

## **Selecting Risk Modelling Approaches with the Analytic Hierarchy Process : the treatment of hidric basins in the State of São Paulo, Brazil**

**Marly Cavalcanti.**

### **Abstract:**

The approach of modelling expected values with multiple criteria should be considered any time AHP models, decision trees, or a decision tables are being used. While with AHP models the introduction of scenario nodes can enrich the existing multi-criteria treatment, the introduction of multi-criteria to decision trees or decision tables can enrich the existing scenarios.

The analytic hierarchy process (AHP) is uniquely positioned to help model situations of uncertainty and risk since it is capable of deriving scales where measures ordinarily do not exist. By allowing subjective probabilities to be elicited from knowledgeable people, we can move the decision-making framework from a situation of pure uncertainty to one of measurable risk.

### **1. Introduction**

The key advantage of this approach is that we can substitute the need to know absolute probabilities with the easier task of estimating relative probabilities. This is a useful option in many risk management situations where we need to allocate resources to mitigate various risks. The possibility of the risk not materializing provides the necessary zero outcome state of nature and frequently it is much easier to estimate the relative rather than absolute probabilities of these risks. For example, in allocating resources to ensure computer security it is much easier to estimate the relative likelihood of internal versus external security breach as opposed to estimating the absolute probabilities of such events.

Peter C. Young, professor from Minneapolis has stated : “ The company's highest responsible for risk is not a specialist, but the managing director. Risk is an integrated part of life and business life and due to that an important part of any managers responsibility”. Business risk is not something you take an insurance against. Everyone in a company has to accept risks and to be willing to carry risks in fulfilling a job. Risk management is not to avoid risks but to understand that business always is subject to some degree of risk. A no risk-game is a game with no profit, unless there is imperfect access to knowledge.

Risk management can be executed more or less intelligent or skilled, but it can never be executed such as to avoid risks. Risk and how to handle risk is legitimate and inevitable. Basically risk management is like deciding how many spare wheels to carry, or how many maps to carry in your trip . How many for normal driving and how many for crossing the Sahara ?

Undoubtedly, most efforts have been directed to measuring poverty.

After a great number of attempts( of which the World Bank has been one of the most involved protagonists) have been made over the past decades we can assert that presently we have at our disposal rather sophisticated and reliable tools enable an adequate monitoring of poverty.

As for the impoverishment processes, we must notice that, after all, it is only recently that attention has been concentrating on the issue of social exclusion and that, therefore, the methods adopted are still not a hundred percent reliable.

The study of social agency processes, on the other hand, is lagging behind. Many attempts have been made to measure development in its various instances ( economic development, social development, and human development).

The intent local public administration in the municipal power has past, in elapsing of the years, for innumerable moments of changes to the long one of the history of the country. Initially, it had the time where the local public administration was come back, deliberately, for the defense of specific interests of the detainers of the power, without any type of focus or vision come back toward the favored classrooms less, passing, later, for a long period of social assistencialism as form to guarantee the continuity of the politics of aiding of the detainers of the power. Arriving at the current moment, where the exclusive aiding to the ruling classes and the social assistencialism more do not represent the base of the local public governance that, although to continue under strong influence of these factors, it is presented at a moment of changes of this paradigm, the ambient question, associated to the aspects of the exercise of the citizenship and of the partnerships between the public power and the civil society, a factor becomes more each time evident fort and in the context of the public administration place, leading to the necessity of a complex reflection of all the society to construct and to consolidate a new paradigm of the public administration place that it takes care of the news and actuals necessities of the current society in change and of the partnership between the public and the private one.

This reflection, today, if concentrates in the necessity of if having a bigger understanding of the society in its diverse component dimensions, since the geographic questions, strategical politics and, until problematic of the construction of knowing the collective place and its consequences in the development consolidation of the local power to the municipal level and its results, under the socioeconomic and ambient point of view. It is in these dimensions that the interventions of the local power occur in more intense and direct way, through action aiming at the results and/or to the waited development .

A new paradigm of the public administration is built, whose main objectives start to be the creation of generating conditions of the supported development, of the popular participation, the partnership enter the diverse levels of being able them public, private and of the organized civil society. In this new context, the ambient question starts to have basic paper, as well as the management of flows of value in the interior of Shared Nets that, to the long one of this work, we will define as Dendritics Nets in the presented case of sharing of analyses and solutions for the urban garbage and the treatment of hidric basins in the State of São Paulo.

## **2. Methodology**

In this paper, we illustrate various procedures for using AHP in situations involving risk. We start by explaining why the previously used benefit/risk ratio approach with AHP priorities might be an improper modelling approach . We then introduce three prototypical case studies where AHP can help in modelling risk or uncertainty. These Situations include : a) Expected Values with relative probabilities, b) Decision trees and expected values with multiple criteria, c) Adjustment for variance, regret, and risk aversion. We propose AHP modelling approaches for each of these Situations.

The case study, whose intention is to tell practical of organizations or to recommend alternatives of politics, it represents what Stablein (1996) calls of cases - examples and is, according to it, the used type more in organizational research. The organizational reality of the researcher, of this in case that, consists of almost universal and excellent problems, processes or solutions to the majority of the organizations. This, according to its definition, is a specific type of case study where the researcher tends to be less worried in criticizing the reality and, some times, are compromised to the organization, as participant or consulting. Descriptions of problems, processes, practical or solutions nor always are used of theoretical approaches, but they can contemplate literature in the area or comparisons with other cases. Each in case that it possess specific characteristics, but, also, a generic dimension, thus representing a ampler, independent phenomenon of the unit in study: individual, group, organization, event or country.

Stablein (1996), calls this type as a "ethnographic case", and Yin (2001) considers such studies as "qualitative", separating them of the case study that, according to it, is based on qualitative evidence as in such a way quantitative.

What we consider is the presentation of a case-example, of qualitative orientation. According to Marshall & Rossman (1995), the author must construct an argument that binds to the case study ampler the theoretical problems or its significance in terms of practical politics or, or to both. Still, Yin (2001) pointed the increasing trend of the study of case in administration schools.

### **3. Entrepreneurial Strategy: Theoretical Contribution**

The analysis of the literature shows, in general terms, that the study of entrepreneurial strategies is usually related to the organization link with its environment and contemplates mainly the establishment of methods and plans of action to attain the aims defined (Albuquerque & Da Silva, 2003). For Ansoff (1977), the strategy emphasizes the rational analysis regarding the high spheres of the enterprise, in which the aims are essential for orienting, evaluating performance and attaining the organizational purposes, which must be coherent with its "potentialities profile". For this author, such an approach is based on four given characteristics in terms of the ensemble product and market, associated to the growth vector and competitive advantages (which describe the quest for opportunities intrinsically in its external environment) and a synergy process which provides competences for attaining success. According to Andrews (1980), mentioned by Mintzberg & Quinn(2001), entrepreneurial strategy is the decision standard in an organization which determines and reveals its aims, purposes or goals, produces the main policies and plans for obtaining these goals and defines the business scale which the company should get involved with, the type of economic organization it intends to provide to its shareholders. For this author, for a strategy adopted by a corporation to be successful, it should be taken into account that it is intimately related to the organizational structure, values and behavior adopted. Handerson (1989), apud Carvalho and Laurindo (2003), approaches this strategy issue under the perspective of a plan of action which will develop a competitive advantage for the business, being that for this, it is necessary for the organization to have clearly defined what it is, where it is and what its aim is. Following the same descriptive line adopted by Ansoff (1977), Quinn (1992) approaches the strategy with a plan integrating larger goals, policies and sequences of actions, within a cohesive whole which, if well formulated and applied, helps ordinate and allocate the resources, allowing the anticipation of alterations in the competitive environment.

In the same line of study, Mintzberg (1992) presents a classification with five possible approaches for this theme: strategy as a plan, as a ploy, as a standard, as a position and as a perspective. In the "plan" approach the establishment of directives for a course of action stands out. In the "ploy" approach, the focus is based on the way it generates competitive advantages over the competitors. The strategy approach, as a standard of actions to be followed (prescriptive character), is based on a flow of actions, as presented by Ansoff (1977) and Quinn (1992). In the Strategy approach as position, the main focus is placing the organization in the environment, mediating forces in an internal and external context environment. The "perspective" approach is related to the inner portion of the organization, not as a chosen position, but as a consolidated way for the organization to see the external environment. For Porter (1996), the strategy in the entrepreneurial context corresponds to the establishment of a single and valuable position, involving a different group of activities. On the same line, Markides (1999) apud Carvalho and Laurindo (2003), considers that the strategy is a process that involves the elaboration of questions, the generation of alternatives and the making of choices so that the organization can sustain that position as its own. Slack et al. (2002) understand entrepreneurial strategy as being "a global standard of decisions and actions which place the organization in its environment and aims to make it attain its long-term objectives". Because of the forces affecting the industry structure, some generic strategies are defined by Porter (1991) grounded in strong and weak points, detected in the competitive industry/environment relation. In the same work, the author presents three generic strategies that may

be used by the companies in a combined or isolated fashion: total cost leadership; differentiation; and focus. In Cost Leadership, the focus is to attain the smaller cost before the competitors. In Differentiation, the focus consists in the establishment of a product or service that is unique in the industry context in which the organization competes. However, the generic strategy based on Focus centers on the concentration on a certain buyer group, a segment of the line of products, or a geographical market. Along this line, Porter (1998) states there are only two strategies levels: the Business Units Strategy (or competitive) and the Corporative Strategy (or that of the whole entrepreneurial group). For this author, the Competitive Strategy regards the establishment of competitive advantage in each of the business fields in which the group, while Corporative Strategy, establishes the way in which the company is going to compete in corporative character in the markets it acts on. Andrews (1998) justifies such an approach considering that the involvement of the organization in different types of businesses. For this author, the Corporative Strategy may be defined as "... standard of purposes and goals - and the main policies to attain these goals - which define the business or the businesses with which the company is involved and the type of company it wants to be." (Andrews, 1998).

For Carvalho and Laurindo (2003), the corporative strategy analysis is related to issues concerning the definition of the businesses in which the corporation should act and how to administer these priorities among the business units, articulating them around essential competences".

#### **4. The approach of the nets (urban, social and enterprise) and the philosophy of the sustainable development: the foundation for the dendritics construction of the new theoretical base of the ambient nets and social nets**

According to Porter (1998), the competitiveness is the reached performance, for a long period of time, above of the average of the competitors and, being thus, this can occur individually between the companies or regions, in one determined been or country. Thus, the analysis of the ambient nets, in the context of the local public administration, must be associated to the theory and complexity of the formation of the nets and its possible conceptions in the process of formation and development of cities and in the processes of globalization of the economy. In principle, such processes if find linked to a large extent, but this interrelation alone can be chore, analyzed, and exactly reverted, from the ambient nets. The called phenomenon of metropolization and consequence dissolution of the metropolises in way to the poverty, violence and marginality, fruit of economies or extreme externality in great urban agglomerations already had been pointed for Saints (1994). The process of globalization and urbanization, disconnected to the ambient question, has generated problems that, according to Guattari (1999), could only be decided from the moment where these problems will be faced in a desterritorialized way.

"the city-world. of the new figure of the integrated world-wide capitalism it is, then deeply, desterritorialized, its diverse components are dispersed on one rizoma multipolar urban, understanding all the surface of planet "(Guattari, 1999).

The approach of the nets, in the local context public administration, is related to the conceptualization of the nets as component elements of ampler a strategical vision, involving all the social sectors (economically active, or not), come back to guarantee the generation of instruments of mobilization of social, economic and ambient resources capable to generate the wealth necessary to guarantee the quality of life of the society, without, however, to harm the right to the minimum access of the future generations to this same quality.

For in such a way, the premise is considered of that this quality of life is determined by the relation of the partner-cultural and economic factors of determined society allies to a desenvolvimentista philosophy, focused in the social sustainability that, in turn, will be guaranteed by the rational use of the natural resources of production. The studies of urban nets are inserted in the context of quantitative geography and are based on the funcionalists theories and the theories of the systems. This boarding

has brought significant contributions for the identification of configurations of urban nets and the busy position for data urban center (IPEA, 2001).

According to Marteleto (2001), the social nets appear as a new instrument face to the institutional determinisms. "What is new in the work in nets of connections it is its promise as a global form of organization with base in the individual participation. One form that recognizes independence, while Strengths the interdependence ". This author still detaches that the study of the nets as evidence of a social aspect contemporary who still is being little explored: the perception of that "the individuals, endowed with resources and propositive capacities organize its action in the proper spaces politicians in function of socialization and mobilization excited for the proper development of the nets".

The approaches are several and/or meanings that the concept of nets can present, but, amongst them, those displayed by Marteleto (2001), for presenting a strong social character, are fit well in the proposal presented in this work. For this author, the concept of nets can be express through "a system of nodes and links", or "a not geographic community", or a "physical system that if seem a tree or a net".

The nets mention a type to it of "relations/nets" that exist since that the man consolidated its social character and that, especially now, in the globalized society and of the information, they assume an excellent character that deserves a special attention of social sciences. In this society intensely complex contemporary, globalized and informatized, three dimensions deserve prominence when it is aimed at to study the perspective of inherent nets to the dynamics of the social movements: of the sociability, of the spaciality and the temporality.

The adequacy of these concepts in the context of other studies also is detached by Marteleto (2001) e, more of the one than this, these concepts for it presented reveal strong related to the concept of enterprise nets presented by Ribault et al. (1995), that it affirms to be, the nets of companies, a form of destined grouping to favor the activity of each one of them without, however, to demand that these have financial bows between itself forcibly. As well as in the social context (human), the nets of companies represent a form of association for affinity, with an ample informal character and that it makes with that each company is the responsible one for its proper development and all for the success of the system.

For Marteleto (2001), although to originate in an informal sphere of social relations, the effect of the nets can outside be perceived of its space, either in the interactive relations with the State, distinct sectors of the society, formal or informal economic organizations or other representative institutions, in new conception of spaciality.

Powell (1990) detaches that many authors have converged its opinions to the fact of that, in middle of the decade of 1980, a new form of economic organization was initiated that is if consolidating, the point of other authors (not cited for it) to consider that such fact is resulting in a new form of social organization, and weather. Economic relations are based in a social context that if develops in mutual function of linkings, interests and reputation that, still according to this author, weakly are determined by a formal structure of authority. Thus, the addition of the relations in a net does not represent its potential greater for constructions of positive interactions between the parts; these, still, also are very dependents of the form as the net is structuralized, of the historical and local time.

Valley to stand out that, since the classic studies of social nets until most recent, it is agreed that does not exist a "theory of social nets" and that this concept can be used with diverse social theories, needing complementary empirical data, beyond the identification the links and relations between individuals (Marteleto, 2001). Beyond the job in diverse social theories, many works have shown the possibility of association of this concept to other areas of the human knowledge, especially those related to the economic and educational and ambient aspects.

Amongst the motivations most significant for the development of the nets those are that relate to the levels of social-global organization, national, regional, state, local, communitarian (Marteleto, 2001) to which must, also, be associates the motivations of ambient character, all related they to the subjects

detached for the author, which insists on the importance of the inclusion of the citizen.

The nets, not necessarily, need a hierarchic center and a vertical organization, differently of that it occurs in the organizations, a time that is defined by the quantitative and qualitative multiplicity of the links between its different components, guided for a logic and an associative principle. This suggests creation of typologies of nets.

In the study, authors Grandori and Soda (1995) use as grouping parameters the degrees of formalization of the consisting nets, the centralization and the mechanisms of cooperation that these can present. Thus, the authors present the following tipologic groupings: Social Nets, Symmetrical Social Nets; Anti-symmetrical Social nets, Bureaucratic Nets, Symmetrical Bureaucratic Nets, Anti-symmetrical Bureaucratic Nets, Nets Proprietors, Nets Symmetrical Proprietors and Nets Anti-symmetrical Proprietors.

In this context, the philosophy of the sustainable development comes to act, in the scope of the ambient question, as an agglutinant actor between these concepts, being allowed that in each one of them the basic principle of this philosophy that if bases on the preservation of the natural resources for the future generations, that can be searched, for example, through an enterprise reception system structuralized in nodes is inlaid and links, or fellow creatures to a tree. Or either, for the agglutination of the concepts of social nets, enterprise nets and governmental links.

Symmetrical social nets are characterized for the inexistence of being able centered, and all its participants share the same capacity of influence, already, in Anti-symmetrical Social Nets it has the presence of a central agent for the coordination of the projects. Already, Bureaucratic Nets are legal, contractual and formal, being able, also to be symmetrical or anti-symmetrical, nets anti-symmetrical proprietors are the capital venture and nets symmetrical proprietors joint-ventures. But, in new paradigm it matters to explore the consequence of a hierarchic relation between cities determined for the logic of the extraction tax and for the established necessities of the mercantile circulation of permanent form in the territory.

##### **5. An analytical vision of Risks in the treatment of hidric basins in São Paulo**

If we look into it, people devoted to the study social phenomenona ( and as a consequence, also those who make decisions in the matter) find themselves faced by one social condition and two processes.

- The social condition we refer to is that of **poverty**, that is to say a state of deprivation that tends to be relatively stable. The point is being armed with the tools necessary to identify the poorest sectors of population. As far as decision -making is concerned, it is necessary to take emergency measures in order to alleviate or reduce the most serious Situations.
- The first of the two processes is that of **social exclusion**, which takes on the shape of a **process of impoverishment**. In fact, by cumulating and interacting, social risks tend to drive to a condition of poverty the actors exposed to them. For the decision-maker this means having to find ways and instruments to fight such risks before it is too late, that is, before a new process of social exclusion that would produce new Situations of poverty settles in.
- The second process is that of **social agency**, i.e. The process that makes it possible for those who have run into a situation of poverty to come out of it by eliminating the social risk factors that have engendered it. Consistently with the two points above we could talk about processes of enrichment and social requalification so as to point out the relationship between social development on the one side and social exclusion and poverty on the other. In this respect, as far as the decision-maker is concerned, the emerging problem does not concern building up defenses against impoverishment processes or alleviating conditions of life for the poor. It is rather a question of identifying and giving support to social actors who show the capacity of enhancing life standards for the collectivity ( e. g. the middle classes, both profitable and non-profit enterprises, qualified human resources, civil society and so on).

It is hard to say whether such tripartite model ( Social Exclusion, Social Agency, Measuring Poverty),

may actually work. By distinguishing among three levels of reality, in fact, it enables researchers to gather a more analytical and clear-cut vision of the ongoing processes. It also avoids the risk of reducing these processes to just one dimension ( be it that of poverty, of social exclusion or of social agency). It also gives decision-makers the chance of articulating in a more consistent and strategic way their intervention in terms of social and economic policies.

In actual fact, public policies can be valued, also and especially, on the basis of their contribution to:

- **alleviating poverty** ( by reducing its most devastating effects according to an ' emergency “ approach);
- **fighting social exclusion** ( removing, by way of “ prophylaxis”, one or more factors of social exclusion, but using a “ symptomatic” approach);
- **supporting social agency** ( by “ strategically “ promoting the strengthening of civil society, through a significant involvement of urban middle classes)

These problems are related to issues like the size of the project, the complexity, the long time-span, the uncertainty, the governance and the management of hidric basins. Some other issues are:

- Lack of strategic framework or conflicts over strategy.
- Lack of organizational adaptation to technological change and poor management of change.
- Lack of organizational skills to support implementation.

**Identify Risks**

**Table 1**

	Technical risk factors	Human risk factors	Economic risk factors
External	Technical development	Political influences	Macro economic indicators
Project related	Development Construction	Communication Motivation	Budgets Cash flow
Internal	Technical level	Strategy	Companies involved

Working with new technology always involves a far greater level of risk affecting timing and costs. In this paper, we address the question of how flesh and blood decision makers manage the combinatorial explosion in scenario development for decision making under uncertainty. The first assumption is that the decision makers try to undertake 'robust' actions. For the decision maker a robust action is an action that has sufficiently good results whatever the events are. We examine the psychological as well as the theoretical problems raised by the notion of robustness. Finally, we address the false feeling of decision makers who talk of 'risk control'. We argue that 'risk control' results from the thinking that one can postpone action after nature moves. This 'action postponement' amounts to changing look-ahead reasoning into diagnosis. (Pomerol, 2004).

**6. Expected Values with relative probabilities**

This section shows that, under certain conditions, we can relax the requirement of knowing absolute probabilities. Instead of deriving expected values from absolute probabilities, we can derive relative expected values from relative probabilities. After describing the relative expected value approach, we discuss how AHP can be used to help elicit relative as well as absolute probabilities. When a single decision is made, benefits and low costs can often be combined in the same hierarchy. ( Saaty, 1996. p. 39).

Indeed, when allocating limited resources to competing alternatives, the need to leverage those resources in a manner that produces the highest rates of return per unit of resource makes Benefit/Cost ratios meaningful. In such cases, provided we remove alternatives where costs exceed benefits, we can

use Benefit/Cost ratios even when costs are not commensurate with Benefits. In other words, Benefit/Cost ratios are not rendered meaningful by virtue of commensurability, but by the need to leverage the scarce denominator to maximize the numerator. In such cases the Benefit/Cost ratio reflects a proper selection criterion but since this ratio ignores the relative importance of Benefits versus cost, it should not be used for any other situations. Saaty, the creator of the AHP ( Saaty, 1977), has been suggesting the use of AHP priorities for Benefit/Cost, Benefit/Risk or Benefit/( Cost\*Risk) ratios for several years.

The case suggests two alternatives. We can assign an outcome value under each state of nature. However, we do not know the probabilities for these states of nature. Things get more interesting when probabilities are tough to estimate. This is one area where AHP can help an organization in the selection of a project to benefit alleviating poverty in the area of hydric basins, so a comparison can be made between two projects:

**Table 2**

Alt	Value (lose)	Value (win)	Absolute probability (win)	Absolute expected value	Relative probability (win)	Relative expected value
A	\$0	\$ 100K	90%	\$ 90K	1,0	100
B	\$0	\$ 300K	45%	\$ 135K	0,5	150

Adapted from Millet & Wedley, 2002

**7. Decision trees and expected values with multiple criteria**

The AHP can be used to combine these quantitative and subjective evaluations into a single overall measure of value for each alternative. These overall outcome measures can then be placed in the payoff cells of a decision table. Alternatively, they can be placed at the end nodes of a decision tree to be folded back to derive overall expected values at different points along the tree. The AHP synthesis process then generates relative expected values for each alternative via a weighted sum of relative outcome values across these states of nature, as “Scenario “ nodes at the top of hierarchy.( Millet & Wedley, 2002).

**Table 3**

Alt	AHP value (lose)	AHP value ( win)	Absolute probability	Absolute expected value	Relative probability (win)	Relative expected value
A	0	0,25	85%	0,225	1,0	0,25
B	0	0,75	40%	0,3375	0,5	0,375

Adapted from Millet & Wedley, 2002

**8. Adjustment for variance, regret, and risk aversion**

The goal programming methodology demands that two pieces of preference information are elicited : aspirations indicating desired levels of performance, and importance weights specifying tradeoffs between criteria. Within each scenario K, it is necessary to specify aspirations for each criterion J, giving an aspirations level  $G_{jk}$  for the criterion-scenario combination JK. The ability of decision makers to think preferentially about scenarios is an open question, although the elicitation of preferential information might be expected to become a cognitively more difficult task as the scenario becomes more extreme in nature i.e. More divergent from the status quo, as the hydric basins in São Paulo.

**Table 4**



Alternative	Typical range \$/year	Average maintenance \$/year	Certainty AHP value before adjustment	Indifference comparison C/R > 1, R/C >1 OR C=R	Risk adjustment factor	Risk adjusted value	Normalized
Social Net	800-3000	1000	20%	C/R=1,25	80%	16%	16,3%
Amb. Net	100-1200	1000	20%	R/C=1,10	110%	22%	22,4%
Multi Net	400-600	500	60%	C/R=1,00	100%	60%	61,2%

Adapted from Millet & Wedley, 2002

As the reader may recognize, we could have also established risk adjusted values using the worst outcome as a reference point. In cases where we are willing to spend more effort on the elicitation process, using all three reference models may allow us to check and improve the accuracy of our results. We could even combine the three results in manner similar to the use of Beta distribution in project management, whereby the average outcome estimate receives the highest weight.

Three possible answers are possible:

- (1) the assumed certainty option is preferred to the risky option :  $C/R > 1$ .
- (2) the risky option is preferred to the assumed certainty option :  $R/C > 1$ , or
- (3) the options are equal :  $R=C$ .

In the case of hidric basins the AHP pairwise comparison process should be uses to estimate relative or absolute probabilities in cases where accuracy and detection of judgment inconsistencies are desirable. Since this procedure derives its benefits through some redundant comparisons, it becomes viable only for cases with more than two states of nature. As the number of states of nature increases, the number of states pairwise comparison increases rapidly. The modelling of relative rather than absolute probabilities and the use of risk adjusted values can provide new opportunities for decision support .

## Conclusions

This kind of situation corroborates Andrew's (1980) view, mentioned by Mintzberg & Quinn (1998), that points to a measure in which there is no clear definition of objectives and goals in the corporative ambit; any strategy that comes to be delineated will end up in failure, as it brings in itself these embedded standards that, in the case of SãoPaulo hidric basins, since they were not structured, had their reflection in the results found. In the scenario characterized in this study, it is clear that the managing board of the nets, eventually treated the strategy issue in the wrong way, as being one more of the entrepreneurial tools presented as an alternative to improve its organizational performance, going against the criticism presented by Porter (1996).

Still concerning the elaboration and implementation of the diversification strategy adopted by the cooperative nets, according to Porter's (1987) concepts here approached, it is possible to observe that there was no attempt concerning the elaboration of their own strategies by the business units established, although they present, in thesis, management autonomy before the general management of the cooperative nets; in this study, there is no evidence of any attitude on the part of the units towards this issue. Another factor that may have contributed for this situation was the very fact that the autonomous management power of the business units has not been characterized in practice and this, as was clearly characterized in this study, very much contributes to the poor performance of the units. Still within the parameters presented by Porter (1987), neither was any initiative by the cooperative highest

management observed that treated the elaboration of the corporative strategies approaching the management aspects of the business units established.

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