

*Full Length Research Paper*

## Theory of conventions and stakeholder dialogue: The Brazilian environmental sustainability conflicts

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The objective of this study is to propose a framework for a better comprehension of the agribusiness stakeholders' participation in the bioenergy versus food production dilemma in the context of climate change. To understand this theme, the theory of convention, network and the conflict of bioenergy and food production was used. The object of the studies was the Institute for Responsible Agribusiness' (ARES) that is a non-governmental organization (NGO), which operates on a non-profit basis. A qualitative research with Brazilian agribusiness stakeholders' networks favors a better understanding for the mechanisms for agribusiness stakeholders in global sustainability. Data was collected by applying transcripts of semi-structured interviews of selected organizations linked to ARES. The result of the study was the creation of a model that opens up a window of opportunity for organizations to unite in relation to networks, in order to find unique solutions to problems which are going to affect every branch of agribusiness, directly or indirectly, both in the short and medium term and also in the long term, regardless of particular products. We suggest the creation of a platform of activity around the creation of mitigating solutions, clearly articulated, and based on the particular reality of each organization within ARES.

**Key words:** Stakeholders, environmental sustainability, theory of convention, agribusiness, network, bioenergy, food production.

### INTRODUCTION

The participation of the stakeholders in environmental debates has favored the discussion of new themes locally, nationally and globally. Thus, the environment has progressively achieved more legitimacy among countries. It is important to point out that societal, organizational and individual behaviors represent a critical factor of the global climatic change, particularly, in Brazilian industrial and agribusiness development.

The global industrial development is intimately

connected to the development of energy sources. It can be said that there is an interdependence among both, in which the industrial progress is a result of the discovery of new energetic sources, which, in its own turn, occurs as a consequence of the needs of the industry and global sustainability.

In this context, there have been signs of competition between grains and energy, that is, in 2007, 4.5 million tons of grains were processed into bioethanol. In that

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matter, bioenergy are a potential renewable energy resource and the possibility of new markets for agricultural producers. Due to the high prices of fossil oil, the competitiveness of the use of biomass has greatly increased ultimately. But few bioenergy projects are economically viable and most of them have social and environmental costs, such as pressures on food prices, intensification of the competition for land and water and the possibility of deforestation (Sande, 2008).

The United States, China and Brazil, as well as the European Union, can manage food production and land use as political instruments due to the fact that it is easier to guide national market rather than the international market. But, these actions have made food and bioenergy a kind of global commodities for entrepreneurs and investors.

Facing these issues, the search for bioenergy and climate changes becomes a strategy for the development of organizations, society and stakeholders. The main concern is that biomass production will dislocate the productive resources (land, work and capital) from food production to the cultivation of grains to produce fuels.

The environmental conflicts within the food system bring up some questions: Is the economic dimension the only preoccupation for this dilemma? How could dialogue between stakeholders in agribusiness contribute for the climate change problems with the use of bioenergy? Therefore, the objective of this study is to propose a framework for a better comprehension of the participation of agribusiness stakeholders in the bioenergy versus food production dilemma in the context of climate change.

## LITERATURE REVIEW

### Dialogue theory

In the Introduction to the Stakeholders Theory, first developed by Freeman (1984) and originated from the Firm Theory, he states that stakeholders are individuals or organizations that affect or are affected by objectives or problems, creating an infinite field of acting possibilities for stakeholders, and even for the climatic factors (Key, 1999). According to Carrol (1989) and Bourne and Walker (2006), the social science of the Stakeholders Theory tends to base itself in justice, equity and the social aspect, causing more impact on stakeholders that externalize moral reason through changes of initiative. These same authors, along with Donaldson and Preston (1995), clarify that the stakeholders' philosophy is legitimate and valid. They need to be identified; their powers and influences must be mapped, along with the potential impacts on the objectives.

Arguments from the point of view of environmental problems point out that the inclusion of the knowledge and perspectives of the stakeholders has developed different politics and researches (Kloprogee and Van Der

Sluijs, 2006). Before this concept of stakeholders, new scientific bases had emerged from the Learning Organization Theory (Senge, 1990) and the Science-Based Stakeholders Dialogues, especially related to climatic changes.

According to Welp et al. (2006a) and Welp and Stoll-Leemann (2006), the Science-Based Stakeholders Dialogues made of structures of the communicative process that unite researchers and stakeholders. According to the researchers, stakeholders have the necessary knowledge to assist the comprehension, representation and analysis of the global environmental changes, along with the decision makers, managers or other stakeholder models.

There are four necessary reasons for dialogues with the stakeholders: (i) stakeholders play an important role in the relevant social identification and can scientifically change research issues; (ii) scientists should make a real check-up of their researches and the stakeholders could be actively involved in the evolution of research methodologies and models to be used in researches, offering an evolution of the final results; (iii) social science or facets of global changes researches limit scientific reasons and require the incorporation of ethical issues, respecting the different perspectives of different stakeholders (Daboub and Calton, 2002); (iv) the researcher's need of access to data and knowledge unknown until now. With the help of stakeholders, the researchers are able to obtain insights that can change the implementation and the visibility of the management of qualitative and quantitative procedures (Welp et al., 2006b).

### Environmental issues forming networks

Network Analysis is seen as a sub-type of the general structure of structural sociology. Structural sociology is an approach in which the social structures, constrictions and opportunities have more effect on human behaviour than on cultural norms and other subjective states (Castells, 2000). According to Brinkerhoff (2002), Network evaluation is based on five pre-requisites and success factors, which are: Pre-requisites on reputation (tolerance of the division of power between partners and interpersonal and technical abilities, etc.); partnership degrees (reciprocity, resource exchange, organizational identity); development of organizational connections (added values, partners with objectives, partnership identities); partnership development; efficiency and strategy.

From the analytical point of view, the study of authorities inside the Networks is crucial not only for understanding who is making the strategic decisions, but also to identify the means in which the strategy is executed. According to Brinkerhoff (2002), two dimensions are prominent to define a partnership and to

**Table 1.** Principle elements of convergence between approaches.

<b>Networks and stakeholders</b>	<b>Authors</b>
Rules; communication systems; mechanism (interests); performance; inter-relationship; trust; environmental inter-connection; communication channels and joint actions.	Bakker et al. (1999), Brinkerhoff (2002), Dimaggio and Powell (1983), Eliashberg and Mitchie (1984), Jordan and O'riordan (1995), Meyer and Rowan (1997), Rowley (1997), and Ruff et al. (2001).
<b>Dialogue between stakeholders within the network</b>	
Stakeholders and networks; power; transparency; pressures, ethics; sustainability; information and dialogue	Calton and Payne (2001), Factor (2003), Gao and Zhang (2006), Kulkarni (2000), Waddock (2001) and Ziervogel and Downing (2004).
<b>Theory of conventions and dialogue between stakeholders</b>	
Human beings, rationality, behavior, conventions, expectations, individuals, uncertainty, rules and collective interests	Thévenot (2001), Thévenot (2002), Welp and Stoll-Kleemann (2006), and Wilkinson (1997).

distinguish it from two other kinds of relations: Mutuality and identity. The first refers to mutual dependence, to the rights and responsibilities of each actor in relation to others. These rights and responsibilities aim to maximize the benefits for each part and can be limited due to common objectives. It is usually assumed that the creation and the maintenance of an organizational identity are necessary for long-term success.

Regarding aspects related to the environment, the networks vary according to its performance considering factors of scheduling, standards, knowledge diffusion and generation, institutional effectiveness and innovated implementation mechanisms (Streck, 2005).

These types of networks present themselves internationally and conjugate the volunteer legitimacies of the stakeholders, such as financial, public, cultural and legislative interests. They also present a possible strategy so that stakeholders with different interests and values can approach the challenges of interdependence and global environmental issues in a participative and supportable way (Azevedo, 2010).

### Theory of conventions

The objective of the theory of conventions is to build a theoretical and interdisciplinary framework that permits the approach of the general issue of the collective coordination regarding individual actions through conventions (Orléan, 1994). The theory of conventions approach presents elements of open coordination regarding uncertainties, critical tensions and creative arrangements, rather than ideas regarding a reproductive and established order (Thévenot, 2001). According to Thévenot (1989) and Thévenot (2001), the universe of human actions is fundamentally complex and in each instant it is possible to refer to various conceptions regarding the same good. The coordination is based on categorized characteristics of human beings, such as identities, interest groups, habits, etc. In this sense, the

results of the confrontations between these different social groups are complex and conflicting, which results in many ways of coordination. The plurality of the ways of coordination occurs through a set of references of a collective cognitive process that forms mechanisms of coordination among the actors.

Based on a set of general principles of coordination and on classical masterpieces of political philosophy, Boltanski and Thévenot (1987) have identified six types of justifications, to which correspond six states of the nature that justifies many other justifiable actions: Inspiration, domestic, opinion, civic, mercantile and industrial.

### Conceptual framework

Table 1 represents the principle elements which were considered throughout this research, and in a way that would bring together data so as to capture and visualize the possible common variables. These variables (keywords) were delineated with a view to supporting the methodology.

Figure 1 allowed us to visualize how actions are formulated for the proposed model. Climate changes cause uncertainties for organizations involved in agribusiness; due to the intensity of such changes, conflicts will arise which must be negotiated. While negotiations continue between participating stakeholders, a network has organized itself around these events, and, after all the pertinent discussions at conventions, actions are consolidated and implemented for all stakeholders. At the end of this cycle of insecurity, opportunities will be generated which will transform Brazilian agribusiness (in this case, bio-energy) and afford a chance to mitigate the situation.

### 'Institute for responsible agribusiness' (ARES),

The case-study refers to the 'Institute for Responsible

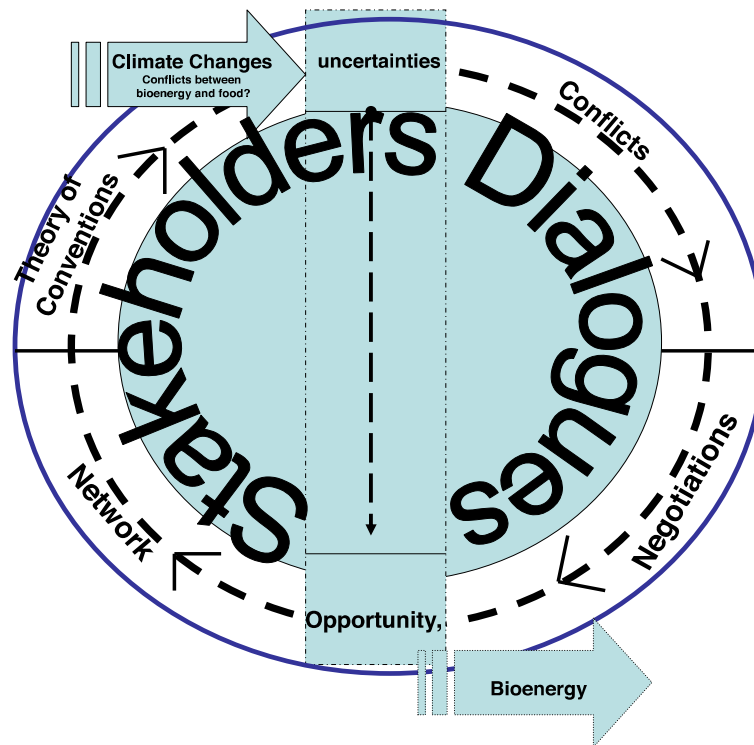


Figure 1. Framework proposal.

Agribusiness' (under the acronym, ARES), based in São Paulo and whose activities were initiated in 2007. In this sense, the internal stakeholders, pertaining to ARES, were identified and studied with regards to questions arising from the theories under scrutiny.

ARES is a non-governmental organization (NGO), which operates on a non-profit basis. It is an entity which, by virtue of its methods of engagement, seeks to facilitate the process of creating a dialogue, identifying the positive agendas of all stakeholders within the field of Brazilian agribusiness. It is a catalyst for works produced by research institutes, universities, and other founts that generate knowledge. ARES correlates information in a way which increases its scope, its reach, and its possible practical application, as well as its understanding. Furthermore, such information is assimilated and utilized across a wide spectrum of public interest, both within Brazil and abroad<sup>1</sup>.

The 'Institute for Responsible Agribusiness' (ARES), is a pro-active undertaking, on the part of Brazilian agribusiness, to create sustainable development, with particular emphasis on cattle-farming practices, as well as those in the agricultural industry. ABAG ('Brazilian Association of Agribusiness') formed and structured ARES to be able to promote the concept of sustainable development (ABAG, 2008). ARES was created on the

7<sup>th</sup> September, 2007, incorporating nineteen different associations, and by 2009 this number had risen to twenty three associated organizations (Ares, 2009). ARES is formed by councils which deliberate on matters of consultancy and finance.

ARES' specific areas of endeavour focus on ten themes, considered to be of priority: (1) Questions of labour and its relationship to third party providers (tender). (2) Family based agriculture, expulsions of people from their land due to lack of finance, and food security. (3) Relationships with Civil Society, NGOs, processes involving multi-stakeholders, the ability of tracking, verifying, certifying and sealing. (4) Conversion of ecosystems. (5) Environmental impacts, such as those involving GMOs, use of agro-chemicals and the management of pests, impact on soil and land prepared for planting. (6) Residuals in food, and animal health. (7) The emission of greenhouse gasses, the balance of energy, and bio-combustibles. (8) Land restructuring, environmental legislation and monitoring. (9) Conflicts arising within and between SAGs (agricultural societies), integration of farming and cattle-raising with additional value. (10) International commerce and sustainability.

It is important to note that ARES does not operate like a lobbyist, but rather as an instigator and articulator of dialogue between all sectors of civil society, with regard to questions of development and sustainability in agribusiness. It functions as a catalyst for information,

<sup>1</sup>Available at: [www.institutoares.com.br](http://www.institutoares.com.br)

generated by various diverse institutes or research centres, with a view to amplifying the reach of such information within Society. ARES thus acts as an organizer; consolidating and systematizing data on the sustainability of agribusiness, so as to share, facilitate or improve its application to society.

One of the functions of ARES is to create mechanisms for self-regulation in this sector, thereby avoiding accusations of de-forestation, burning crops etc., and the use of child labour which so taints the image of Brazilian agriculture abroad.

The ARES approach is based on the tripod of accumulation of data, articulation of dialogue, and communication; all of which are inter-dependent and complimentary. ARES proposes an organized consolidation of knowledge, generated in Brazil, with regard to the sustainability of agribusiness, with an aim at facilitating understanding in this field and improving the applicability of knowledge throughout the diverse systems of agro-industry. As well as excelling through the consistency of knowledge gained through sources well known for their academic and professional excellence, Ares also seeks to lead via its dissemination of information. From its position at the very vanguard, ARES seeks not only to accompany but also to stimulate development of themes linked to sustainability, whilst continuously incorporating new concepts and improvements, setting out parallels for the field of agribusiness in all its scope; from the producer right down to the consumer's table. ARES seeks to create a permanent platform to provoke high quality, constructive debate between the private sector (agro-industrial systems), the public sector, the third-party sector, and others, regarding questions of agribusiness and sustainable development (Ares, 2009).

## MATERIALS AND METHODS

A qualitative research with Brazilian agribusiness stakeholders based on dialogue with stakeholders approach, conventions theory and networks favors a better understanding for the mechanisms for agribusiness stakeholders in global sustainability in searching alternatives for solutions to the actual conflicts in favor of better future for the environment and organizations. This research analyzed the Agribusiness Responsible Institute, ARES of Brazil.

Thirteen interviews were conducted in the city of São Paulo, SP, with organizations associated with the 'Institute for Responsible Agribusiness' – ARES. Data was collected by applying transcripts of semi-structured interviews of selected organizations linked to ARES.

The interviews were carried out between the 15th and 30th of October, 2011. Each interview was recorded, with the permission of the interviewee, and lasted approximately two hours. The job title of each person interviewed is illustrated in Table 2.

During the research, efforts were made so as not to identify organizations while results were being analyzed. Because of this, organizations were codified and represented numerically.

It is important to explain that both open ended questions and closed questions were worked on only after they had been tabulated via the 'Sphinx' software and submitted to Content

analysis, where categories were created conforming to the principle key-words in closed questions. After a transcript of the interviews was made, the results were described and analyzed as well as the actual content, taking into consideration elements previously defined for the research.

## RESULTS AND DISCUSSION

The International Energy Agency (IEA), estimates an increase of 53% in the market of agro-energy over the next 25 years. Countries like China, India and Brazil will account for 70% of this additional demand (Agroanalysis, 2008). It is estimated that between 2000 and 2025, production of bio-combustibles will increase by 10.2% annually, while the annual growth in oil production is expected to be only 1.1% per year. Projections made by 'Shell', indicate that global consumption of ethanol will increase to 225 billion litres by 2025, representing an increase of 48% in comparison to 2002, when consumption was at 152 billion litres (Agroanalysis, 2008).

Thanks to its ethanol program, implemented nationally more than 30 years ago, Brazil has more experience than any other country in the world. Initiated by the Federal Government, and by Petrobrás and the sugar-alcohol industry, the National Alcohol Program (Proálcool) transformed Brazil into one of the biggest producers, consumers and exporters of ethanol in the world (Lobão, 2008). However, in the 1990s, this program remained stagnant.

Industrial development is linked to the development of energy sources. It could be said that there is interdependence between them, where industrial progress is a result of discoveries made into new sources of energy, which in turn occur as a consequence of the necessities of industry and the sustainability of the planet (CGEE, 2002).

Brazil boasts of a comparable and competitive advantage for the renewable energy market, and the increase in world demand for agro-energy continues to drive this market. This advantage is primarily to be found in the high productivity of sugar cane in comparison to other prime materials: the yield of ethanol from one hectare of sugar-cane in Brazil is about 6,800 L, more than the yield of beetroot in Europe for the same area (roughly 5,400 L ha<sup>-1</sup>); also more than sugar-cane in India (5,200 L ha<sup>-1</sup>), or corn in the USA (3,100 L ha<sup>-1</sup>) (Agroanalysis, 2008).

The growing presence of non-renewable sources of energy on offer throughout the world, has created the need to look for alternative energy (CGEE, 2002), because the world is increasingly nervous about the impact on climate wrought from the use of fossil fuels. This nervousness has increased of late, particularly after recent weather phenomena in Europe, the USA and Asia, where climates have been more severe, with increasing dry spells, flooding, hurricanes, earthquakes at sea

**Table 2.** ARES interviews.

Job title of interviewees	Frequency
President/director	6
Superintendent	1
Senior assistant	1
Manager of planning/administration - research	4
Vice president	1
Total	13

(leading to tidal waves, etc.), and the impression of the authorities is that these extreme climactic conditions will grow increasingly more frequent and more severe.

In their latest study into global warming, EMBRAPA (2008) confirmed that changes caused by global warming will have drastic consequences for Brazil, and could cost up to R\$ 7.4 billion of agricultural GDP by 2020. Furthermore, the agricultural landscape, in terms of production, will become disfigured if we do not start to act now to mitigate the effects of global warming. Entire municipalities and regions will be transformed as a result of these changes. Huge producers today may cease to be huge in 12 years time. According to scientists, all crops will lose areas of cultivation, with the exception of sugar-cane and manioc. The main agricultural export product of Brazil, soya, is set to be the most effected of all, and could sustain losses up to 40% by 2070 (EMBRAPA, 2008).

The world energy grid is heavily inclined towards carbon based fossil fuels, accounting for 80%. 36% of which is oil, 23% coal and 21% natural gas. Amongst industrialized economies, Brazil is noted as having one of the highest proportions of renewable fuel use in its energy network. This can be explained by various privileges of nature, such as watersheds and highland river systems, fundamental for the production of electricity (14%), as well as the fact that Brazil is the largest tropical country in the world, a positive element in the production of bio-mass energy (23%) (MAPA, 2006).

According to the National Energy Plan 2030 (Brasil, 2005), the Brazilian energy grid is the most renewable in the world. Whilst developed countries use 14% renewable sources in their grids, Brazil uses 45%, rising to nearly 47%.

In addition to this pessimistic outlook for Brazilian agriculture, scientists point out the lack of action taken by governments in the light of these threats. It brings to mind the dishonorable, National characteristic, which is to take action only when the problem is already upon us, and to do nothing by way of taking steps to combat the problem before it occurs (EMBRAPA, 2008).

Some suggestions, considered to be viable, are to integrate the same area of cattle-farming and planting using agro-forestry or silvopastoral systems, increasingly adopting a system of direct planting, and reducing the

use of nitrogen based fertilizers. As well as organically enriching pastureland, these all have the capacity to reduce methane emissions in cattle-farming. In terms of adapting to the problem, studies are being carried out into genetic improvements: new transgenics are making certain plants more able to cope with adverse climatic conditions.

The first premise relates to the production and the use of the bio-energy cycle, so as to avoid greenhouse gasses, which shows about a 50% reduction in carbon gas in comparison to fossil fuels, and also provokes direct and indirect changes in the use of land as a result of the cultivation of energy crops. The second premise is that bio-energy does not allow an ecological deterioration in the use of the land, either through direct or indirect application. On the contrary, it is necessary to develop trustworthy political tools which take into account the ecological impacts on the land. The third premise is that bio-energy mustn't worsen the food shortage situation, or condense the land and yield, nor exploit the local rural populations. The expansion of bio-energy will adopt neo-liberal, global models and increase pressure on marginal, rural groups (only a minority will benefit economically from bio-energy). On the other hand, there will be decentralization in the efficient use of bio-energy. Access to energy and the co-generating of electricity could improve because of added value to their activities, which, as a consequence, could increase yield for rural producers as well as creating employment.

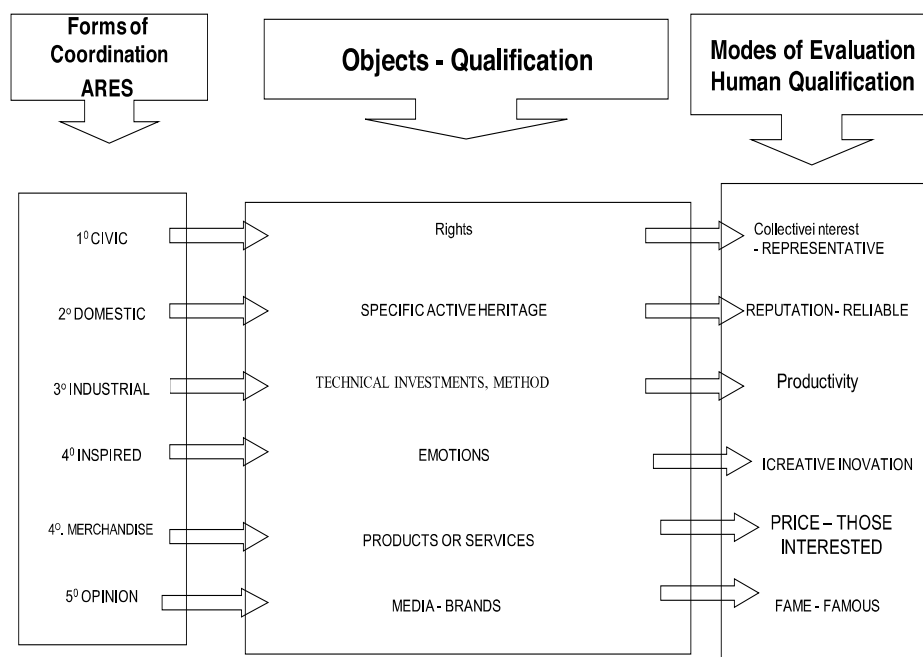
## Networks

The following item concerns the approach taken by networks, and how the formation of networks was verified. With a basis in the work of Brinkerhoff (2002), we can identify paths towards the formation of networks in ARES. In his intuitive approach to the formation of networks, Brinkerhoff (2002) suggests the existence of five relevant factors: (1) Reputation; (2) Partnership; (3) Objective Identity; (4) Implementation of partnership, and (5) Strategic efficiency. These factors can be seen in the Table 3, together with some definitions which might signal the formation of a network.

Those who were interviewed, and who had enquired

**Table 3.** Evaluation factors of a network in formation according to Brinkerhoff.

Based on Brinkerhoff (2002)	Responses of those interviewed with regard to stakeholders of ARES (Q9)	Positive responses
Partnership	Cooperation between participants	12
Identity of objective	Exchange of resources, especially experience in areas of production in agribusiness	10
Reputation	Participation in ARES strengthens their company's image – additional values	11
Strategic efficiency	Participants who have different organizational objectives than their own organization	8
Implementation of partnership	Existing leadership between participants that advances partnership	8

**Figure 2.** Relationship between orders in the world of ARES, according of interviews.

into ARES and into the reasons and benefits in being part of this institution, and how ARES interacts with organizations, gave positive responses, showing that all of these organizations are aware of the importance of ARES and the importance of ARES for their organizations. The reasons for this are as follows: Cooperation between stakeholders (12), image (11), exchange of resources (10), leadership amongst stakeholders (8), and organizations with different objectives (8). These questions come together in the affirmations made by (Binkerhoff, 2002).

According to Binkerhoff, (2002) these factors are formed by two essentialities: mutual interests and

identity. Mutual interests involve rights and responsibilities of each stakeholder alike. Identity creates a common concept amongst stakeholders in the production chain. By creating a common concept, we highlight sustainability in agribusiness, and find that mutual interests and organizational identity complement that concept.

### Theory of conventions

Figure 2 displays the 'order of worlds', which, in this particular case, does not necessarily follow a standard

order, because it depends on the form and manner of engagement. What it proves is that ARES is in a transition phase, which was noted during the interviews. This phase represents the initial process of ARES' implementation, with regards to its form of organization and method of acting in relation to its associates; all of which is explained by the time-frame in which ARES has been active (12 months).

Within 'civic' coordination, there exists a collective obligation of well-being, so that the identification of a product is relative to its impact on Society and on the environment. Although there exist an internal coherence within each 'world', different worlds could equally overlap. Furthermore, in each locality, and at every moment, there could be multiple and simultaneous justifications for the actions taken. Convention theory suggests that stakeholders participate in the formation of conventions, since they are made by the aggregate of micro-actions. Nevertheless, the political economy of conventions indicates that some stakeholders are more influential than others, and that certain stakeholders express preferences within the limited parameters of choice (Ponte and Gibbon, 2005).

## Conclusion

This paper concludes that Brazilian agribusiness stakeholders have different ways and objectives to tread about sustainable development expansion of bioenergy and food production and, they give priority for the market coordination, the domestic coordination and the civic coordination. However, the focus in the international competition through products more sustainable or ecologically correct seems to be a business imperative for our future. In addition, it can be noticed that the stakeholders are the main agents and guides of the intersection process of agribusiness sectors. The dialogues between agribusiness stakeholders concerning climatic changes are not static and this is the reason the three variable sets (stakeholders, agribusiness and climatic changes) should be systematically studied. The results of these cooperations (dialogues) provide the information for the network construction that intends to structure, capture and mold a new mechanism. As the network becomes consolidated, the theoretical bases of the conventions justify each action generated inside the process and assist in the proposal of solutions for mitigation and opportunities regarding climatic changes

The role of agribusiness in the discussion on climate change, opens up a window of opportunity for organizations to unite in relation to networks, in order to find unique solutions to problems which are going to effect every branch of agribusiness, directly or indirectly, both in the short and medium term and also in the long term, regardless of particular products. Therefore, the research contribution is based information in which enable the authors to suggest the creation of a platform

of activity around the creation of mitigating solutions, clearly articulated, and based on the particular reality of each organization within ARES.

The research limitation is based on the fact that ARES is a new NGO and has not established consolidated actions in the market.

In this respect, ARES is the stakeholder that coordinates actions and consistency of knowledge, based on each particular aspect of conflict. In this research, the innate factors of bio-energy and food production, with regard to agribusiness, force us to re-think actions and norms which are constructed and formed by a network of interests that seeks to create a synergy between the future and the present.

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