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Full Length Research Paper

The influence of stakeholders in environmental management process: A systemic complexity perspective in agribusiness

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Environmental management is a typical multidisciplinary subject. The stakeholders theory involving multiple actors and their interests, is therefore, a multidimensional phenomenon, together, they form a complex and systemic context. With this tripartite relation, the agribusiness organization must insert this logic in its decision process in order to consolidate itself in a competitive and dynamic environment. In agribusiness, the concern is not limited only to the organizations, but with several productive partnerships such as chains, networks, clusters and alliances. The article intends to present the complexity approach through a systemic viewpoint. It is based on the second law of thermodynamics as articulator of all the themes mentioned regarding environmental management and stakeholders.

Key words: Stakeholders, environmental management, strategy, systemic complexity.

INTRODUCTION

The biggest challenges the planet will face this century are the fast-paced changes in a context of greater complexity and interaction with the paradigms imposed by the transformation of an entire population, that is, economic, social and environmental factors (Neves et al., 1997) . As an example of such changes, one can mention the degree of urbanization, imposing new needs regarding foods, age structures, the participation of women in the labour market, changes in the family structure, population dynamics and income level correlated with educational level, associated with three basic characteristics, such as, convenience, food and environmental security.

Consciousness of ecological issues is opening pathways for the development of new products, business opportunities and work markets for many organizations. Therefore, the implementation of environmental management as a strategic alternative presents itself as an excellent business opportunity and/or restructuring opportunity. for companies

It is important to highlight that often the economic agents tend to privilege profit in detriment of preservation. Hence the participation of stakeholders in the decision-making process is limited. According to Vinha (2003), Buysse and Verbeke (2003) and Seibel and Gianini (2006), many companies only begin incorporating stakeholders in the decision-making process when their business or reputation is threatened and even so in a limited way, involving only consumers and representatives of regulation agencies.

However, the learning process caused by social pressure forced several companies to try to identify the desires and interests of more influent stakeholders before the beginning of operations, in order to avoid surprises that could put the enterprise at risk. This attitude certainly results from an analysis of financial losses in the past caused by the traditional behavior. On the other hand, it is also the result of a change in the way of doing business in times of information globalization. The fact is that the conventional style of doing business is going through a moment of profound revision. This new way of doing business, through a systemic perspective, incorporates environmental management and stakeholders simulta-

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neously in the process of organizational decision-making (Silva and Lezana 2005).

According to Oliveira (2005), the companies are revealing social-environmental information in an organized manner. Therefore, the way companies act, impact and relate with the environment and the parts legitimately interested stakeholders take is clearly translated. Ferraz and Motta (2002) emphasize that 85% of large and medium companies adopt the environmental variable to their strategies.

After these assertions, the development of a new logical perspective begins in which the future is valued and the sustainability of organizations is recognized as one of the essential attributes of the industrial model. The existence of a base of information becomes necessary for the better comprehension of interrelations among stakeholders in operational, tactical and strategic levels as well as in social-economical and political systems. This base of information could also provide precise data about the specific aspects that adjust the situation of natural resources and sustainable strategies.

Along with this information, the strategic process will need to combine several factors essential to this construction. Will it be able to create strategy in any organization without considering the demands of the environment, leaderships and organizational forces without incremental and revolutionary concessions? And related to complexity, to which point do the strategies work with multiple logics and fast changes? In face of these several mechanisms, a necessity for transformation appears which could allow discarding established directions as an answer to a multidimensional environment (Mintzberg et al., 2000).

Confronted with such scenario, one may question whether the stakeholders affect the decision-making processes concerning environmental management in organizations? Do they exercise influence on strategic, tactical or operational levels? How can one contemplate the possible conflicts that can appear due to the multiplicity of interests and objectives?

In this perspective one can notice that the systemic view allows organizations to include stakeholders and environmental management among incomprehensible facts and also place themselves in a platform where diversity, multiplicity and the incompatibility of ideas rule. Thus the objective of this essay is to identify converging elements among the stakeholders' theory and environmental management through the perspective of systemic approaches.

Furthermore, the article will first present a literature review based on Bertalanffy, Morin and Luhmann's approaches to complex theories. In a second moment, it will present an introduction to environmental management and later a discussion about the stakeholders' theory. It will also build interconnections among theoretical frameworks and their mutidisciplinary dimension. At last, it will conclude with the final consideration.

LITERATURE REVIEW

The following theoretical review will present the main concepts necessary for the development of the research needed to achieve the goals of this article. First, there will be an introduction to the systemic views of Bertalanffy, Morin and Luhmann which will be followed by a discussion about environmental management and later about the stakeholders' theory. And finally, the work will proceed with the interconnections between the systemic approaches and environmental management and stakeholders.

Systemic view and complexity according to Bertalanffy, Morin E luhmann

Systems according to Bertalanffy: The organization of a system and the system itself are made of interrelationships. The notion of system completes the notion of organization and vice-versa. The organization is the internalised face of the system (interrelations, articulations, structure) and the system is the externalised face of the organization (form, globality, emergency). The firm is composed of a compound of interacting elements which Bertalanffy presents as "system" in his general system theory.

According to Bertalanffy (1976), the confirmation of the similarity of concepts, models and laws in several fields of knowledge in an independent fashion and based on completely distinct facts leads to the founding questions of his theoretical framework:

i.) Which principles are common to several levels of organization and can therefore be carried from one level to another and considered valid for a general system theory?
ii.) Can societies and civilizations be considered systems?

One of his presuppositions is that systems are open. Therefore, like human beings, the systems maintain an uninterrupted incorporation and elimination of material, building and demolishing components without reaching, during their existence, a state of uniform equilibrium. The equilibrium in this system is found between the positive internal entropy and the entry of negative entropy that occurs during the contact of the system with the medium in which it is inserted, without whom the system would perish.

Another supposition is that initial conditions do not determine the system. Open systems the equifinality principle defines that the same final state can only be reached from different initial conditions and by different paths. There is no determinism. Another of his presuppositions is that there is intra- systemic communication that forms a flow of information between the system and its medium and which has the finality of reaching a state of homeostasis, which can be understood as the maintena-

ance of the dynamic equilibrium of the system through the processing of information sent and received.

The progressive mechanization is yet another presupposition that presents the fact that the system is at first completely governed by dynamic interactions between its components. In a second moment, fixed dispositions and restriction conditions (patterns that make the system more effective) are established. This process becomes mechanical, without further interference of its components, which will later be concerned with other interacttions.

At last, the presupposition of common finality is considered. In the case of a living being, the system cannot be conceived without a common equifinality or finality. For such task, the system uses adaptability, intentionally and the pursuing of goals to reach this equifinality, without being necessarily the beginning from a common starting point.

One can affirm that the general system theory incorporates equally the maintenance, exchange and conservation of the system and internal conflict. All of this guarantees the maintenance of the dynamic equilibrium of a system. Therefore, the practical application of this theory allows one to analyze and structure the problems that are presented in business deals, for example. It also demonstrates which procedure works and conducts to both the comprehension of the system and the prescriptions to act on it.

Systems and complexities according to Morin: According to Morin (1987), the organization of a system is the organization of differences. It establishes complementary relationships between the different parts and between the parts and the whole. The parts have a double identity. They have their own identity and they also participate in the identity of the whole. The complementarities that are organized among the parts segregate antagonisms. This double and complementary identity that coexists in each part is antagonist by nature. Therefore, the organization, in a complex and ambivalent manner, connects complementarities and antagonism

When we consider an organization that is self-producing, the entropy does not go from negative to positive. Instead, it stays stationary while the system lasts, therefore not indicating the direction of the evolutionary process. The process of negentropy assumes the form of an original process which becomes antagonist to the increasing entropy. Although the process necessarily produces entropy, the negentropic process leads to a completely different organizational relationship, unlike the one in which the entropic process reigns alone (Morin, 1997).

In the organization's point of view, entropy and negentropy correspond to antagonist processes, disorganization and degeneration in one hand and reorga-nization and regeneration in the other. The term negen- tropy, in spite of its negative connotation, represents a positive phenomenon since its negativity is the denial of denial, which flourishes its positivity. The complexity of all negentropic organizations is inserted in the genesic tetralogical ring and in the chaos/physis/cosmos relationship, shaped in the following direction: organization, interaction, order and disorder.

For every increase of complexity in the organization, there corresponds a new potentiality for disorganization. The idea of antagonism comports the disorganizing potential, being therefore important to state that disorganization is connected with reorganization. The richer the organizational complexity, the larger the system's capacity to prevail during its moments of crisis (even taking advantage of these moments for its own development) will be. Therefore, one cannot conceive an organization without antagonism, that is, an organization without potential anti-organization included in its existence and it's functioning. Thus, every system whatsoever brings within itself the internal ferment of its degradation.

It is consequently necessary to identify the intelligibility principles capable of making individuals suited to conceive cerebral hyper-complexity. Complexity is guided by three principles which self-relate. These are the dialogical principle, the self-generation and the holographic principles.

The complementarities that organize between the parts segregate antagonism; the double and complementary identities which coexist in each part are by principle antagonist. Thus the organization connects complementary and antagonism in a complex and ambivalent manner.

New potential for disorganization corresponds to every increase in the complexity of the organization. The idea of antagonism comports the disorganizing potential, being important to emphasize that disorganization is uni-ted with reorganization. The richer the organizational complexity, the larger the possibility and therefore the danger of existing crisis (disorder) and the larger the system's capacity to defeat the crisis and even take advantage of it for its development.

The systemic concept, according to Morin, simultaneously comports unity, multiplicity, totality, diversity, organization and complexity. The conception is situated immediately apart from reductionism and "holism", appealing for a principle of intelligibility which integrates the part of truth included in one and the other. There should not be an annihilation of the whole for the parts and neither of the parts for the whole. It is therefore important to clarify the relations between the parts and the whole, in which each term leads to the other. It is impossible to know the parts without knowledge of the whole, as it is impossible to know the whole without knowledge of the parts in particular. This means that neither of the terms can be reduced to the other. For that reason, the system must be conceived following a conceptual constellation in which it may finally assume a complex form.

Morin considers that the whole is not whole. The whole, much more than just a global form, is also emerging qualities, the whole also retroacts as whole in the parts. The whole only functions as whole if the parts function as part

And finally, the whole comports fissures, shadows and conflicts. Morin also considers the problematic of organization. Disorganization is inherent to all organizations and to every system. This principle means that the sy-stem is perishable, that its organization is disorganizable and that its order is fragile, relative and mortal, therefore proving that a complex organizational vision necessarily includes disorder.

Simplification dissolves the organization and the system. The organization of a system and the system itself are constituted by interrelations. The notion of system completes the notion of organization as much as the notion of organization completes the notion of system. The organization is the interiorized face of the system (interrelations, articulations, structure) and the system is the exteriorized face of the organization (form, globality, emergency).

It is, at the same time closed and open. There is no organization without anti-organization and there is no functioning without dysfunction (Morin, 1987). The idea of system is a problematic in the strong and precise sense of the term. It is a way of finding problems that could not be discovered in any another way. It does not have, in itself, strength to find a solution for its problems.

Systems according to Luhmann: Another approach is presented by Luhmann (1997) seeking the idea of "system" based on a complex logic. As a result, its first presupposition is that of generality. He also recognizes complexity as a presupposition of the theory, since this theory is supposed to be applied to reduce this complexity. Another presupposition is the idea of a self -referring system, opposed to that of Bertalanffy (1976), who understood the system through the point of view of the environment.

The classic concept states that the system is a set of elements which maintain certain relations between themselves and are separated by a certain environment based in self poietic logic of internal production. The relationship between the system and the environment is essential to characterize the system and the system always defines itself according to the environment. Luhmann's (1997) idea of self-referring systems derives from cybernetics. In this context, the system is defined according to its differences from the environment.

However, the author considers that the system is at the same time open and closed, but it is preferentially closed in itself. It is this closure that allows the system to be studied. According to Luhmann (1997), this is what conditions the opening of the system. The more closed it is, the more open it becomes (Luhmann, 1997).

This new theory proposed by Luhmann expressed a paradigmatic change in the general theory of systems by differentiating system from environment. With this approach, the theory of systems begins to perceive the world differentiating environment and systems. The approach alters the bases of the theory of systems, transforming it in a universalist theory which is not concerned with systems as objects but is adopting the difference between system and environment as a reference (Pedrozo et al., 2004).

Environmental management

The evolution of population united with the effects of globalization makes the companies sensible to the demands and needs of consumers. The management of natural resources has become one of the essential foundations for the development of new administrative and strategic managements. Since the development of agenda 21, in which the managers clearly demonstrated to be conscious of sustainable development, the necessity for change has become inevitable. Change accelerated by demands for ecologically correct foods and fibers.

This environmental channel allowed the assimilation and integration of the environment and socio-economic structure of the development of the planet. This conesquently made the conciliation of economic growth and environmental conservation possible and desirable. Something considered impossible to realize.

According to Barbieri (2004) and Donaire (1999), the term "environmental management" refers to the administrative and operational activities such as planning, direction, control, resource allocation and others, that are carried through with the objective of obtaining positive effects on the environment, either by reducing or eliminating damage or problems caused by human actions. Facing such concept, one can realize that the expression "environmental management" is applied to a wide variety of initiatives related to any type of environmental problem. The same rationale can be found in Giordano (2000), with emphasis on agribusiness.

Backer (2002) states that the management of the environment is not by any means the consequence of a will to dominate, destroy or antagonize. On the contrary, it is about the logical consequence of the economic collective responsibility which is currently shared by all actors and those who intervene in the planet's equilibrium. In face of such arguments and of innumerous transformations, a new market is arising.

From this reality, Tachizawa (2002) affirms that a new model of management is emerging and that it generates a reflex in the process of environmental management and social responsibility, demanding new needs in terms of hygiene and work security, personnel training and development, career planning, strategies, organizational atmosphere and life quality. Therefore environmental concerns and social responsibility makes the new organization choose suppliers that attend to its ethical needs and that the productive input contracted attends to the environmental requisites that are predefined in its corporative policy. Environmental management advances to the internal setting of the company, exceeding the traditional organizational borders. Such amplification of the organizational borders occurs due to environmental issues, partnerships and strategic alliances between

organizations and technologies of information.

It is necessary to highlight that for the comprehension of environmental issues, one must adopt a systemic, global, wide-ranged and integrated perspective and also be capable of seeing the relations of cause and effect, beginning, middle and end, or the interrelations among resources and values obtained by the organization.

According to Maimon (1996) and Kinlaw (1997), a new bio-ethical and socio-environmental reality emerges, resulting in a change of attitude of the companies, which must discard old perspectives and have practices reactivated by the environment. This environmental responsebility should not be explained only by the reactive model of the company, which has an economic behavior based on the maximization of short-term profit, but also by the products/services and input market's function and the reaction to regulations. Environmental responsibility gradually begins to be considered a need for survival, becoming therefore a promising market, a new product/service to be sold different from marketing and competitivity policies.

Stakeholders theory

Generally private organizations wish to grow indefinitely. This fact represents a great dilemma for organizations which, aside from administrating their traditional tasks, need to learn to deal with a numerous public with distinct demands. If the large companies contribute to making the world more and more dynamic and complex, the challenge of constant adaptation is also imposed on them. The incapacity to recognize and attend to the aspirations of its effective or potential public creates a legitimacy crisis and causes of the threat of extinction.

An introduction of the stakeholders theory was developed in a first moment by Freeman in his work entitled "strategic management: a stakeholder approach", where he asserts that the same is originated from the firm theory (Freeman, 1984). He explained the relations of the firms with the external environment and also their behavior without contact with the environment. He delimited the space of social responsibility to a more restrict dimension with the following definition of stakeholder "includes any group who can affect or is affected by the corporation". He opens room for anyone that can affect or be affected by the organization, creating an infinite possibility of action of the stakeholder, for we can consider that even climatic factors exercise this role (Freeman, 1984; Mitchel et al., 1997; Key, 1999).

The studies about stakeholders can be presented according to several approaches. The basic difference of them all is the degree of importance given to organizations. One can notice two lines of thought based on different logics. Atkinson et al. (1997), Shankam (1999) and Berman et al. (1999) define the importance of stakeholders according to the degree of their contribution to the organizational performance. On the other hand, Freeman (1984), Donaldson and Preston (1995), Jones (1995), Metcalfe (1998) and Moore (1999) affirm that the goal of the companies is to attend to the interests of their stakeholders (Donaldson and Preston, 1995; Quadros et al., 2003).

Clarkson (1994) defines stakeholders according to the risk involved. He says that there are voluntary and involuntary stakeholders. The voluntary stakeholder somehow incurs in risk by having invested some type of capital, either human or financial, or a type of value to the firm. The involuntary stakeholders are those that are subjected to risks as a result of the actions of the firms. A sense of loss or associated risk can be noticed in this concept. The same author refines the concept a bit more by considering stakeholders as groups or people which have or claim property, rights or interest in a corporation and in its past, present and future activities.

Bremmers et al. (2004) define a group of stakeholders as a group of environmental organism which influence or are influenced by the objectives and operational processes of the company. The authors correctly noted that as long as there is not much disagreement about who can potentially be a stakeholder (people, groups, neighborhoods, organizations, institutions, societies and even the natural environment), the definitions about what a stakeholder is vary from the widest possible to the most restrict, having effective implications on the company's capacity of recognizing the public to which it should report.

According to Vianna (2003), a company must collaborate with those responsible for governmental regulations and the strategy must not be at first restricted to the firm, but instead must divulgated and perfected along with the interested stakeholders. Therefore the information and transparency of the adopted practices would function as an answer to the external stakeholder's pressure, which therefore begins to contribute in the management process. To implement voluntary codes of conduct and submit to processes of external auditorship and certification would reinforce the company's commitment with transparency and openness. Integrating external stakeholders (environmentalists, community leaders and the media and regulation organs) in the decision-making processes about the design and product development allows the company to accumulate socially complex resources involving fluidness of communication between the departments, communication which goes beyond the borders of the organization. The biggest benefit of this triumph is the possibility of anticipation in relation to competitors who did not build the specific competence to manage social actives and engage their stakeholders in external processes.

THE SYSTEMIC AND MULTIDISCIPLINARY RELATION OF ENVIRONMENTAL MANAGEMENT AND STAKEHOLDERS

During the development of this study it became percepti-

ble that the stakeholders can positively influence organizations, opposed to their necessity to be inserted in environmental management (Ramalho et al., 2002). The union of environmental management and stakeholders generates a systemic and multidisciplinary integration which serves to model the company towards developing criteria of sustainable development and to therefore form strategic alliances. There is a vast field which contains a superior dynamism of the company in influencing stakeholders or being influenced by them.

Morin (1997) affirms that the organization is a concept missing in most of the definitions of "system", as if it were baffled between the idea of totality and the idea of interrelations, at the same time that it connects the ideas of totality and interrelations, becoming therefore unassociable from these three notions. From this point on, one can conceive the system as an organized global unit of interrelations among elements, actions or individuals.

In a first definition, the author states that the organization is the disposition of relations between components and individuals, which produces a complex unit or system gifted with unknown qualities of components or individuals. The organization connects diverse elements, events or individuals which then become the components of a whole. Both concepts (organization and system) are connected by the concept of interrelationships which is every interrelationship gifted with certain stability or regularity achieves an organizational character and produces a system.

The notion of interrelationships refers to the types and forms of connections between elements or individuals as well as between these elements/individuals and the whole. The notion of system refers to the complex unit of the inter-related whole and to its phenomenic characters and properties. The notion of organization refers to the disposal of the parts in one and in the whole.

The complexity theory applied to organizations derived from Prigigone and Stengers (1984), combined with the theory of disequilibrium become inherent in the physical world and in the notion of irreversibility. This means that the systems operate either through time or through the physical state, implicating that the condition for equilibrium is not static. The same authors affirm that the time system is increasing and generates conflicts between the physical environments, therefore forcing the use of significant amounts of energy to maintain stability (Goldsmith and Kane, 2002).

Morin (1987) explains that events occurring in the organization are emerging as a way to revert a chaotic situation in regards to the environment. The systemic view of organizations captures what emerges from people (stakeholders) throughout the events and tries to reorganize the organization. This systematic of capturing, transforming, producing and connecting, maintains and guarantees the continuity of this society at the same time that it translates Morin's trinary concept (interrelations – organizations - systems). According to Cruz et al. (2006), a change in the perception does not happen due only to the market's demand or legal imposition, but it demands a change of individual values. Therefore, through the complexity theory one can consider that multi-dimensions, multi-actors and multi-variables and their interrelations are inserted in the relations of the organizational environment.

Soares Neto (2004) investigates the relations of the importance of environmental management with the importance of several stakeholders that transpose the vast interdependences between the links of the system. As seen in Mendonça et al. (2005) and Cruz et al. (2006) studies, the evolution of a closed administrative theory to an open one happens due to structural changes and to the introduction of a systemic view of administration that incorporates both environmental and social responsibilities in the construction of strategies.

Based on Bowditch and Buono (1997), the contemporary organizational theory uses a much wider perspective of organizations and their administrations than the classic theory. "Organizations are seen as open systems which need to adapt to mutating external conditions to perform, be successful and even survive throughout time with efficiency". The authors state that the managerial macro- environment assumes many different forms. Although some environments can still be simple and stable, others tend to be much more complex by nature. Such organizations seen as parts of a larger environment can affect or be affected by the environment, even if very lightly (Mendonça et al., 2005).

In respect to the analysis proposed in the article, Bowditch and Buono (1997) have the large conceptual contribution of defining the organization's elements of interest, of defining the relations between organizations and the several social groups affected by it, such as shareholders, employees, unions, clients, suppliers, local community, governmental entities and so on (Mendonça et al., 2005).

Therefore, environmental management is not only an interesting and essential tool to be adopted by the company, but it is a strategy of survival in a world each day more globalized and conscious of the importance of a coherent use of the environment.

Morin (1987) affirms that the principle of organization is born from random encounters in the core of disorder with order and toward catastrophe, or the change of forms. To this author, organization is the disposition of relationships between components or individuals which produces a complex unit or system. By interrelations, the organization connects several elements, events or individuals that can then become the components of a whole.

In their articles, Egri and Pinfield (1998) believe that the governmental organizations of an industrial society do not take under consideration the interests, aspirations and needs of the citizens. They also believe that the "environmental" problem is a consequence of how society is structured, with multiple organizations pursuing their own

interests. Facing this scenario, the organization requires a multifaceted, interdisciplinary and controversial holistic approach.

In the perspectives of open systems, the limit between the organizations and their environments can be considered permeable because the organizations cannot separate themselves easily from the environments in which they are inserted. Egri and Pinfield (1998) affirm that the organizations adapt to their environments in two different ways: at first, within the limited perspective of a rational mechanic model, the organizations change when their own limited interests are considered; secondly, by an institutional point of view, the organizations subject themselves to the changing social values by incorporating these values in the decision-making premises of the members of the organization's dominant coalition.

And also the individuals (stakeholders) change the collective concepts of organizations in their environments, either through their own interests or through the cultivation of an ecological consciousness. Through a systemic focus, Egri and Pinfield (1998) consider the organizations as dynamic phenomena which are constantly adjusting to environmental changes.

Bertalanffy (1976) affirms that simplification dissolves the organization and the system. The organization of a system and the system itself are both made of interrelations. The notion of a system completes the notion of organization as well as the notion of organization completes that of a system. He also states that the organization is the interiorized face of the system (interrelations, articulations, structure) and the system is the exteriorized face of the organization (form, globality, emergency). For Luhmann (1997) there are three types of self-referring systems: the empty systems, the psychic or personal systems and the social systems. Each is different because of their own mode of self poietic operations. In the living systems, these are the vital operations. On the psychic system, it is the consciousness and on the social systems, communication. Thus, citing the example analyzed, the author explains that society is a self-referring and autopoietic system that is composed of communication and it may also be differentiated in subsystems that reduce their complexities through specialization; subsystems such as economy, law, politics, etc. Consequently, the firm can therefore be considered a subsystem inside a subsystem (Luhmann, 1997).

Luhmann affirms that in the paradigm of the whole and its parts, unexplainable properties need to be fit somewhere, either as properties of the whole or as properties of a peek of the hierarchy that represents the whole. On the other hand, in the self -referring system everything that belongs to the system (including any pos- sibility of peeks, limits or excesses) is included in the self-production.

To express the objectives of a company (organization), Donnadieu (1997) proposes a triangle with three equal faces, in which the company would be considered a point inside it. Depending on the position of the point, one could determine the correct amount of each of the functional components like, financial (shareholders), economic (clients, market, community) and social (employees and society). This would be the theoretical scheme of a liberal company. The company (organization) is a system with multiple interrelated finalities which oscillate according to the circumstances and the moment, between the institutional finalities and an increasing finality of survival (short term) and evolution (medium/long term). Thus, the finalities are in a constant process of retro-alimentation.

Inspired on the cybernetic model one can affirm that an organization is structured in three imbricate systems, the navigation (organizational), the operational (technical-economic) and the social (the interactive set of human resources of a company) systems. The later could at any moment break the harmony of the traditional cybernetic system. These three internal organizational systems are highly open (related) with three external environments. The organizational (institutional) environments such as the public, political, regulatory and professional powers tend to limit the decision-making autonomy of the navigation system. The technical economic environment regulates the availability of economic, financial and technological resources in order to make the operational system function. The social environment (family, society, unions, parties, churches) with its cultural mutations (individuallism, uniformization of all life styles) signalize the stakeholders (Donnadieu, 1997).

Similarly, Waage (2004) stated that it is necessary to point out the beginning of a change. This change has as its premise the comprehension that the businesses are interlaced inside wider ecological and social systems and are deeply dependent on them. If one aspect becomes compromised, the stability of other interrelated elements will be threatened. This comprehension provides a language and an even greater set of analytical tools to facilitate the integration of these systems in the decision-making processes in businesses (Waage, 2004).

Therefore it is noticeable that the systemic view and interrelations are common points in the approaches discussed. Environmental management incorporates the systemic view of the relations of cause and effect, beginning, middle and end. The stakeholder is either the inductor or is induced by large environmental changes (Table 1).

The model of those interested in the organization (the stakeholders) as described by Bowditch and Buono (1997) suggests that the corporations serve a greater society, recognizing that the demands towards business organizations increase continuously and enlarge the variety of groups that were not traditionally defined as being of immediate interest to the organization.

In this essay, environmental management becomes an essential tool for the organizations to connect stakeholders as intermediates in the decision-making process, since the organizations with a systemic view can diverse-

Table 1. Interconnections among systemic theories, environmental management and stakeholders.

Approaches	Morin	Luhmann
Characteristics related to environmental management and stakeholders.	-Emergence of a new systemic organization contemplating multiple interests. - "Organization - environmental management - Individual - ecosystem" relationship. - "Order – disorder – organization" interaction - Principles of intelligibility.	- Self-referring system including the environment and stakeholders. - "Organization - society" integration. - Autopoietic production. - Operational closing that includes the stakeholders and the environmental issue.
Concept of organizations (interactions).	- Inclusion of environmental management and stakeholders in the decisions of organizations - ultiple finalities. - Dialogue between financial and economic objectives of companies. - Commitment of the individual with self-ethics affects the "order - disorder - organization" interaction.	- Internalization of the environmental issue and of the stakeholder's interests in the systems. - Paradigms - differentiation of systems and environments. - Self referring society - complex view of the system. - Change of focus from interaction among stakeholders to communication among them. - Communication between different actors of the chains, clusters, networks and alliances. - Recognition of the firm as a subsystem inserted in other systems.

Source: Proposed by the authors

ly connect the interests of the stakeholders to the interests of organizations. Thus, one can notice an attempt of adaptation to the environment and a viable solution for both of the most interested parts or one can revert to a situation that favors the stakeholders and the organization itself.

Conclusion

Based on the question about the possibility of stakeholders affecting the strategic and decision-making processes in what concerns environmental management in organizations, this work attemps to identify converging elements among the stakeholders theory and environmental management, through the point of view of systemic complexity.

The reflections about the theories approached in this study demonstrate that the base of the organization should be designed following systemic principles and at the same time it should systemically capture the stakeholder's objectives to guarantee the survival of the business. The companies has to adopt environmental management as a change of mentality towards a new paradigm in order to understand and share the problems related to stakeholders in a way that could interconnect their principles of ethics and social responsibility.

In this new approach, environmental management becomes a systemic interaction to be inserted in the context of current changes in which disorder will be translated into a change of mentalities and into a new emerging conception. It became noticeable that interaction alone is not enough for interconnections to occur. It is also necessary to establish a channel of communication and aside from that, establish a language between the interested parts.

Therefore there is, in fact, a great interdependence among the environmental management theory and the stakeholders' theory. In a wider sphere, one can note that both are complementary, different, antagonist and highly interrelated, for both aim toward the survival of the environ-ment, the organizations and of all people involved.

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