

The government of organizations that share common use resources. Challenges and an approach of the contributions of the anthropological model.

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Summary

The research is oriented to understand the challenge that demands to govern organizations sharing common use resources (CUR). For it, the contributions of Elinor Ostrom are taken as basis, both at the level of the development of the institutional analysis framework and the approach of the design principles characteristic of long-term institutions of the CUR; to then identify the pending challenges in this line of research, showing the contributions that could derive from the joint work with the anthropological model based on the theory of human action proposed by Juan Antonio Pérez López. 1. The similarities between the approaches of E. Ostrom and Pérez López are: the orientation towards the solution of real problems, the consideration of the diverse motivations of the human being, the recognition of the existence of a social learning process and the strong influence of the decisions of individuals, as well as influence of environmental conditions. 2. The use of the anthropological model poses a new orientation to the approaches carried out so far. In this way, there is a leap from resource management and definition of rules to the govern of human organizations. 3. The anthropological model proposes a new orientation regarding the type of system to which an organization corresponds and its solidity. In this way there is a jump in the approach from a homeostatic or ultra-stable system to a system of free adaptation, which implies the incorporation of negative learning that can lead to the self-destruction of the organization. E. Ostrom does not consider the verification of consistency with respect to internal learning, the lack of consistency would compromise the institutional future of interaction. 4. Design principles proposed by E. Ostrom are focused on defining the formal arrangement that makes it possible coordination. The control mechanisms and sanctions have practical limits and more in highly adaptive environments such as CUR systems. 5. Addressing the organizational problem requires more than the institutional arrangement. The approach of E. Ostrom does not answer ¿Who will lead that organization? ¿Who are those that will keep it alive and adaptable to the different situations? ¿Who are the ones that will keep the communication channels alive? ¿Who are those that will keep alive the necessary motivation to achieve the results? The omission of the leadership for the self-preservation of the organization, the doubts about the incentives of the person in charge of supervision lead to reduce the executive role to a level of verifier of compliance with rules, commitments and establishment of sanctions. 6. The statements made by E. Ostrom and Pérez López can be complementary, taking as a starting point the object of solving real problems, and the methodology of decision analysis; the adjustments would require coming from the side of the consistency of the action over time. If these contributions, then serve to address with greater completeness the resolution of problems of organizations using common use resources, then we will have taken a step towards their solution (a contribution towards public policy).

Keywords: *Ostrom, Perez Lopez, anthropological model, principles of design, government of organizations, freely adaptive system, common use resources, common pool resources.*

Introduction

The common use resources (CUR) have been, for a long time, a fundamental issue in environmental studies; the resources and institutions, described by that term, have been recognized as a central element of many environmental problems, especially the problems of global environmental change (Dietz, 2002).

Within the CUR, water is of my interest. Water is a resource that acts as a base for connecting multiple human activities (Ostrom, V., 1962), a resource that is not only common, but also a legal basis (Hardberger, 2005), a

resource that contains series of challenges to achieve its proper management, one of the most complex being the institutional governance required for its proper management (Ostrom, V., & Ostrom, E., 1972). Latin America is a region without the scarcity problems of the African continent (Connor, 2015), but with the challenge of achieving an institutional framework that makes it possible to govern the organizations that use the resource for sustainable management of it. The challenge in itself is to make a conceptual leap, from the management of the resource towards the government of all the organizations that use this resource and that, therefore, are in any way linked.

Although the challenges related to the management of water resources are part of the motivations for the development of this study, the approach that guides this research is the understanding of the challenge that demands to govern organizations that share CUR; in such a way that, having a better understanding of it, it is possible to contribute to the specific cases that demand the management of each common resource, among them water.

The literature about the CUR inevitably leads to Dr. Elinor Ostrom (Nobel Economics 2009), who wonders whether it is possible or not to organize the study of the CUR in a way that avoids excessive consumption and administrative costs. In this way, two major discussions are reincorporated into the international debate: 1) The profit maximizing subject where the market is the great distributor of resources, and 2) The role of each sector of the market, the state and civil society. At the same time, she criticizes the conventional theory, according to which, when individuals face a dilemma due to externalities (for the actions of others), they will make only narrow and short-term calculations that will lead all individuals to harm themselves and others; unable to find a way to cooperate to overcome the problem (Ostrom, E., & Williamson, 2009).

The book *The Government of the Commons* (Ostrom, E., 1990) reminds us that the defenders of centralization and privatization accept, as a central principle, that institutional change must have an external origin and be imposed on the affected individuals¹. She does not defend either of the two positions, but argues that both are too general to constitute the only solution to the various existing problems. It does not imply that optimal institutional solutions can be designed easily, and be imposed at low costs with the intervention of external authorities. It is necessary to understand that correcting institutions is a difficult process (it takes a long time and leads to conflicts); it requires reliable information about place and time variables, as well as a wide repertoire of culturally acceptable rules. New institutional plans do not work in the same way as abstract models, unless they are well specified and empirically valid and participants in a given context know how to make the new rules work, institutions are rarely completely private or totally public.

E. Ostrom (1990) designs a game where it is possible to establish binding contracts (rules, commitments) between all the players, which obliges them to comply infallibly with the initial agreements and with cooperation strategies formed by them. What is needed is an institutional structure that allows the equitable distribution of the performance levels and the operating costs of the CUR. This will lead to a self-financed execution game of the contract that allows users to have greater control over the decisions of use and appropriation of the resource. In this game, the self-interest of those who negotiated the contract will lead to mutual supervision and to reporting the observed infractions, so that the contract is complied with (Lara, 2002). Thus, E. Ostrom suggests that a more realistic assessment of human capacities and limitations can be reached for situations of common resource use.

George Akerford² (2011) tells us that "Ostrom is interested in the way in which social norms are formed and how to enforce them ... These norms are the absent subject in economic science. You can be very close to a balance in which everyone cooperates, but to do it effectively, something else is needed. And what makes people cooperate are the rules. "

¿Are the rules really what makes people cooperate?

¹ It specifies that, if one of the recommendations is correct, the other cannot be correct. Two contradictory positions cannot be both correct.

² 2001 Nobel Prize.

¿Are the rules the only thing that counts?
¿Are the rules what will make the institutions and agreements taken remain on time?

To answer these questions, we will take the anthropological model proposed by Juan Antonio Pérez López. He affirms "... a human organization is an anthropological reality, that is, a group of people united to do something together" (Pérez, 1993). Therefore, it is appropriate to approach and review what is proposed by E. Ostrom, from a perspective of the anthropological model, where the organization is considered as a structural relationship.

The revision of the approach where the individual is considered explicitly or implicitly varies the entire orientation of the theories of organization, management and what derives from it. It is pertinent to make explicit the orientation under which E. Ostrom makes the statement of design principles characteristic of long-term institutions of the CUR.

If these principles and the contributions derived from the approach of the anthropological model (through the theory of human action in organizations) towards the framework proposed by Dr. Elinor Ostrom, then serve to address with greater completeness the resolution of problems concerning the government of organizations using resources of common use, then we will have taken a step towards their solution (a possible theoretical and practical contribution towards public policy).

Having greater clarity about the aspects that are found in a situation of government of organizations, which requires achieving the management of a CUR, will lead to a better design and implementation of institutions that allow this task to be carried out. Bearing in mind as E. Ostrom (2009) said "the design of institutions must serve to bring out the best in man, not the worst in him"

This document has been structured to: a) understand the characteristics of the CUR, the associated problems and potentialities, b) show the organizational challenge that is configured around the CUR, the institutional arrangements already known and their limitations, c) to know the approaches that E. Ostrom carries out (principles of design and contributions in the development of the conceptual framework of study); d) identify the pending challenges in this line of research, giving rise to the possible contributions derived from the joint work with the anthropological model based on the theory of human action proposed by Juan Antonio Pérez López.

1. The Common Use Resources

Common resource is one where it is difficult to exclude consumers³. The term "common resource" focuses on the characteristics of the resource, rather than on the human agreements used for its management⁴. Such a resource could remain as open access without rules or could be managed by a government, as private property, or by a common property regime. According to E. Ostrom (1990), the term *common use resource* (CUR) refers to a system of natural or man-made resources, large enough to make it costly (though not impossible) to exclude potential beneficiaries.

For E. Ostrom (2002) the diversity of property right regimes used to regulate the use of CUR is very broad, including categories of government property, private property and community property. When no property right defines who can use a CUR and how its use is regulated, then it is under a regime of free access. When many appropriators depend on a CUR as a source of economic activity, they are affected collectively. The key fact for co-appropriators is to be in a network of interdependence as long as they continue to share a CUR. Physical

³ In 1983, the National Research Council appointed a Panel for the Management of Common Property Resources. An important consequence of the 1985 meeting was the effort to clarify the different meanings of commons, common resources, common property regimes and related theoretical issues.

⁴ The term "common property" means a type of management agreement created by humans and not a characteristic of the resource as such.

interdependence does not disappear when effective institutional rules are used in the management of the CUR, it remains; but it changes the outcome obtained by the appropriators (Ostrom, E., 2011). In that sense, the analysis of this interdependence is an edge from which to start the construction of a new definition of assets that has as reference the existing relational level.

In this regard, D'Alisa (2013) proposes a new definition: "The commons are the structures that connect: that connect (human) community, and the communities among themselves and with their environment through integrated institutions " According to D'Alisa, common resources are a structure that connects, so they need access processes that define: who, how, when and why can be accessed; in order not to damage neither the good itself, nor the interest of others in the preservation of this.

The basic problem, from the perspective of human behavior and governance, is the following: while everything in the environmental system depends on a system of interrelated processes, we are dependent on an institutional system in which the division of decisions and responsibilities are the dominant characteristics. This has been productive for the economy, as an engine behind the observed rapid growth; however, these separations are fundamentally arbitrary. The structures that connect are biophysical and institutional conditions, which can generate conflicts or facilitate cooperation. An integrating institution is capable of creating contexts that reduce: a) the separation in space, b) the formation of separate interests; c) the separation in time of the benefits and costs. If institutional development focuses on separation, the power to coordinate human influence on natural processes is weak. Rather, established structures create an environment where building integrating institutions becomes very difficult, since such processes operate in opposition to the fundamental dynamic created by separation (Vatn, 2009).

The common goods will be managed in a sustainable manner when the structures they connect, that is, the interdependencies, are sustained by the institutions created by the self-organization of the individuals that belong to that socio-environmental context, even if they are tempted to use the resource for free or act opportunistically. There are no necessary or sufficient principles for institutions to work, but the will of individuals to make them work is necessary, therefore the community is necessary (Ostrom, E., 2011).

E. Ostrom (2011) suggests that the problem of those who appropriate CURs is one of organization; this problem would be to change the situation where they act independently, to another situation in which coordinated strategies are adopted to obtain better common benefits or reduce their damages. This would not necessarily imply creating an organization, but rather explain coherently how a group of people involved in a collective action problem will resolve:

- The provision of a new set of institutions.
- The establishment of credible commitments; y
- Mutual supervision

2. The Approaches of Elinor Ostrom

2.1 The Design Principles⁵

E. Ostrom developed a theoretical knowledge of the rules and norms that people use to organize, influenced by Reinhard Selten⁶ (Wall, 2014). This effort resulted in the creation of the Institutional Analysis and Development Framework (IAD) as a systematic method for the comparative analysis of case studies. In the mid-1980s, Ostrom put the IAD approach to work, conducting CUR research around the world and synthesizing the case studies of

⁵ Elinor Ostrom. 2008. Design principles of robust property-rights institutions: What have we learned? Workshop in political theory and policy analysis. Indiana university.

⁶ Nobel Prize in Economics in 1994, shared with John Harsanyi and John Forbes Nash, for his pioneering analysis of equilibrium in the Theory of Non-cooperative Games. Selten is known for his work in limited rationality, and can be considered as one of the fathers of experimental economics.

others. Using the IAD approach, he systematically compared conditions across these cases, to understand the regularities between systems held for long periods (and absent in systems that failed). Finally she identified eight "design principles" that characterize the success of self-governance strategies. These principles were presented in his book *Governing the Commons* (1990) and were later refined with more research.

E. Ostrom stressed that these principles were not a model or set of rules, they only described structural features found in successful CUR cases; and absent in cases of CUR that failed. A design principle, for E. Ostrom, is an element or condition that explains the success of these institutions to sustain a CUR system; as well as compliance with the rules in use generation after generation of appropriators. She also argues that the list of developed principles is speculative and that they are not necessary conditions to achieve the institutional strength of the CUR. In this regard, she points out that with more theoretical and empirical work it will be possible to identify a set of necessary principles. However, it does not believe it is possible to establish sufficient principles for long-term institutions. An institutional work requires the fundamental disposition of the participating individuals; no set of logical conditions is enough to ensure that all sets of individuals will have the disposition and capacity to operate an institution characterized by such conditions (Ostrom, E., 1990, 2011).

Table 01: Design principles characteristic of long-term institutions of the CUR

Principle	Description
1. Clearly defined limits	The individuals or families with rights to extract resource units from the CUR system must be clearly defined, as well as the limits of the system itself.
2. Coherence between the rules of appropriation and provision with local conditions	The appropriation rules that restrict time, place, technology and the number of resource units are related to local conditions and the rules of provision that require work, materials and / or money.
3. Collective choice arrangements	Most individuals affected by the operational rules can participate in its modification.
4. Monitoring	The monitors, actively monitor the conditions of the CUR system and the behavior of the appropriators, are accountable to them or are the appropriators themselves.
5. Graduated sanctions	Appropriators who violate operational rules receive graduated sanctions (depending on the severity and context of the offense) by other appropriators, by officials reporting to the appropriators, or by both.
6. Mechanisms for conflict resolution	The appropriators and their authorities have quick access to low-cost local instances to resolve conflicts between the appropriators, or between them and the officials.
7. Minimum recognition of organization rights	The rights of appropriators to build their own institutions are not challenged by external governmental authorities.
8. Nested entities	The activities of appropriation, provision, supervision, application of the rules, conflict resolution and management are organized in multiple levels of nested institutions.

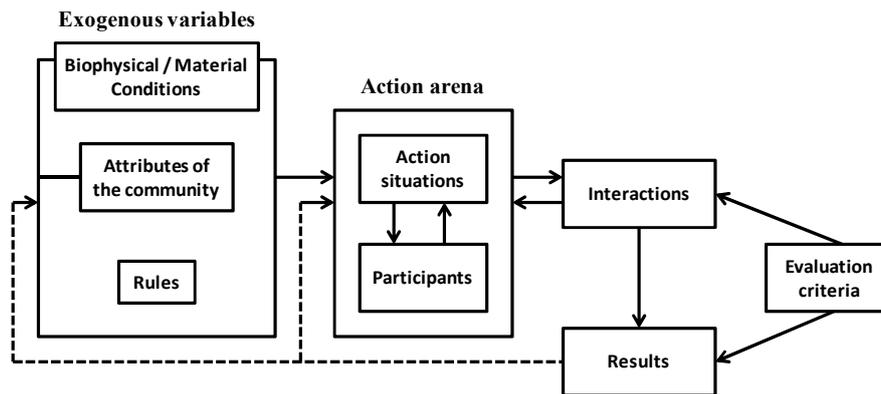
Source: Ostrom, E., 2011.

E. Ostrom argued that design principles could be reformulated as questions to help communities improve their resource management systems. Thus, these principles would provide a better start and reduce costs in the development of standards relevant to the specific governance of the CUR (Wall, 2014)⁷. Ostrom also outlined five forces that tend to degrade and disturb the CUR. These include rapid exogenous change, corruption and the search for rents in behavior, plan thinking, failures in transmission and the lack of external support structures. In understanding institutional diversity, she uses these design principles and potential disrupters to analyze the sustainable use of resources more generally (Wall, 2014).

⁷ Design principles are a good way to investigate the basic components of a sustainable system of common goods, but they should not be seen as deterministic or inevitable (Wall, 2014).

2.2 The IAD a framework of analysis of various human situations and the design of institutions. The IAD⁸ aims to contain the general set of variables that can be used to examine a variety of institutional environments, including human interactions within markets, private companies, families, community organizations, legislatures and government agencies. According to E. Ostrom (2009), the IAD framework is designed to allow systems with multiple variables to be analyzed, each of which can then be unpacked several times depending on the issue of interest. At the center of the IAD framework is the concept of action arena affected by external variables.

Figure 01: Framework for Institutional Analysis



Source: Ostrom, E., 2005, p. 15.

The IAD does not dictate a decision-making model; it asks the analyst to explicitly identify what the participants value; the resources, information and beliefs that they have. As well as what are their information processing capabilities; what is the internal mechanism used to decide on strategies. The actors can be considered as the "motor" that establishes the situation of action in movement; and through their interactions (harvest of common resources, elaboration of norms, production of services, etc.) they realize the results. The analyst could predict the results that people can perform in a given action arena depending on their structure⁹ (Ostrom, E., Cox and Schalager, 2014).

The factors that affect the structure of an action arena include three groups of variables: (1) the rules used by the participants to order their relationships, (2) the attributes of the biophysical world that act in these areas, and (3) the structure of the more general community within which any particular field is placed (Ostrom, E., 1982). These groups of variables jointly affect the types of actions people can take, the benefits and costs of these actions; as well as the potential results and the results obtained (Ostrom, E., 2005).

Ostrom focuses her analysis on how rules affect the structure of action situations, rather than trying to resolve the details of the entire analysis framework. For her, institutions are sets of rules that determine who has the

⁸ It originated in the mid-seventies. Its known dating is the publication of the article "A Metatheoretical Synthesis of Institutional Approaches" (Kiser and Ostrom, 1982).

⁹ The more developed explicit theories of individual choice with the IAD framework involve assumptions such as unlimited calculation capacity and maximization of net benefits. For some field configurations, these theories generate, empirically, exploratory results and confirmed diagnoses. On the other hand, in the understanding of common resources, many situations are uncertain or complex; and lack of pressure and selective information generation capabilities of a competitive market. In these cases, the search for information is expensive and the information processing capabilities are limited. Therefore, people make decisions based on incomplete knowledge, so it is common for them to make mistakes in the choice of strategies designed to achieve a series of objectives. Over time, however, they can gain a greater understanding of their situation and adopt strategies that result in greater profitability. (E. Ostrom, Cox & Schalager, 2014)

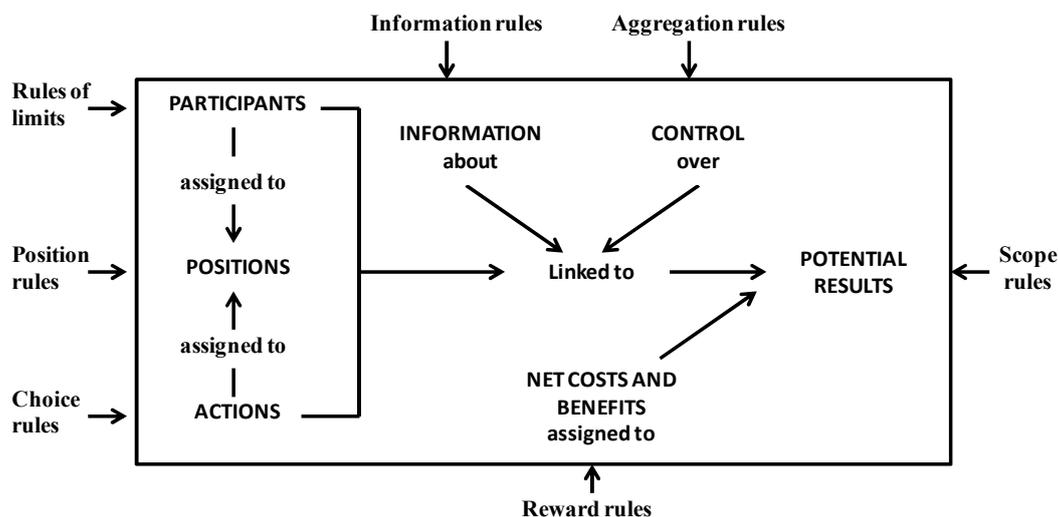
right to make decisions in a certain area, what actions are allowed or prohibited, what membership rules will be used, what procedures should be followed, what information should be provided, and what remuneration will be assigned to individuals according to their actions (Ostrom, E., 2011). Institutions are just one of many elements that affect behavior in any particular situation at a particular time and place. There is no single cause for human behavior (Ostrom, E., 2005). The design and adoption of new institutions to solve problems related to CUR are difficult tasks. Given the temptations to evasion, abuse and opportunistic behaviors, the solution to these problems cannot be guaranteed (Ostrom, E., 1990).

The concept of rules and norms acquired a central role in the perspective of E. Ostrom, as they are understood as established patterns of behavior, which allow predicting the behaviors of others during structured interactions, laying the foundations for stable social cooperation. Rules and norms are prescriptions that prohibit, allow, obligate, determine, define and limit; but while rules are based on shared values and don't consider explicit sanctions, non-compliance with the rules is associated with the imposition of sanctions assumed by the group. These rules can evolve by interacting in a variety of settings (Ostrom, E., & Basurto, 2011), or be consciously changed in a collective choice or constitutional configuration (Ostrom, E., 2009).

Thus, to specify the structure of a game and predict results, it is necessary to postulate: a) The characteristics of the actors involved (including the model of human choice); b) The positions they occupy; c) The set of actions that actors can take (specifying nodes in a decision tree); d) The amount of information available in the decision node; e) The results that actors affect together; f) The set of functions assigned to actors and actions in the decision nodes of intermediate or final results; g) Benefits and costs assigned to link selected actions and obtained results (Ostrom, E., 2009).

The IAD framework addresses the classification of rules according to their impact on the elements of an action situation. From this point of view, seven types of operating rules affect the structure of an action (Ostrom, E. et al, 2014). Figure 02 shows the names given to the types of rules based on this coding scheme.

Figure 02: Rules as external variables that affect the action situation



Source: Ostrom, E., & Cox, 2010, p. 5

The seven types of rules (Crawford & Ostrom, E., 2005) are:

- Limit rules: They affect how individuals are assigned to positions or leave a situation and how it is linked to other situations. They specify how the actors are going to be chosen to enter or leave these positions. Finally, they define actors involved in the interactions around resources.

- Rules of position: They specify a set of positions and how many actors each holds. They establish the positions of different actors (rights with respect to goods).
- Rules of choice: They specify which actions are assigned to an actor in a position. They refer to actions (prohibited, allowed or forced).
- Information rules: They specify the information channels between actors and what information should, may, or may not be shared. They affect the level of information available in a situation about the actions and the link between actions and result links.
- Range rules: They specify the results that could be affected. It establishes what should, should not, or can be affected within a domain.
- Rules of aggregation: They specify how decisions of the actors in a node are going to be assigned to the intermediate or final results. They affect the level of control exercised by individual participants in a link within or through situations. They define the forms of decision making. They determine if a decision of a single participant or multiple participants is necessary before an action in a node in a decision process.
- Reward rules: They specify how benefits and costs are going to be distributed to the actors in positions. They directly affect the net costs and benefits of action or the results for actors in an action situation.

The Ostrom approach recognizes that rule sets are themselves nested at hierarchical levels (Ostrom, E., 2005). Within the framework of the IAD, the relations of authority occur in the collective election and situations of constitutional choice. E. Ostrom¹⁰ considers different types of rules: operational rules refer to direct interventions on systems and resources; those of collective choices, determine and distribute the participation rights in the definition of operational rules; and the constitutional rules, provide the framework of the previous rules.

Individuals move from one to another sphere of operational, collective and constitutional choice. The three levels of rules affect cumulatively the actions taken and the results obtained. Operational directly affect the decisions made by the participants. The collective choice affects activities and operational results by determining who is eligible and specifying the rules that will be used to change the operational rules. The constitutional rules affect the activities and operational results determining who is eligible and the rules to be used in the elaboration of collective election rules (Ostrom, E., Cox & Schlager, 2014).

The number of combinations of specific rules that are used to create action situations is much greater than any set that analysts could analyze, so the optimal design option is not available. No robust institution that has generated substantial benefits has been designed in one step (Ostrom, E., 2005). Discovering what underlies these robust institutions has guided her study.

For E. Ostrom (1990), institutions are modified to survive; therefore, they survive for long periods in environments characterized by uncertainty. Its success is the result of an evolutionary process from old normative schemes to new ones. Institutional structures do not remain fixed, nor are they determined exogenously, but endogenous factors make up institutional logics over time.

Building mutual trust and developing institutional norms that are well adapted to ecological systems is very important in solving social dilemmas. There are many cases in which users of resources, in good condition or in clear improvement, invest in various forms of monitoring / supervision among them, in order to overcome the central problem of generating trust (Ostrom, E., 2009).

Designing institutions to force the interest of individuals and achieve better results has been the greatest goal posed by policy analysts in the last half century. However, according to empirical research, a central objective of

¹⁰ E. Ostrom and the team of the Workshop for Political Theory and Policy Analysis developed a meta-analysis evidencing that, in all cases of sustained cooperation, the participants followed rules of management of their common goods, known and agreed upon by them. Often these rules expressed a fine knowledge of natural systems and their dynamics, and sought to respond to them (Ostrom, E., 2009, Poteete, Jansen & Ostrom, E., 2010).

public policy should be to facilitate the development of institutions that bring out the best in human beings (Ostrom, E., 2009). In that sense, we need to ask ourselves how different institutions help or hinder innovation, learning, adaptation, trust, levels of cooperation of the participants and the achievement of a more effective, equitable and sustainable result in the multiple scale (Toonen, 2010).

3. Lessons, Advances and Challenges Pending

Three conditions are necessary, but not sufficient. For the emergence of self-organized institutions: a) the resource must be relevant enough so that users are willing to invest time and energy to create new institutions; b) users must have the autonomy to design and change the rules; and c) at least a subset of users must be able to participate in direct communication with each other, including the opportunity to negotiate. Given these conditions, if the appropriators organize the chosen institutional design; the functioning and survival of this design will depend on the specific characteristics of the resources, the users of the resources, and the institutional rules considered (Stern, et al., 2002).

A unique design does not work for everyone. No particular institutional design can guarantee the successful management of all CUR. Given the ecological and social complexity, this result should not surprise. What works best depends on the specific characteristics of the resources, the users of resources, external factors, details of the institutional design, and the interactions between these factors. Therefore, it is necessary to find an institutional form that adjusts to the requirements of the biophysical system that is used and the social context of the users of the resources. (Stern, et al., 2002).

"Success" means different things to different people. The CUR research began with questions about the sustainability of these, which is still important, but it is not the only question for the users of the resources. For them, livelihoods and well-being are often more important than any particular resource. It is necessary to identify and examine the full range of outcome conditions that are important for people who use, manage, and / or depend on the resources under study. If the multiplicity of valuable results is ignored it is unlikely that realistic models of real decisions will be produced (Stern, et al., 2002).

The development of a theory of the individual more general. It is not yet possible to point to a single theory of human behavior formulated and tested in a variety of settings. Hence, they are postulating and testing assumptions related to: (1) the ability of limitedly rational individuals to know the most complete and most reliable information in repeated situations when reliable feedback is present, (2) the use of heuristics in the daily decision making, and (3) the preferences that individuals have related to benefits for oneself, as well as the rules and preferences related to benefits for others (Poteete et al, 2010).

When rationally limited individuals act all the time, it is assumed that they learn more precise information about the actions they can take and the probable actions of other individuals (Selten, 1990, Simon, 1999). Individuals also learn norms, internal assessments that are negative or positive related to specific actions (Crawford et al, 2005). However, even with strong preferences for following rules, "the behavior observed may vary by context because the perception of what is right may change" (De Oliveira et al, 2009). Different individuals make a difference, but the context of the interactions also affects the behavior over time (Walker & Ostrom, E., 2009).

Role of Trust. At the core of a theoretical explanation of collective action is the internal link between trust between participants and the greater likelihood that all participants will use the norms of reciprocity (Poteete et al, 2010). For E. Ostrom, trust is the expectation of a person about the actions of others that affect the choice of the first person, when an action must be taken before knowing the actions of others (Dasgupta, 1997, 2000). In a social dilemma, trust affects whether an individual is willing to initiate cooperation with the expectation that it will be reciprocated. Rational individuals enter situations of using reciprocity with an initial probability based on their own training and previous experience, in a very limited way (Ostrom, E, 1998).

The Influence of Context. Individual behavior is strongly affected by the context in which interactions take place, rather than simply as a result of individual differences. Affirming that context makes a difference in building or destroying trust and reciprocity, is not enough theoretical response to how and why individuals sometimes resolve and sometimes fail to resolve dilemmas. Individuals who interact in a dilemma face two contexts: (1) micro-context related to the specific attributes of an action situation in which individuals are directly interacting and (2) the general context of the socio-ecological system (SES) in which groups of individuals make decisions (Ostrom, E., 2009). Linking the general and micro-contextual variables is one of the most important tasks faced by those who work to understand how both social and ecological factors affect human behavior (E. Ostrom & Cox, 2010).

Uncertainty and learning in complex adaptive systems. Knowledge of the natural environment has been mischaracterized. Consequently, uncertainty and learning problems have been seen as if they were typical problems of a system in which cause and effect relationships are stable. As a result, institutions and administrative procedures have been created that are badly adapted to a solution to the problem of conservation (Wilson, 2002). For Holland (1998), learning in this type of environment is based on the identification of recurrent system patterns. In this type of environment it is not easy to build an atmosphere of credibility and trust. Therefore, learning, in this type of environment, is largely a collective enterprise that has to be mediated by institutions.

The success of an institution in minimizing costs, the difficulty of observation and analysis; will depend on the ability to capture feedback in the system that governs. To do it well, the organization of institutions must assume a hierarchical structure that reflects the irregular, multi-scale hierarchical structure of the natural system. The purpose of this is to align the "receptors" of the institution with the spatial patterns of feedback in the system. A parallel structure minimizes the problems of observation and analysis and provides a flow of information that can be used to generate an understanding of processes at various scales and locations (Wilson, 2002).

4. Possible Contributions Based on the Anthropological Model

To analyze and identify possible contributions from an organizational perspective, it is necessary to specify: What is an organization? What are the key elements of its stability and duration? What is the type of system? but first, it is convenient to make explicit the premises found behind this anthropological model, which will serve as the basis for the subsequent identification of possible contributions to the government of organizations that share CUR.

4.1 The Anthropological Model¹¹

Alcazar (2010) states that the main theories of human behavior have not escaped the mechanistic or psychosocial paradigms, not capable of accounting for human freedom. Mechanistic paradigms that would consider that the errors of human beings are due to lack of information, because our way of deciding cannot change; and psychosocial paradigms that would consider that time will remedy eventual deficiencies: by trial and error, we will learn.

In this sense, the anthropological model¹² of Juan A. Pérez López (1934-1996) or generalized model of human action as he called it¹³, unites two approaches. The first: the incorporation of the freedom of the human being in

¹¹ "The anthropological model or paradigm contemplates the company as an institution, that is, as a human reality whose ultimate meaning is the organization of people's capacities to meet the needs of those same people." (Pérez, 1993, p. 115)

¹² The epistemology of Pérez López's model is based more on Aristotelian realism (Melé & Chinchilla, 2018, p.9)

¹³ (Perez, 1991, p34)

the analysis of their behavior, and the second: the use of cybernetics¹⁴ to explain the process of human decision-making in organizations. Next, the main premises of the anthropological model are shown:

4.1.1 Type of system and learning

The anthropological model proposed by de Pérez López considers, in terms of decision making, three types of systems:

- Stable systems, with a permanent decision rule, which does not change with experience. The previous decisions of the active agent have no influence on future decisions.
- Ultra-stable systems, with an adaptive decision rule, which changes according to the learning¹⁵ of similar previous actions, improving the decision rule over time, because learning is always positive.
- Free adaptation systems¹⁶, whose decision rule also changes with learning, but with interpretation of reality (environment) and making free decisions after deliberating on what the right¹⁷ decision may be; the learning can be positive or negative. If the learning is negative every time, they decide worse.

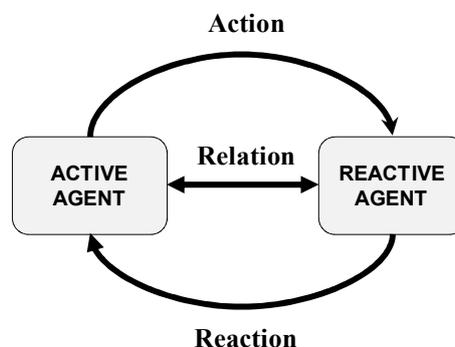
For Pérez López, human behavior in organizations corresponds to a system of free adaptation.

4.1.2 Interaction and problems of action:

Each interaction can be motivated by the attempt to solve a problem of different action, or by the attempt to solve an action problem that appears repetitively. In this regard, it raises two fundamental changes regarding the implicit paradigm in the usual treatment of action problems:

- “The first is to conceive what is traditionally called environment as another agent that, in general, can have properties like those of the active agent.
- The second change is the introduction of the learning concept, in order to reflect those phenomena produced by dynamism¹⁸ (Pérez, 1991, p.34).

Figure 03: Interaction



Source: Perez López, 1991.

¹⁴ In terms of cyber management, the best-known proposals are the Beer System Model and Steinbruner's Theory of Cyber Decision. Both are homeostatic systems, inspired by living organisms. Pérez López argued that homeostatic systems are not totally appropriate for human beings and, instead, proposed the model of the adaptation system freely to explain the dynamics of an organization formed by two dynamic human systems (Mele & Chinchilla, 2018).

¹⁵ Learning; any type of change that occurs within the agents that have performed the interaction. (Pérez, 1993).

¹⁶ Alcazar (2010) makes a distinction between free systems and freely free systems. In the case of free systems, although learning (positive or negative) depends on how you decide, you can also depend on your environment, external factors that the system does not control; On the other hand, in the case of freely free systems, learning will be positive or negative depending exclusively on how the system itself decides and acts.

¹⁷ A correct interpretation of reality is to discover the change in the decision rule of the people affected by the action due to their learning when interacting with the agent. (Mele & Chinchilla, 2018, p.5)

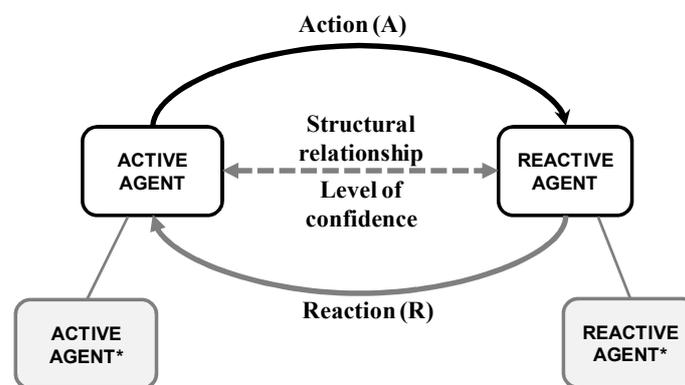
¹⁸ The consideration of dynamism is required when we conceptualize human action as a sequence of interactions, through which the active agent is solving the problems that successively is having. (Pérez, 1991, p.34)

It should be noted that, for Pérez López, the problem of action is the problem of achieving satisfaction for the active agent and the satisfaction that the active agent achieves will depend both on the action performed by that agent and on the reaction that occurs through a reactive agent.

4.1.3 Interaction and organization.

Pérez López (1991) distinguishes three elementary and significant relationships for the achievement of satisfaction: 1) The internal state of the reactive agent, as it determines the connection between action and reaction. 2) The internal state of the active agent, as this determines the satisfaction linked to the execution of the action. 3) The internal state of the active agent, as this determines the satisfaction linked to the reception of the reaction.

Figure 04: Organization as a structural relationship between agents



Source: Perez López, 1991.

In the interaction of the agents to solve an action problem, the existence and formal content of the situation variables depends only on the following conditions: 1) Reactive agent is instrumental in solving more than one problem - it can be the same repeated - of the active agent. 2) The solution given to the first problem - the concrete interaction caused by the active agent - implies an experience for both agents, from which a learning is derived. Conditions 1 and 2 only express that there is a structural relationship between the active agent and the reactive agent distinct from the operational relationship that manifests itself in the interaction. This structural relationship is determined by the internal states of the respective agents and, consequently, changes state by changing the latter, due to learning¹⁹ (See Figure 04). We will call this structural relationship organization. The state of that relationship is decisive in the case that both agents still must interact to solve other problems, or the same problem that appears repeatedly (Pérez, 1991, p.35).

4.1.4 Dynamism and logic of action

The logic of action in a static context needs only one variable to evaluate an action plan: its effectiveness. Effectiveness measures the contribution of the action plan to the resolution of the problem of action - achievement of a certain satisfaction on the part of the active agent - and that is the only relevant variable. Action plans of identical effectiveness may be different because of their instrumentality²⁰, operability²¹ or validity²², but these differences are not significant for resolving the problem of action in a static context. In a dynamic context,

¹⁹ The learning of the agents will modify the state of what we have called structural relationship.

²⁰ Instrumentality; Degree to which the action determines the reaction specified in the plan.

²¹ Operability; Degree to which the performance of the action affects the satisfaction of the agent to be executed. The action is operative if the agent finds it feasible.

²² Validity; Degree to which the reaction is satisfactory for the active agent.

however, two new variables are needed, called efficiency and consistency of the action plan. Without them, any judgment about the value of an action plan will necessarily be incomplete (Pérez, 1991, p.38).

The application of an action plan produces three types of consequences or results. a) extrinsic results: the interaction itself, b) internal results: learning of the active agent, c) external results: learning of the reactive agent. Under this understanding the effectiveness expresses the value of the extrinsic results produced by the plan for the active agent; the efficiency expresses the value for the active agent of the internal results produced by the execution of the plan; and the consistency expresses the value for the active agent of the external results produced by the execution of the plan. (Pérez, 1993).

4.2 Analysis of possible contributions from the organizational point of view

4.2.1 ¿What is a human organization?

A human organization is a group of people whose efforts are coordinated to achieve a result or objective that interests all of them. However, for there to be an organization, it is not enough for all the people to be together, nor for all of them to have a common purpose. What is truly decisive is that these people organize themselves (coordinate their activity), ordering human action towards the achievement of results that, even for different reasons, they all estimate that they are interested in (Pérez, 1993, p.14).

That people are organized will involve a set of interactions that happen continuously between them, without interactions there is no organization. These interactions require being oriented to achieve results that are of interest to all the participants. Without this interest, interactions can hardly continue, and therefore the structural relationship between these people will not be generated.

It is pertinent to emphasize the phrase "they are interested in reaching" - the result - regardless of the motivations; in virtue of which it turns out totally different to affirm them "it interests to participate", independent of if the result is reached or no.

Therefore, talking about an organization that manages CUR will involve at least that the organization is formed by the set of individuals or entities that are interested in conserving that resource for different reasons of their own actions. Which is different to say that individuals or entities participate in the management of the resource in order to be able to make the most independent profit from their own conservation.

If the challenge is one of organization, it would be worth asking as first point:

- ¿Is it clear to the actors that make up what the desired result is?
- ¿Is there a result that interests all of them?
- ¿Is your action ordered to that result?

4.2.2 Key elements of stability and duration of a human organization

The stability and duration of an organization imply the existence of mechanisms and the play of forces that do not appear in the case of these ephemeral organizations, in which some people agree to solve a problem that affects them and then leave to collaborate²³.

The real organization is that which exists when a specific set of people applies a formal organization²⁴, that is, any formula or way of coordinating actions that can help satisfy needs. The real organization includes the formal

²³ The essential elements of an organization are already found in these ephemeral organizations, in the same way that the essential elements of a big city are already found in a small town. These essential elements are: human actions, human needs and a formula or way of coordinating actions to satisfy needs (Pérez, 1993).

²⁴The formal organization has two components: a) Production system or operating rules: specification of the actions to be performed by the people that make up the organization so that it can operate and achieve its purpose. b) Incentive system or distribution rules: specification of what people will receive for performing the actions prescribed by the rules of operation.

organization, plus the whole set of interactions that occur between people and that are not provided by the formal organization; These unforeseen interactions are usually called informal organizations or spontaneous systems.

For there to be a formal organization in reality (Pérez, 1993)²⁵ - real organization -, it is necessary that the results it aims to achieve are defined in an explicit way (operational definition of the purpose), that each of the people that make up the organization know what you have to do (structuring the purpose) and want to do it (put into practice the purpose). These three vital processes - which we can briefly call formulation, communication and motivation, respectively - can be very simple or very complex. In contrast, E. Ostrom (1990) proposes that the key elements to achieve organization are the provision of a new set of institutions, the establishment of credible commitments and mutual supervision.

From Pérez's point of view and proceeding to the verification of vital processes, one could say that, if there is no communication, there is no organization; therefore, it would not make sense to try to define an institutional arrangement for the management of CUR, if we are in this situation.

In stable organizations that are expected to have a certain duration, everything called direction tends to get these three processes executed properly, since the survival of the real organization depends on them. Therefore, the core of any study on organizations lies in the analysis of the processes through which the purposes are operationally defined, communicated and motivated. These processes are the true vital processes within any real organization.

Another issue to note is that although the progress so far focuses on two issues: the CUR and arrangements to govern them; it is necessary to specify who are governed; ¿are the participating actors making use of these resources? Or are resources common? Resources do not need to be governed, resources need to be managed; this changes in a good way the approach of orientation of future investigations, since then now the question becomes ¿who is exercising the function of direction, to govern those organizations that share resources?

We must bear in mind that, as Pérez López (1988) mentions, the achievement of collective goals can only be achieved:

- 1) Through a formal coordination that makes explicit all the aspects of the individual actions that are significant for that achievement, together with enough coercive power -external stimuli- to motivate all the subjects to behave explicitly required²⁶.
- 2) Accepting the practical limits of any external control system and assuming, therefore, that at least part of the achievement will be achieved through the self-control of the subjects (spontaneous system or set of unregulated actions).

If we apply these two statements for the case of achievement of collective goals of CUR management, we observe that until now advanced has been focused on defining the formal arrangement or form of coordination that explicit the allowed deontic operators, prohibited etc.; without being explicit enough the achievement of what you want to achieve. To this is added within these the coercive power exercised by an external and or by the same organized group. In the second point, the monitoring and sanctions thus governed by the same group of participating actors have a limit of application; even more in this case leaving it even more to the self-control of the participants, by virtue of the multiple amount of activities and actions that could not be regulated. In this last

²⁵ It is not enough for an organization to be possible for that organization to exist in fact.

²⁶ The degree to which external control is necessary is determined by the quality of the spontaneous system. But the quality of the spontaneous system -and especially its evolution- is determined by the moral virtues of the subjects; which determine the social value -value for others- of the actions that the subject spontaneously -in the absence of coercion- decides to execute. Hence the connection between the development of moral virtues and the achievement of organizational objectives. In light of these considerations it is understood that an authentic Theory of Management is, in short, a theory of leadership. (Pérez, 1993, pp. 9-10)

part, it is worth mentioning the design principle 6, which recognizes the need for an instance where problems that have not been regulated can be resolved, a topic that, as mentioned above, should be assumed by the executive.

The most important function to govern organizations will be what we call leadership, that is, the one that tries to improve the quality of the spontaneous system to turn the organization into an institution²⁷.

The authority of the executive is his ability to direct the informal system of the organization. Power is the ability of the executive to manage the formal system. The informal system is not controlled by incentives. To improve the informal system, people must be improved. So, the executive has only two possibilities: power and / or authority²⁸.

We know that the results obtained by external control will never be the same as those obtained through spontaneous behavior, when it is positively oriented to solve a given problem. We also know that the latter are precisely the least anticipatable "a priori" (many of them will be caused by the creativity of other people, and in no way can the decision maker who does not even possess that creativity). The certainty of achievement through external control, in the face of the uncertainty of trusting others, is also an inadmissible simplification. This does not mean, however, that it can be assumed that this confidence will be taken into account by the decision maker in his calculations "a priori" only because it is shown that it is reasonable to do so. Trust supposes a vital attitude that is impossible to adopt for people who do not have a minimum of ethical quality. The ability to trust others implies an affective capacity that, in the last analysis, depends on the moral virtues of the subject (Pérez, 1988, p.11).

Finally, it is necessary to remember that trust is the basis of the structural relationship that is generated between agents - people - that interact repeatedly; this is the basis that makes the existence of the organization possible.

4.2.3 ¿What is the type of system of the human organization?

The adaptability of the system is one of the characteristics proposed by E. Ostrom; she raises the use of design principles within an evolutionary scheme²⁹.

The freely adaptive systems are those whose decision rules are modified as a result of experiences, but without analyzing whether the change is for good or for bad (that is, if the learning is positive or negative). Depending on the history of the system, you can improve or worsen your abilities for adaptation. The evaluation of the actions of the systems of free adaptation must be done from three different points of view: Effectiveness, efficiency and consistency of an action. The evaluation of the consequences of the action in the future coherence between effectiveness and efficiency. Consistent actions are those that develop those capabilities in the system that help eliminate any decision that could produce negative learning (Pérez, 1974).

However, it is worth comparing the behavior of a system of free adaptation to a homeostatic or ultra-stable one, because both apply a process of trial and error to learn; and it is to this characteristic of trial and error that E. Ostrom refers as a way of proceeding from the individual in complex situations. For the ultra-stable system, the trial and error process guarantee a total balance; in contrast, in the case of the system of free adaptation, the process does not ensure the realization of equilibrium, unless any action chosen within the process was first to

²⁷ Subject treated by Philip Selznick, constitutes the central thesis of his work *Leadership in Administration*.

²⁸ Extracted from conversations about the Role of the Manager (by Juan Antonio Pérez López), during classes at the IESE Business School.

²⁹ Generalization is possible because design principles follow not only from political theory, but from the evolutionary dynamics of cooperation in all species and the biocultural evolution of our own species. Once the fundamental principles of design are understood from an evolutionary perspective, their application to most of the human groups whose members must cooperate to achieve shared objectives becomes evident. (Wilson, Ostrom & Cox, 2013, p.S30)

achieve consistency. Therefore, the decision to adopt the framework of an ultra-stable system would have to be justified, because it is assumed that learning will always be positive (Pérez, 1974).

What is the representation that E. Ostrom takes?³⁰ Under the definition of Pérez López the organization referred to by E. Ostrom is like a set of rules, therefore, refers to the formal organization; However, E. Ostrom goes further and sees the organization as an organism, adaptable and evolutionary. E. Ostrom considers that there is an apprenticeship, moreover it recognizes a complex heuristic process of error, in many cases complicated by being a collective learning. However, this learning to which reference only requires a learning about the achievement of external conditions that has been proposed, not considering the verification of a consistency of this with respect to internal learning. It is at this point that a large part of the response can possibly be due to the fact that some systems fail, because the lack of consistency would be mortgaging the institutional future of the interaction.

An organism considers the organization as a social group; an institution contemplates the organization as a social group that embodies concrete values that must impregnate all its operation (Pérez, 1993). In this case the concept of institution is broader than the definition of E. Ostrom, however, to be able to approach we would be referring to an institution that remains in time, but not as inflexible but adaptive. If, as E. Ostrom recognizes, a great part of the challenge is the resilience of the institutions, that is to say, they change, therefore, this recognition leads to maintain at least one premise that is the objective of the institution for which it was created and the clarity of needs that satisfies which justifies the effort of this transformation or change.

In an organism the decisive value is given by the degree of actual satisfaction of the individuals that make up the organization. In an institution the ultimate value is the degree of future satisfaction of organized people. Therefore, the current degree of satisfaction is, for an institution, a necessary condition of operation (if it does not satisfy current motivations beyond a certain minimum, it would not have people with sufficient motivation to belong to the organization), but not the final goal of its operations (Pérez, 1993). In this sense, the institution referred to by E. Ostrom to be able to persist over time requires orienting oneself to the future satisfaction of CUR users, having as a basic starting point the current satisfaction of the users.

4.3 A First Review of the Location of the Design Principles of E. Ostrom

The design principles have been one of the most widespread contributions of E. Ostrom, considering them as principles for the achievement of long-term institutions. Although the principles are not considered as a single condition³¹, their generalization has been proposed for the achievement of the cooperative and / or organizational effort (Wilson, Ostrom & Cox, 2013). The comparison based on them results in an interesting starting point for the analysis of possible contributions.

³⁰ When the organization is viewed as an organism, it is necessary to renounce the search for more or less complicated rules to optimize or maximize any specific dimension. Models of this type must necessarily include two different levels of objectives that, normally, cannot be maximized simultaneously. One of these levels includes the satisfaction of current motivations, as this is caused by what is received from the organization. The other reflects the satisfaction of current motivations, as this is produced by what is done in the organization. Only in very special conditions will the maximums in both levels coincide. If a single objective had to be established for an organism, one could only speak of a growth in its viability, that is, its vitality. This growth means, in short, a better adaptation to the satisfaction of current motivations of its components (Pérez, 1993).

³¹ "Another task will be to address the question of whether compliance with all design principles is a necessary condition or a necessary and sufficient condition, for robust and sustainable resources and a long-lived institution. Given the complexity of the resources that are included in the broad definition of common resources, I doubt that any list of design principles could be proven to be both necessary and sufficient conditions for robustness. My point of view has been that when a group designs a system of property rights that meets most design principles, then they have increased the likelihood of being survivors of many disturbances over time and of being robust. Also, if none of the design principles are present, I am willing to predict relatively quickly the failure, since many of the empirical studies have shown "(Ostrom, E., 1990)

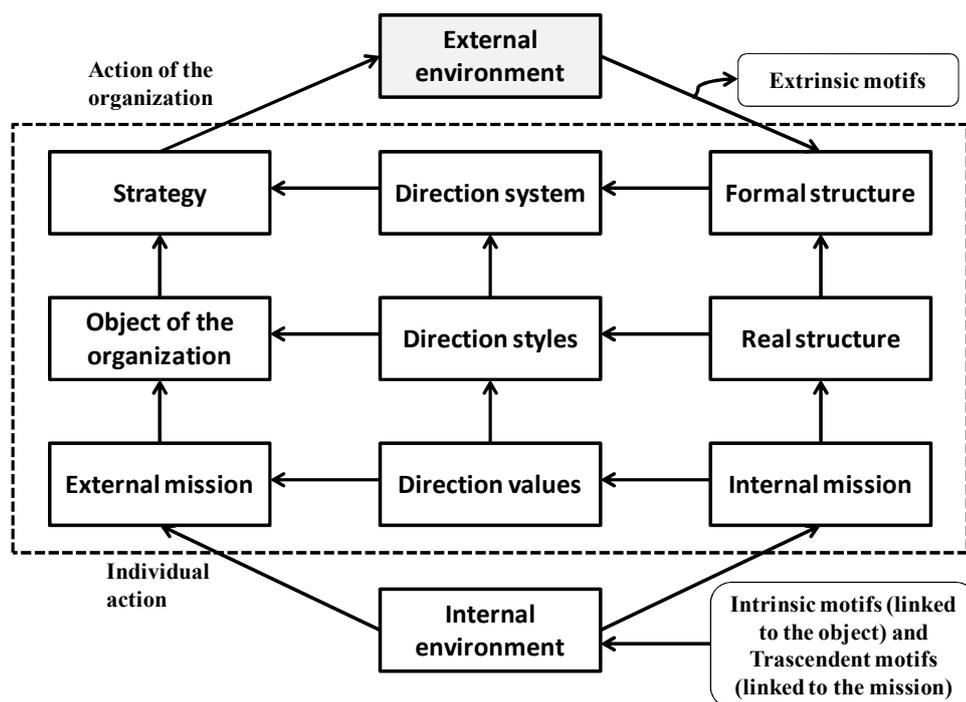
To analyze the proposed design principles, E. Ostrom, we will take the concept of organization proposed by Pérez López, whose paradigm includes organizations at three levels for their evaluation: effectiveness, efficiency and consistency; which can be represented by the octagon scheme (see figure 05). Looking at the horizontal rows, there are three rows or levels each of which represents from top to bottom the status of the effectiveness, efficiency and consistency of the organization.

The first level of the octagon corresponds to the mechanistic model³² and it analyzes the data that the situation contains about its actions against the external environment; it is the strategic or formal level because it tries to explain how the organization operates from the simplest and most immediate point of view (Ferreiro, 2013, page 67). But ¿why does not what has been thoroughly described? Simply because formal systems are as essential as they are insufficient. Coordination requires a minimum cooperative will that cannot be guaranteed from this level, because it exceeds its measurable or quantifying capacity (Ferreiro, 2013, p 69). This is perhaps another clue that helps us get closer to responding because some institutions work, and others do not.

The second level corresponds to the psychological model³³ and it is about knowing how communication works and participation in the organization. Here the learnings are given (concretely the operative ones) that configure the capacities developed in the organization (Ferreiro, 2013, page 69).

The third level presents the complete model or anthropological model³⁴ relating the need to analyze the facts in its deepest aspect, internal and external mission, as well as values (Ferreiro, 2013, p.71).

Figure 05: The Octagon



Source: Pérez, 1993, p. 111

The location of the principles in the octagon shows that these are in the first level of effectiveness, validating in some way that these refer to a level of game rules, it means the formulation or approach of the coordination arrangement to be carried out (See Table 02).

³² Conceived as a stable system.

³³ Conceived as an ultra-stable system.

³⁴ Conceived as a system of free adaptation.

In the process of location of the principles, the explicit formulation of the purpose was not found, nor the levels that would allow to evaluate the status of the real organization in order to verify its compliance, forgetting the learning points (positive negative) and the trust. It should be noted that the fact that this is not verified does not imply that E. Ostrom did not take into account the differences between formal and informal rules (which only exist in a real organization), and their implementation; as well as the deeper role played by trust in cooperatives. What it does reveal is that it has not been included in the set of principles, which constitute one of its most widespread contributions.

Table 02: Locating the design principles in the octagon.

External Environment <i>(Everything that escapes the control or influence of the organization)</i>		
Principle 7: The rights of users are not questioned by external authorities. Principle 8: Appropriation, provision, sanction, conflict resolution and governance activities are organized at multiple levels (layers).		
Strategy <i>(The way the organization adapts in a concrete way to the changing environment)</i>	Direction system <i>(It includes the information and control systems, all the formal policies of the organization)</i>	Formal structure <i>(Set of tasks, functions and roles that constitute the design of an organization)</i>
Principle 1A: Clearly defined resource limits. Principle 2: Consistency of appropriation and provision rules with local conditions.	Principle 2: Rules of appropriation and provision Principle 4: Monitors give account to users Principle 5: Graduated sanctions Principle 6: Rapid Access and low cost dispute resolution mechanisms	Principle 1B: Clearly defined resource users Principle 3: Users are authorized to participate in the elaboration and modification of the rules Principle 4: Define who is going to monitor
Object <i>(the knowledge that is available depends on the skills and attitudes developed by the real people that make up the real structure)</i>	Direction style <i>(Concrete mode in which decisions are made)</i> Principle 6: Informal conflict resolution mechanisms (elected as directors are those that also resolve conflicts)	Real structure <i>(Who is who in the organization? It represents the specific people who perform the functions or tasks)</i>
External mission <i>(Real needs that an organization seeks to satisfy through the product or service)</i>	Direction values <i>(Weight given at the time of deciding and acting on the individual needs of the people affected by the decision)</i>	Internal mission <i>(Real needs that an organization seeks to satisfy)</i>
Internal Environment <i>(That which, being within the organization, is beyond the control of the managerial activity)</i>		

Source: Own elaboration.

It is necessary to bear in mind that "the good functioning of the first level of the Octagon depends on the second and this in turn on the third. For the functioning of the organization, the social context is key, as the best thinkers of management have shown" (Alcázar 2005, page 25). Likewise, "there is a type of knowledge that does not belong exclusively to an individual but to a whole social group" (Alcázar 2005, p.25). Under the Octagon's perspective, the principles would be related in the following way:

- **The structure;**
 It responds to the tasks, functions and roles that make up the organization (Ferreiro, 2013). Here we find first the delimitation of who belongs to the user group and what role they play in the use of the resource; being also defined who is going to monitor; as well as which users participate in the elaboration of rules.

In that sense we can associate the level of structure, with the principles

- Principle 1B: Clearly defined resource users.
- Principle 3: Users are authorized to participate in the elaboration of rules.
- Principle 4: It is defined who (s) are going to monitor.

- ***Direction systems;***

It responds to what are the information and control systems, all the formal policies of the organization (Ferreiro, 2013). It refers to the rules of the system, which are relieved by E. Ostrom as the central focus of his approach. ¿What is allowed? ¿What is prohibited? ¿How is monitoring and supervision exercised? ¿What is the accountability of the monitors? ¿What are the sanctions for non-compliance with rules? ¿How is conflict resolution mechanism? among others.

In this sense, we can associate the level of management systems with the principles

- Principle 2: Rules of appropriation and provision
- Principle 4: Monitors give account to users
- Principle 5: Graduated sanctions
- Principle 6: Rapid access and low-cost dispute resolution mechanisms

- ***The strategy;***

It responds to the way the organization adapts in a concrete way to the changing environment (Ferreiro, 2013); therefore, it refers to how the set of rules is adapted to this environment and clearly defining the scope or limits of the resource to be managed. In this sense, we can associate the level of strategy with the principles:

- Principle 1A: Clearly defined resource limits.
- Principle 2: Conherency of appropriation and provision rules with local conditions

- ***Direction style***

Try to answer the way decisions are carried out (Ferreiro, 2013).

In that sense we can associate the level of direction style with the principle:

- Principle 6: Informal dispute resolution mechanisms (elected as directors are those that also resolve conflicts)

- ***External Environment***

Try to answer for everything that escapes the control or influence of the organization) (Ferreiro, 2013); and this includes the recognition or not of the organization of users as such, as well as the linkage of the organization with others in multiple layers, sometimes making the operative rules dependent on the rules established by the upper layers that function as a superior structure and / or hierarchical.

In that sense we can associate the external environment with the principles:

- Principle 7: The rights of users are not questioned by external authorities.
- Principle 8: Activities of appropriation, provision, sanction, conflict resolution and governance are organized at multiple levels (layers).

The object could be associated with the collective learning that develops, which although it is mentioned by E. Ostrom in her writings is not explicitly included as one of the principles. In the same way, beyond the survival of the organization, the ***external mission*** to which this organization is working is not explicit in the principles; that is, what are the real needs of users that seeks to satisfy their performance.

On the other hand, the ***values of the direction*** or values that are taken when deciding that benefit is something that will remain implicit as part of the requirement of minimum justice perceived by users, however, is not made explicit as a set of principles.

E. Ostrom does recognize the need for certain values and moral decisions - forbidden, allowed - as a key basis for the construction of cooperation and recognizes it in multiple ways, however, possibly the most complex thing is to place everything in a system that allow a kind of comprehensive evaluation.

Taking the Octagon as an instrument to evaluate an organization, we can observe that, in the case of this organization formed by multiple CUR user actors, some of them are other organizations or other individual agents; therefore, we have a much larger and complex **internal environment** which is beyond the control of the new larger organization. In the same way, much of the challenge seems to be in the **internal mission**, that is, the real needs that these organizations that are part of the organization seek to satisfy and therefore how compatible it is with the **external mission** of the larger organization.

It is noteworthy that none of the principles surveyed as part of design considers the express statement of results to be achieved, based on which one might think that the rules end up being adapted under changing ability to achieve these results, both in terms to the context as to the involvement of the different participants.

A point that is relieved in the design principles, is the need to participate in the elaboration of the rules because they would be closer to the context and therefore would be more ad hoc and of a greater possibility of implementation.

Although, E. Ostrom recognizes that the motivations for participation can be many and not necessarily linked to the sustainability or institutional strength of the created resource system, and that these can be multiple such as, for example, moving from worrying about the resource to worrying about people. However, it is necessary to keep in mind that the conservation of the organization will be largely due to the clarity of the objective formulated together with the satisfaction of the needs of the participants.

We can approach the analysis from the point of view of the CUR user actors; using the octagon to ask from the perspective of a participating actor (individual or organizational actor), ¿what does the larger organization provide me in the three levels?

Table 03: Levels of contribution

Effectiveness	What contributes to my strategy
Efficiency	What brings me to my distinctive competence.
Consistency	What brings me to my internal mission

Source: Own elaboration. Adapted from Alcázar & Ferreiro, 2008.

At this level of analysis, it can be affirmed that the principles are configured in the first level of the octagon, that is, in the formal system that establishes the bases for coordination; the rules of the game of the system. As E. Ostrom herself will point out, the focus that she makes with the rules does not imply that this is the only thing that exists; however, it does consider it extremely important because of the influence that these rules or formal configuration may have on the performance of the participants.

Conclusions

The coincidences, the human action towards the solution of problems. The similarities between the approaches of E. Ostrom and Pérez López are: the orientation towards the solution of real problems, the consideration of the diverse motivations of the human being, the recognition of the existence of a social learning process and the strong influence of the decisions of individuals, as well as influence of environmental conditions.

Govern organizations. The use of the anthropological model poses a new orientation to the approaches carried out so far. These result in a combination of resource management efforts, focused on the knowledge of the context and how it affects the decision and on the other hand in the institutional design understood as rules (allowed, prohibited, etc.) and a set of incentives for generate a drive. The new orientation focuses on the challenge of govern the organizations that share the CUR, which will involve knowing the context where they operate, the special characteristics of the resources they will share (and therefore manage in a special way), and the multiple motivations that these organizations may have. In this way, there is a leap from resource management and definition of rules to the govern of human organizations.

The differences, from the organism to the institutionality. The anthropological model proposes a new orientation regarding the type of system to which an organization corresponds and its solidity. E. Ostrom proposed a mechanism of evolution and adaptability as a basis for institutional soundness; however, Pérez López stated that the permanence of the organization over time not only responds to a process of adaptability for the achievement of current objectives, but rather to a process of real consistency that allows to ensure the achievement of future objectives satisfying the current objectives in an acceptable condition. In this way there is a jump in the approach from a homeostatic or ultra-stable system to a system of free adaptation, which implies the incorporation of negative learning that can lead to the self-destruction of the organization.

E. Ostrom indicates a learning about the achievement of the external conditions that has been proposed; however, it does not consider the verification of consistency with respect to internal learning. It is at this point where the answer to *Why some systems fail?* Because the lack of consistency would compromise the institutional future of interaction.

Only effectiveness. Design principles proposed by E. Ostrom are focused on defining the formal arrangement that makes it possible coordination (effectiveness). The control mechanisms and sanctions have practical limits and more in highly adaptive environments such as CUR systems.

The leadership. Addressing the organizational problem posed by E. Ostrom, requires more than the institutional arrangement or set of ground rules for coordination. The approach of E. Ostrom does not answer ¿Who will lead that organization? ¿Who are those that will keep it alive and adaptable to the different situations? ¿Who are the ones that will keep the communication channels alive? ¿Who (they) are those that will keep alive the necessary motivation to achieve the results? It is worth asking, if part of the solution to the problem is to overcome a first order dilemma that results from answering who is going to direct this effort? ¿Who will be the management team of this organization? The omission of the leadership for the self-preservation of the organization, the doubts about the incentives of the person in charge of supervision lead to reduce the executive role to a level of verifier of compliance with rules, commitments and establishment of sanctions.

The possible feedback of both approaches. The statements made by E. Ostrom and Pérez López can be complementary, taking as a starting point the object of solving real problems, and the methodology of decision analysis; the adjustments would require coming from the side of the consistency of the action over time. Although it may not be a simple task, both approaches can feed back into each other, generating a greater contribution for the government of organizations.

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