billion, while the expectations for 2014 reached R$ 447,6 billion of which R$ 173, 47 from livestock, and specifically a bit over R$ 87 billion of this total for beef production alone. In the international scenario, beef production numbers are even more expressive showing that Brazil represents almost 20% of the total trade *(*MAPA 2014; ABIEC 2015).

As one can see, livestock is of great economic importance to the country; however, the activity brings impacts to the environment. Many are the discussions on how to reduce this impact, while Brazil is a great producer and exporter of beef production, it must attain to more sustainable practices, that are being discussed by its respective Stakeholders, that is, those participants of the beef sector, cattle producers, agricultural inputs for its production, government, intermediaries and final consumers (all agents of the chain of production) (Freeman 1984; Azevedo *et al.* 2015).

Within this scenario, we have chosen to analyze the process of environmental certification which in the global market has expressed notoriety since it seeks to standardize internal procedures of organizations, based on principles, whatever they may be, to insure adopting environmentally correct measures in the productive process, socially just to collaborators and local community bringing economic income to the involved organizations (Pinto 2014).

Thus, the present study has a general objective, to describe the environmental certification processes, in the context of the SAG of beef cattle raising, in favor of sustainability. It specifically proposes mapping the SAG environmental certifications of beef cattle raising; to describe the environmental certifications found in the stages of SAG beef cattle raising; to identify the influence of SAG stakeholders of beef raising on the promulgation of the certifications; and finally to analyze the sustainable development inserted in the environmental certifications issued in the different parts of the chain.

With the intention of reaching the proposed goals, the content of this research begins with this introductory part and continuing on to the theoretical background that will be the base

for discussions of the research's alignment. Next are the explanations to the methodological procedures applied in this study. Then, the results and discussions are presented in relation to the announced method of research. Lastly are the final considerations and references.

THEORETICAL BACKGROUND

In order to understand what Agro Industrial Systems (SAG) are, it is necessary to discuss its concept, the origin of its terminology, as well as the correlation with the productive chains. According to Batalha (2007), the studies of such systems began in 1950, by Davis and Goldberg, two Frenchmen who had carried out the analysis of them, as well as they analyzed questions concerning its systemic and mesoanalytic character, raising notoriety at the end of the decade of 80.

Davis and Goldberg played a crucial role in the propagation of the agricultural chains studies. Such importance was reached through the concept *Commodity System Approach* (CSA), which eventually inserted a systemic view on the various stages of the agricultural production and making possible for analysis of organizations related to the segment and the competitiveness of the chains (Batalha 2007).

After the dissemination of the CSA, in 1968, Goldberg introduced the concept of *agribusiness* as 'a set of involved activities in the processing and distribution of farming inputs, in the operations of production on the farm, the storage and the distribution of agricultural products and its derivatives, that is, from the production of initial inputs for sale of the product to the final consumer' (Goldberg 1968, p. 21).

The concept of productive chain, in its turn, is given in definition as an instrument of also systematic vision. For Prochnik (2002, p. 1) a productive chain is 'a set of consecutive stages by which several farming inputs go through and these inputs are transformed and transferred'. Thus, nonetheless, one can conclude Prochnik's considerations, the productive chain is a complex agglomerate of different organizations, constituting its respective systems that if interrelate by means of infinite contracts that preserve its respective rights of property (Zylbersztajn 2000).

Characteristics of the beef cattle raising SAG do not differ much from others, and is being considered as the interaction of productive systems, from raw materials and its farming inputs to the final consumer. A differential in this system is its heterogeneity, as it is composed of great landowners to small producers, from large scale meat production factory farms with much technology to small slaughterhouses that do not meet the minimum requirements for sanitary legislation; such reality seems to be fruit of an institutional environment, also heterogeneous, in which the chain is inserted (Malafaia *et al.* 2014).

The variables that determine the level of competitiveness in this sector are great, because there are questions concerning public politics, from international trade to legislation, sanitary and environmental inspection, issues also concerning investment in innovation by the companies etc.

Beef cattle raising SAG has a great expression in Brazilian agribusiness, as already said, once the area of the domestic territory of this activity is very large when compared with other agribusiness systems, around US$ 167,5 billion/year, employing about 7 million people, US$ 16,5 billion of fiscal contribution and US$ 42 billion invoicing for slaughterhouses (Azevedo *et al*. 2015).

According to ABIEC (2015) data, beef cattle raising in Brazil corresponds to almost 20% of the world-wide production. On the other hand, in general numbers it corresponds to 208 million head of cattle, being most part of this production in Mid-West region, with 35%, of the livestock followed by the regions in the North (14.5%), South (13.8%), Northeast (12.7%) and Southeast (9.3%). It is the biggest of the world, only losing to India, as they do not abate cows, while here 43,3 million head of cattle are abated per year (ABIEC 2015).

The need for preserving the environment gives way to urgency for SD. The predatory exploration practice of natural resources is no longer tolerated or accepted as in the beginning of the economic growth and industrialization period. However, the difficulty presented is exactly to find a balance between economic growth and SD. The Ecological Economy explains that there is convergence between them, since 'the total economic value of an environmental resource comprehends the sum of the values of the existence of the environmental resource' (May, Lustosa & Vinha 2003, p.7).

Certainly, the economy draws on its natural resources for its growth, and the measurement of such resources is given by their availability; once scarce their value will fatally become intangible, therefore, innumerable discussions emerge in the attempt to optimize their use. Thus, the discussions concerning sustainability estimate the existence of a balance between economy and environment, also called by paradigm of the renewed environmentalism (Hoff 2008). The reality of an organization to take its sustainable production depends on the existing environmental management in each one of them.

On the other hand, environmental management is understood as the congruence of environmental policies which are nothing more than a set of doctrinal principles, rules, regulations and laws emanated by the Public Administration environmental planning. Such set is guided by a prospective study aiming to meet environmental previously established policies, than of an environmental management. This management is defined as a set of actions delimited to the preservation and protection of the natural resources (Seifert 2010).

These measures when adopted by the organization that begins to adhere to its board of management a specific environmental one, as there are the human resources, financial and juridical managements, for example. Even those of lesser expression, those that implement with emphasis on a differential of the market, are successful in this matter (Jabbour *et al.* 2013).

However, the ideal is not that environmental management is limited to the firm, therefore its effectiveness will be reached when it includes activities of external range, such as the green purchase, reversed logistic and management of products, that extends the reach of the environmental responsibility to the system as a whole, closing the product's life cycle when expanded to all its productive chain (Vachon & Klassen 2008).

In macroeconomic terms, the instruments of range for such management can be exemplified by the international treaties to protect to the environment, implementation of national politics, regulatory laws, among others. In micro terms, the process of environmental licensing for companies operation is a good example.

Eyckmans and Kverndokk (2013) attribute governments the limitation of environmental licenses for the effectiveness of SD, since other concerns are involved in core of the issue of such licenses, as the nation's identity is part of international agreements, as well as votes secured with these apparently protective measures.

Thus, it becomes necessary to analyze the framework of Fryxell and Szeto (2002) that presents an organized model of environmental management, constituted as follows: environmental politics; planning process; implementation and operation; verification and corrective action; and administrative review (Fryxell & Szeto 2002).

Environmental management is a parallel model to management to business management, for it is structured identically, from a strategic planning that attends to the adopted environmental politics, followed by the operationalizing of such policies. The adoption of environmental management among organizations is impactful if it takes into consideration the inexistence of itself for operationalizing of the firm which is until then under traditional management of its business. From the context presented so far, it is fitting to define what specifically certification is. Understanding the certification process becomes necessary according to Tachizawa and Andrade (2008), who define it as nothing more than the adoption of internal procedures that are within previously determined standards. The authors exemplify

this occurrence with the ISO 9000, within quality management of services and products and also the ISO 14000, in environmental management.

Furthermore, they affirm that the process of quality certification began in the north American companies in the end of the 80's, focusing on the productive process, in its relationship with the community, as well as with employees, differently from that originally presented by Waack *et al* (2010), that asserts the start of certifications that occurred in Germany due to low credibility of its products in the international market after World War II when it was consolidating them in the external market after 1960.

ISO (International Organization for Standardization) – is the greatest notoriety certifier, established in Geneva, Switzerland, in 1946, with the same intention to develop norms and standards that could be used by all the countries of the world (ISO, 2012). Regardless, in relation to the accurate origin of the certification process, it did appear for world-wide market need to standardize parts and procedures in order to facilitate commerce which has become increasingly globalized.

The certification process is carried out by a certifier, which in turn acts in the molds of its respective accredited, and the certifier is the company that issues the certificate while the accredited includes the requirements to be verified in the certification process. The INMETRO (National Institute of Metrology, Normalization and Industrial Quality) appraises accreditation, as 'the formal recognition, granted by an authorized organism, that an entity has technical ability to carry out specific services' (INMETRO, 2012, p. 1).

The organism of Accreditation of the SBC (Brazilian Stamp of Certification) is Inmetro, by it, the accredited entities are responsible for conducting certification activities of conformity and training personnel (INMETRO, 2012).

According to Waack *et al* (2010), environmental certification seeks for a code of conduct that will respect the environment, comprised mainly by workers, producers and families. The coordination of that code can or not be carried out by the Government, since the national and international institutions have been fulfilling this role, where a dominant company or organization mechanisms celebrate agreements between the involved parties and begin to co-ordinate such code. Nonetheless, Voltolini (2012) announces that of the over four hundred certifiers, very few are known to the final consumer.

Certifications can differentiate depending on the regulatory and coordinating agent, as well as on the object. In one, the process of certification attainment can occur through auto certification, that can be done through business associations, as ABIC (Brazilian Association of the Coffee Industry) and BSCA (Brazil Specialty Coffee Association), that are internal certifiers of their own coffee associations; or yet to involve social and environmental standards created together with other participant actors, in this case its *Stakeholders,* always being audited by an external and totally independent and/or mechanisms of organization agreed upon those involved, as example , FSC and Rainforest Alliance Certified (Waack *et al*. 2010).

With respect to the object of certifications, they can be of process or of products. The ISO Certification System assures management processes, since quality ISO 9001, environmental ISO 14001, to food safety ISO 22000. The example of a product's oldest certification is that of a winery in the North of Portugal, Douro, dated the year of 1.756 (Waack *et al*. 2010).

Concerning certifications, there is still a multistakeholder certification, in which several parties of the system are involved in the operation. This type of certification originated because of social and environmental impacts of products from developing countries. A movement of European consumers and North American environmentalists who had perceived that the boycott to those would not be sufficient to decrease the degradation, and for this reason, after Agenda 21, promulgated by Eco-92, viable alternatives to the existing models were discussed until they established minimum standards required for certification (Waack *et al*. 2010).

Some of these Stakeholders have formed CERES (Coalition of Environmentally Responsible Economies), which in turn created GRI (Global Reporting Initiative) that is a Report that contains the materiality, the inclusion of *Stakeholders* and the sustainability context. The ISEAL (International Alliance for Accreditation and Social Environmental Certification) is another example of accrediting body of multistakeholders formed by the main organizations that determine the standards of conformity focused on social and environmental matters.

It is important to note that according to INMETRO (2015), agency responsible for the management of the national policies of metrology and quality, there are 127 companies with such certifications already validated here in Brazil.

Regarding the seals issued in the country, also important to mention is that the PROCEL (National Program of Electric Power Conservation), once it began during the energy crisis of 2001 and 2002, demanding an electric power rationing. In doing so, one of the policies adopted by the Government was the emission of PROCEL stamp that had the objective of identifying how much the sealed electronic device consumed, making clear that the awareness campaign was promulgated by the Public Administration itself.

Entrepreneurs already notice a certain change in the market, but they still do not feel a real need for certification, a process that still goes on to slow short steps. However, the concern for sustainability is already a reality, and one of the main discussions among *Stakeholders* (Lobato *et al.* 2014).

In some analyzed studies there is a same perception that there is a discussion and movement within the beef production chain but producers are still reluctant about effective applications in favor of the environment for not glimpsing a financial return since the meat plants do not pay a premium for the differential of sustainable meat (Lima-Filho & Quevedo-Silva 2014). Throughout the research, sustainable seals were identified within the SAG which. These seals worthy of notice. Seals that continue to be discriminated in the results and discussions within the present study.

RESEARCH METHOD

The methodology adopted was a qualitative approach, once the ultimate goal is to verify the context where the phenomenon of standardization is inserted from the relation object (certifications) and subject (market) and how it is interpreted (Creswell 2007).

For Richardson (2009), studies that use a qualitative methodology aim to describe the complexity of a given problem, analyzing the interaction of certain variables in order to understand and classify the dynamic recurring processes which is why both approaches conform to the context as it seeks to analyze the scenario of environmental certifications in the SAG of the country's cattle raising.

The study has an exploratory character, since not much is known about certification, within the SAG of beef production, being necessary this kind of analysis when the phenomenon observed is not sufficiently known (Collins & Hussen 2005).

Therefore, three different semi structured interviews were applied in the following stages: those of rural producers and the agro industry; and the certifying organization of the certified rural producer. Table 1 identifies the scripts of semi-structured interviews at the stage when they were conducted with the Organization and the respective interviewed.

Interview Script	Segment of SAG	Interviewed
1	Agroindustry	E1
1	Agroindustry Slaughterhouse	E3

2	Producer	E4
3	Support Institution	E2

Table 1: Framework applied for interviews. Source: Research Data

The theoretical basis was obtained via bibliographical research on Sustainable Development, environmental management and certification, stakeholder and SAG via consultation in books and periodicals available on internet database. Nevertheless, data also used were documentary sources available online in addition to correlated and detailed articles in the theoretical reference of this study.

The data collection process was gathered by semi-structured interviews. The understanding of Yin (2005), is that greater interaction between the researcher and interviewed is observed because of them. Once the required data was obtained through the theoretical review and semi-structured interviews, comparative analyses on the existing environmental certification process within the SAG of the cattle began.

RESULTS AND DISCUSSIONS

One of the evidences found in this research was the complexity of the SAG of beef production, with distinctive parts between them (SEBRAE 2000). This SAG has a variety of subsystems characterized, in the words of Zylbersztayn (2011, p. 51), 'by technology, sanitary measures, attributes of quality and different mechanisms of coordination'. These subsystems are not at the heart of the environmental issue, but contribute to the process, since the chain's logistics makes up the system as a whole.

Therefore, certifications through SAG are limited to its complexity, as well as to the fact that there are still few organizations that have environmental certificates in the first stage that is, few producers of certificates which in turn do not require of their suppliers, in this case, of inputs, certification either.

Certainty is that those certifications found are of model organizations, above the average standards of production that operate within legal obligations. Figure 1 shows the flow diagram of seals found throughout the beef production chain.

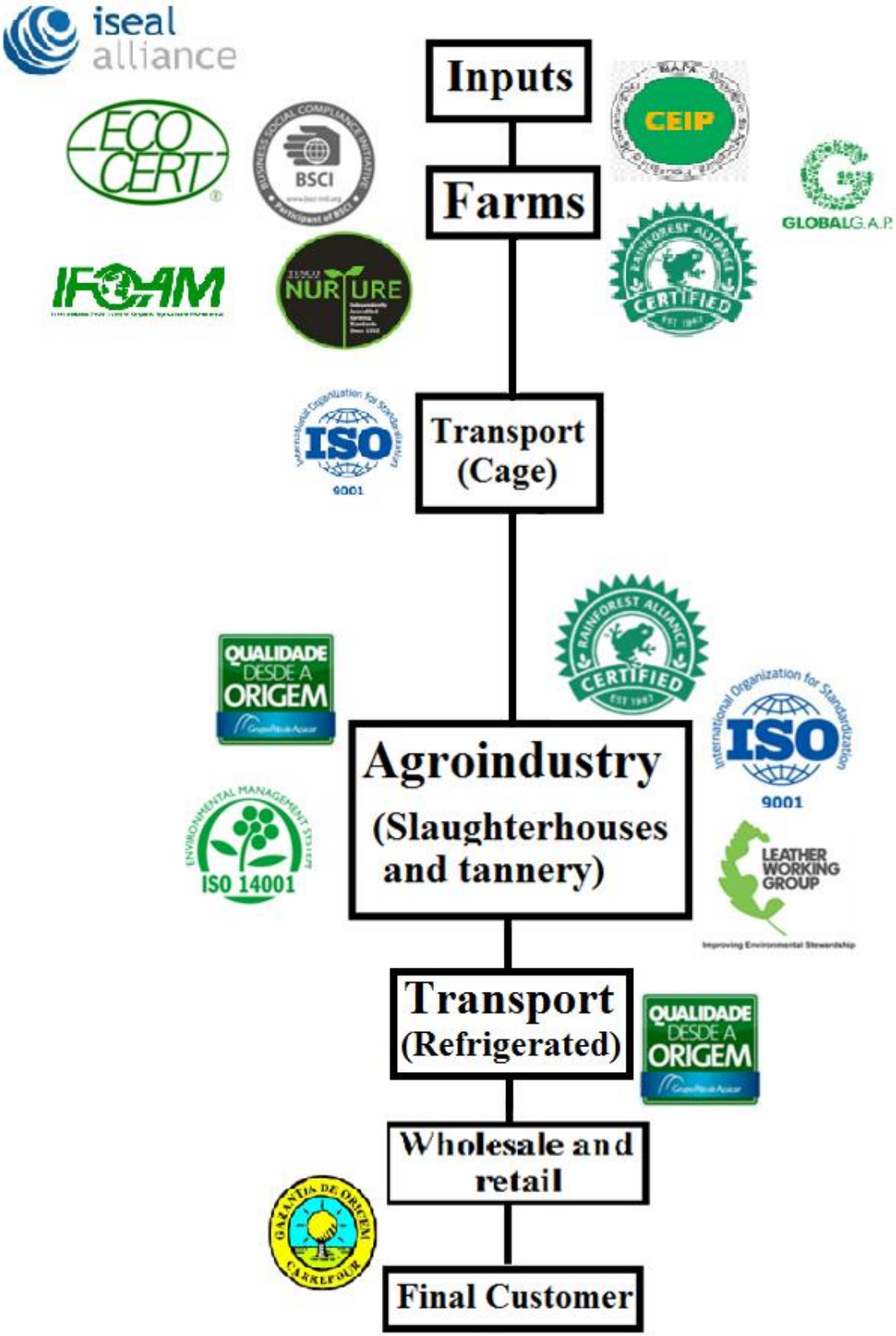

Figure 1-Flow chart of seals of the beef production chain
Source: Research data

As already presented, not all parts in the SAG of beef production have certification. However, the agro-industry chain has been adding more seals, in order to promote the insertion of other certificates in other parts of the system. Producers still need to comply to legal requirements for environment protection, such as Permanent Protection Areas (APP), legal reserve and rural environmental registration, which did not exist prior to the enactment of the Forest Code of 2009.

The Public Ministry in its supervisory role also requires more rigorous compliance to labor laws. All these issues infer to complying with statutory orders, as the environmental certification as mentioned before in theory, is an awarding element of a foreign agent of the organization which certifies compliance to these legal requirements and also compliance to additional premises of their own respective requirements (INMETRO, 2014).

However, as also mentioned in theory, the SAG of the beef production is of great complexity, where there are still issues of cultural values rooted in it (Janssen & Hamm 2014), in which change will occur through legal requirements and marketing (Pinto et al, 2014). The visualization of this last reason is evident in agribusiness, due to requirements of the leather market and those of financial institutions; certification was implemented in their production (E1 and E3).

In regards to the promulgations on cattle raising ranches, according to interviewed E2, the demand has tripled since the first producer's certificate was enacted. When considering other certifiers that issue seals on beef producing farms, but of a different process other than environmental, such as the organic by IBD, it can be said that the paradigms are changing and producers, who were once traditionalists, are implementing new types of management to their organizations, whether because of Stakeholder's demands or due to their own awareness.

It must be highlighted that the environment, while Stakeholder as proposed by Azevedo *et al* (2014), has its direct influence on certifications, as they aim to reduce the impact that organizations have over them, these issues are intrinsically linked to the standards stipulated by the green seal. First the legal requirement and subsequently the framework for those requirements even more demanding. Among the existing stamps and made available for implementation in this specific chain, we found: ISO 9001, ISO 14001, Ecoccert, Imaflora, LWG, Global G.A.P., BSCI, Quality of Origin, TESCO, CEIP.

Chain Stakeholders eventually influenced certificates by either stipulating the requirements that define the principles of sustainability, either through demanding contract issues. Such influences are respectively called indirect and direct by Clarckson (1995).

Certificate requirements have called the attention of financial agents when demanding guarantees of environmental management in the plant of an agroindustry as a requirement for the granting of loans. The least, but not less important, is that of consumers that demand the seal which proves sustainably raised meat, certifying that it does not come from pastures of illegal deforestation. Therefore, Stakeholders play an essential role in increasing the number of environmental certifications within the beef production.

As for the agroindustry (E3) interviewed that informs the need of the environmental certification in order to be granted the bank loan, it became evident that environmental management is an essential requirement for the operation of an organization. This was the first segment of the chain to need having monitoring for formal purposes of management procedures.

Other stages also demonstrate the need of considering the number of chemical additives used in inputs by producers, due to their environmental impact which is no less as in water

consumption etc. However, the difficulty still remains in tracing animals within the entire chain (Waack et al. 2010).

The interviewed E2, in turn, informs that the number of farms seeking certification has increased considerably, which seems to be a tendency among producers with market vision, in search of new opportunities. Not only do they comply with the legal requirements of operation, but also with sanitary, environmental and social standards. Producers seek a differential that abides to international standards of sustainability (Pinto et al. 2012).

At international forums, Stakeholders discuss these specific requirements of the beef production chain. As an example, the GTPS-Sustainable livestock working group, went on to stipulate standards for sustainable beef production (Fenton & Baldo 2013).

Therefore, with regards to the question of sustainability, the Stakeholder's role has been gaining importance both for the promulgation of requirements that need to be implemented in the processes of certification, as in the own environmental certificate requirement, within the SAG of beef cattle, in Brazil.

Thus, with no order of importance, Stakeholders of this system: financial institutions, Government, final consumers of the external market, final consumers of the internal market, research centers, associations, cooperatives, OSCIPs, and NGOs as illustrated in Figure 2.

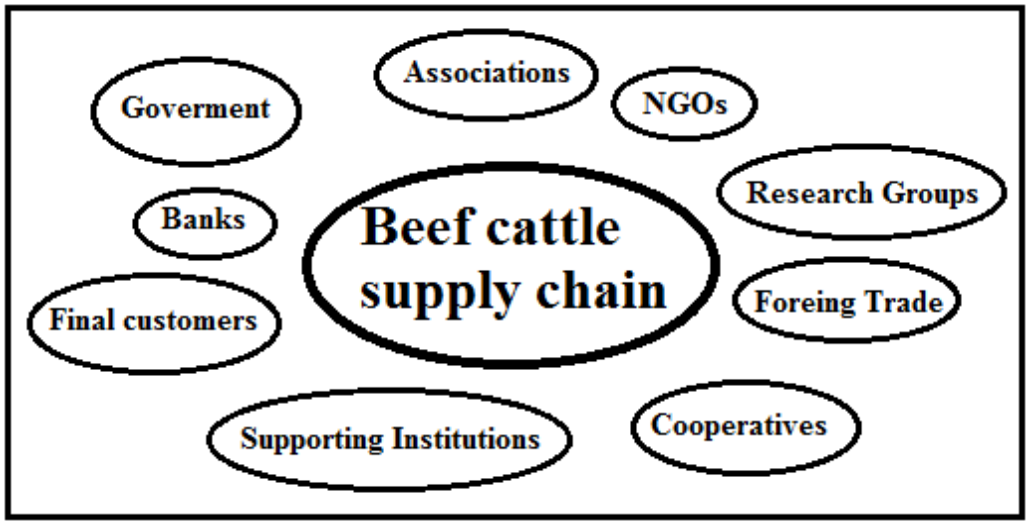

Figure 2: The Stakeholders of the SAG of beef cattle.
Source: Research data.

Each of these stakeholders has distinct attributes, with different requirements, as well as characteristics. Considering that the primary goal of an organization is to seek profit, stakeholders directly related to this goal yield greater importance. As evidenced in the interviews, there are markets that require as a prerequisite of the purchase, the certificate, acting as direct Stakeholders; but no less important are the NGOs which stimulate the enactment of green stamps in chain that make evident sustainability in the production.

This is one of the Stakeholders' role: to promote necessary changes in the organizations in order to improve the operation of its activities. The discussion groups raise new ideas, producing new behaviors, always improving chain productivity, whether in social, economic and environmental terms, such as: GTPS (Sustainable Livestock Working Group), ABPO (Brazilian Association of Organic Livestock), Embrapa; groups that encourage management with less environmental impact and higher financial return to producers.

What can be highlighted is the importance of Stakeholders on the promulgation of environmental licenses, as they directly and indirectly stimulate the fulfillment of requirements

in support of sustainability. In turn, environmental certifications stimulate environmental, social and economic improvements within the organizations in which the interviewed certifiers stimulate these improvements specifically within the agricultural and forest sectors.

The interviewed certifying institution acknowledges responsible action which contributes to the conservation of natural resources, provides decent and fair conditions for workers and promotes good relations with the community nearby, property or certified company (E2) (Pinto et al. 2012; Waack et al. 2010). This, in turn, promotes benefits beyond gate limits.

Benefits achieved by certified companies, regardless of size, some that stand out are: product differentiation in the market, participation in the most demanding markets, gains in management and improvement of the institutional image (Waack et al. 2010). This implies that a certified organization tends to produce with a more efficient management, because it allocates its resources in ways to enhance the improvements and is evidenced in interviews: 'being certified makes it more efficient, you have more control and have a higher rate of return. In addition, it opens up market possibilities for you to make more beyond the gate and your product is worth more'(E2).

> As literature demonstrates-Brundtland (1991), Barbieri (2007) and Hardin (1968), it became evident that in research the range of SD is based on the economic-social-environmental triad, for all surveyed organizations kept their environmental management plan under the premises, as displayed:
>
> We have social and environmental criteria to select suppliers […], seal from a third party auditing and certifying on farms, which are very distinct processes. What we have is a system in which the farms are mapped; we use a geographic system of information by satellite image. Georeferenced, we cross reference the data and identify if there is any irregularity on the farm, such as illegal deforestation, or even irregular legal work status, work law suits which block the supplier. (E1)
>
> We grew up addressing deforestation and the devaluation of the forest, which was very intense in the late 80s, early 90s, and our mission therefore is to promote and encourage social and environmental changes in the forest and agriculture sectors along the lines of sustainable development (E2)
>
> The principles that the rural property truly follows are the pillars of social environmental responsibility, care for the environment, the employees and acts with social responsibility. The company takes care of its employees, it cares for their safety, their work, for their health, providing adequate working conditions, and training. [...] The property is a reference in growing cattle and based on the mission, vision and values of the company, it orients its business to sustainability with the support of staff who are the employees, managers and directors. (E4)

Despite the environmental certification be more oriented to the environmental issue, companies that implement it are aware of social responsibility, which denotes that they are also concerned with issues of sustainability. As explained, an organization that seeks environmental certification is aware that the requirements are guided by this triad. The fulfillment of what is required by law is the first step in obtaining the seal. It is a prerequisite, because if there is any irregularity both environmental and social, the certificate is not issued (Fikru, 2014).

Another program pro sustainability as prerequisite for certification in the chain is the PECUS Program. The Pecus network consists of 12 component projects which bring together various units of Embrapa, universities and other national and international research institutions, with the support of funding agencies for research and of private initiative. Researchers study the dynamics of GHG in production systems present in the different Brazilian biomes. The

objective is to contribute to the competitiveness and sustainability of the Brazilian livestock, identifying alternatives to mitigation and to subsidize public policies. (EMBRAPA, 2012).

Interviewed producer (E4), in addition to meeting the CLT (Consolidation of Labor Laws) requirements to its rural workers which have some different policies that are not always respected, makes efforts to meet the social development guidelines such as promoting housing, education, safety and health. These differences demonstrate that the organization that obtains an environmental seal, upholds, within its principles and values, social and environmental responsibility.

Economic development is what drives economic organizations, these latters aim for profit. The issue of sustainability involves economic growth without the expense of neither of the environment nor of company employees. Rather, the order is to encourage the tripod for a more just, harmonious and balanced overall development.

The question raised about the incipiency of producers in sustainability is not limited to environmental emphasis, but also to productive management as a whole. In general, the producers do not seek to implement a system that points out the farm's actual loss when this loss is not due to the lack of well instructed management, reducing, for example, bruise damage resulting in low economic value (Ferrarini & Baldo 2014).

This is just one example; others are the agro pastoralism and forestry practices in which the soil is alternated by crops, that enhances minerals in the soil, restaging productive gain; however, as explained by Martha (2015), technologies need to be applied in the field, in order to increase the profitability of the agricultural production; investing in innovation new management techniques reduce costs and bring higher profits.

Such procedures are listed in the Good Agricultural Practices (GAP) developed by Embrapa Beef Cattle, which highlights the close relationship between animal welfare, animal health and production performance. Therefore, implementing the GAP is synonymous with the property's sustainable management as its function is to instruct the producer in planning, organizing, taking direction and control (Valle 2011); just like GAP, certifications also preselect these four guidelines for sustainability.

The implementation of efficient management implies in adopting innovative systems and procedures as that of what certification makes available to producers. Once investing in these technologies, from an economic perspective, the production function shifts upward and the costs fall which makes the producer produce and sell more with better quality (Martha 2015). Even as the benefits of these implementations can be identified, there still is some resistance from traditional producers who hold up on adopting these measures.

FINAL CONSIDERATIONS

The present study aimed to analyze the environmental certification processes in the context of the SAG in the Brazilian beef production, where the specifics were to map the environmental certifications within that system; describe the environmental certifications found in the stages of the SAG in beef production; identify the influence of stakeholders in the chain within the promulgation of certifications; and analyze sustainability inserted in environmental certifications issued in different parts of the system's stages.

Environmental certification is the result of a market demand for standards of Sustainability. It should be clarified that this comes from quality certifications that have emerged to standardize production procedures of distinct countries so that a product may have parts from diverse locations.

This principle also validates the environmental certification, i.e. the certification comes from the need to establish criteria and stipulate requirements to be followed by companies that want to standardize their procedures in order to reduce the environmental impact the activity produces.

In this research different certification processes were found as each Certifier uses different methods, requirements and procedures from another.

However, what can be highlighted, as a common point in the process of environmental certifications, is the care required by stakeholders of the chain. The integration process of certifications is still slow, given that only a few along the chain were found, when compared to other sectors of agriculture, such as citrus, soy and sugarcane for example.

Considering that the SAG when compared to other agribusiness production chains is still incipient in obtaining environmental certificates, the agricultural industry was more in line with sustainability standards for livestock farmers and is still adapting to the legal requirements for environmental protection, such as the issuance of RER (Rural Environmental Registry), in compliance with the limitations of APP (Areas of Permanent Protection), among other requirements brought about by the new Forest Code.

The question raised about the incipiency of producers in sustainability is not limited to environmental emphasis, but also to productive management as a whole. Producers have sought the implementation of systems that are capable of pointing out losses that occur within the farms.

The need for new adjustments is already a reality for cattle producers and certifications may instruct on pro sustainability. However, the traditionalist culture is rooted in the oldest sector of the Brazilian economy, since cattle raising dates from the colonization period. Today it needs a breath of fresh air. New management already visualizes the trend of implementing an environmental eco-efficient management and begins to invest in it. What remains is its expansion to the rest of the SAG's beef production.

Therefore, considering the data collected in this survey, it was concluded that environmental certification is a path followed by some SAG organizations of beef cattle raising, mainly those researched. It became evident that where environmental certificates are found, values and principles of sustainability are rooted in the certification process which ultimately promotes the sector’s sustainable development which is necessary to all adding value to the product.

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