Risk Management, the integrated perspective. A model that can contribute to full fit the goals of modern Municipalities.

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(recebido em 18 de Maio de 2009; aceite em 08 de Julho de 2009)

Resumen. Este documento describe el concepto de riesgo y su utilidad en la disciplina de Gestión. Se busca identificar elementos pertinentes para la aplicación de un modelo integrado de Gestión de Riesgos en los municipios, y desarrollar un análisis de la literatura de Gestión Integral de Riesgos, se proponen un programa de Gestión de Riesgos para los Municipios.

Palabras clave: Riesgo

Abstract. This paper describes the concept of risk and its utility in the discipline of Management. Subsequently the concept of Integrated Risk Management will be define, intending to set into verification the removal of the traditional barriers of function in which have characterized traditional risk management, In this context, our effort will at the identification of the relevant elements for the implementation of an Integrated Risk Management model in Municipalities, and is develop analysis of the Integrated Risk Management literature. Finally a Risk Management program will be propose for Municipalities.

Keywords: Risk, Risk Management, Integrated Risk Management; Municipalities.

Risk Management as a tool for uncertainty

The history of human kind is a record of exposure to catastrophe and adversity and of efforts to deal with risks. Therefore, from the foundation, human have faced the problem of survival, not only as individuals but also as species (Vaugham, 1997). The principal concern of humans was a seek for security and evasion of the
risks that vulnerable extinction. Consequently or continued existence is a demonstration to the victory of our ancestors in dealing and managing risk.

The primitives versions of the human been responded to risk in the same way as others animals, using instinct. Modern humans like Homo sapiens, not jus survived but developed, the main reason for that issue was the unique human gift of reason Vaughan (1997). Humans have the ability to think, that gives them the capacity to deal with risk in ways that are different from those of other creatures. Nevertheless, humans share with slighter species the instinctive reactions to some risks, their most significant achievement in managing risk are those that stem from their thinking nature. The experience misfortune and the observation of the trouble of others, modern humans developed measures that would reduce the likelihood of such misfortune. As evolution proceeded, men and women learned to manage the risks they faced in new ways and developed approaches to managing risks.

In the words of Peter Berstein (1996), the revolutionary idea that defines the boundary between modern times and the past is the mastery of risk, that gave to the human the conception that the future was much more than a caprice of the divinities, that men and women could find a way throw this boundary where the future until then was a reflection of the past. In that sense, humans learned also to prepare for harsh conditions by saving for the future, both collectively and individually. The domestication of animals and savings was a way to prepare themselves for the futures and also the beginning of the concept of private property. The hunter who refrained from killing an animal today so that the animal would be available to provide meat tomorrow created a vested interest in the animal that was property right (Vaugham, 1997). Accordingly, humans learned to manage the risks that endangered their ancestors, protecting themselves, accumulating for the futures and formulating laws to govern their interactions. All the same, many of the risks that had threatened primitive humans disappeared, new kind of risks took place.

With the organization of commerce, those engaged in business and commerce have faced risks and have developed methods for dealing with risks. The Babylonian civilizations for example, exhibited a highly developed commercial sector with money and legal system (Vaugham, 1997). Even so, the modern conception of risk is rooted in the Hindu-Arabic numbering system that reached the West seven to eight hundred years ago. However the serious study of risk began during the Renaissance, when people broke loose form the constraints of the past subjected longhead beliefs to open challenge Berstein (1996).

Modern capitalism as we know appeared after a sequence of actions over several centuries that produced the conditions for a capitalistic market society. Private ownership of the means of production, the spirit acquisitiveness, the profit motive, competition, and the operation of a market economy was the principal elements that included market society. In that sense, with new time, new risks took place, several of the previous risk stay, therefore the concern of risk started to increase geometrically.
Even though the risk that threatened our earliest ancestors have disappeared, they have been replaced by new risks that accompanied advancing technology. Some of them have arisen from changes in the legal environment and include potential liability for a profusion of new transgression, discrimination in employment, sexual harassment, and violence in the work place. Yet other risks have accompanied the emergence of the age of information technology of business resulting from computer failures, private issues and computer frauds. As business has become more capital intensive, and as the technology of production equipment becomes mores costly, capital investment increases. With the growth in capital investment, the risk of financial loss also increases.

The concept of risk has a special definition depending of the field of knowledge that we refer to. Professional such us economist, statisticians, decision theorist and insurance theorist have long discussed the concept of risk in an effort to build a description of risk that is useful for analysis in each field of study. Nevertheless, up to the time, they have not been able to agree on a single definition that can use in each field. The notion of an indeterminate outcome is implicit in all definitions of risk. When risk is said to exist, there must always be at least two possible outcomes. If we know for certain that a loss will occur, there is no risk involve. In that sense, at least one of the possible outcomes is undesirable, this may be a loss in the generally accepted sense in which something the individual possesses is lost, or it may be a gain smaller than the gain that was possible. Consequently, we could say that risk is a condition in which there is a possibility of an adverse deviation from desired outcome that is expected or hopped to (Vaugham, 1997).

In spite of how risk is defined, the greatest burden in connection with risk is that some losses will occur. When a building is destroyed by fire, or money is stolen, or a wage earner dies, there is a financial loss. When someone is negligent and that negligence results in injury to a person or damage to property there is a financial loss. The existence of risks may also have deterrent effect on economic growth and capital accumulation. Progress in the economy is determined to a large extent by rate of capital accumulation, but the investment and manage of capital involves risk that is distasteful. The cost of capital is higher in those situations where the risk is greater and the consumer or citizens must pay the resulting higher cost of the goods and services or they will not be forthcoming.

Risk Management is a scientific approach to the problem of dealing with the pure risks\(^1\) faced by individuals and organizations. It evolved from corporate insurance management and has as its focal point the possibility of accidental losses to assets and income of the organizations. A diversity of organizations mainly in the financial world, have implemented risk management models, training individual who specialized in dealing with pure risk. Risk management is the process of protecting ones person and assets, it is based on a specific philosophy and follows a

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\(^1\) The term “pure risk” is used to designate those situations that involve only the chance of loss o no loss.
well defined sequence of steps. Risk management is also about balancing art and science (Lam, 2003). The approach and management modalities for Risk Management have changed significantly with time. Originally, in fact, most enterprises were staffed with personnel dedicated to insurance management, which action was limited to a reactive approach to risk management which used to see in the insurance solution the only instrument for dealing with it. As time past, the idea flourished that insurance is not essentially the single possible answer, thus insurance management was slowly changed into risk management, meaning the process of identification, evaluation and managing of the various risks that the organization is exposed to. Significant attention has been directed to advances in quantitative risk management maybe too much attention. The element of art in Risk Management then, it’s based on management experience and judgment (Lam, 2003).

Every organizational decision involves an element of risk (Lam, 2003). There are risks involved in making investment, hedging with derivatives, or extending credit to a retail customer or business entity. There are also risks involved when developing and pricing new products, hiring and training new employees, aligning performance measurements and incentives with organizational objectives, and establishing a culture that balances revenues growth and risk management. As Bernstein (1996), suggested, “risk touches on the most profound aspects physiology, mathematics, statistic, and history”. In fact, the literature about risk and their related subjects is very extents and every day we see how new disciplines develop an interest or formulate a fresh perspective of risk measure and its applications. Furthermore, at the present, we could observe a constant awareness in the academic world, as well as in the public and private sector, for the theory of risk management and his benefits to the sustainability of the organizations and the achievements of their objectives.

The necessity to measure risks has an influence also from the regulatory requirements of the supervisory authorities, who have to ensure that regulated organization have protection against any potential unexpected losses. As a result until the 1980’s, the banking industry was greatly focused toward credit business. Growing competitiveness resulted in an increasing number of banking failures and in 1988, the Basle Committee on Banking Supervision, which was system under the auspices of the Bank for International Settlements in Basle. The Basle Accord, recognized a common minimum framework for calculating the capital adequacy of banks with regard to credit risk. The Sarbanes Oxley Act which is a United States federal law enacted on July 30, 2002, as a reaction to a number of major corporate and accounting scandals including those affecting Enron, Tyco International, Adelphia, Peregrine Systems and WorldCom, established new standards for all U.S. public company boards, management and public accounting firms. The act contains 11 titles, or sections, ranging from additional corporate board responsibilities to criminal penalties, and requires the Securities and Exchange Commission to
implement rulings on requirements to comply with the new law. Therefore and as we mentioned, organizations of all types, financial, no financial, private and also public organizations, have become much more appreciative of the importance of risk all its various incarnations. Apart from the arguments for risk management as an excellent object in its own way, it is becoming increasingly unusual to find an organization of any dimension and type whose stakeholders are not demanding that its management exhibit risk awareness.

Consequently, regulators and managers are recognizing the importance of risk management as a way to minimize losses and improve business performance. Advance in risk methodologies and technologies are introducing a vast array of new tools for measuring and managing enterprise-wide risks, at a higher speed and lower cost than anyone could imagine just a few years ago (Lam, 2003). While financial institutions have accepted risk management as a core competence in their business, no financial organizations are beginning to realize that risk management tools can help them improve their financial performance, facilitating also their strategic and institutional objectives (Lam, 2003). Nevertheless, in order to pursue that objective especially for no financial organizations such as municipalities, it is not sufficient to develop a disconnect view for each risk in isolation (Lam, 2003).

Several attempts have been made to classify risk, the most often and classical categorization by its function is: credit risk, market or financial risk and operational risk (Vaugham, 1997). Even so, risk is they by their nature a very dynamic, fluid, and highly interdependent. The entire process of diversification tell us that one risk can’t not be separate from others, their impact is communal Doherty, 2000. This had not always been recognized, usually, institution managed risk in organizational “silos” (Lam, 2003). Market, credit, and operational risks are treated separately and often addressed by different individuals within an organization. Thus, conventional risk management has demonstrated its fragmented, reactive, discontinued approach, conceived more as a cost rather than an instrument to support value creation Doherty, 2000. This approach has been used over time as a lever to reduce the losses, control the volatility of the results, optimize the performance, to evolve, at the conclusion in the integrated perspective of risk management, where the management of risk, of all relevant risks of the organization, assumes a strategic value.

Corresponding with the progress of risk management in the organizations, with a merely financial viewpoint the scientific world has attempted to analyzes in a very depth way the capacity of risk to create organizational value. Beneath a especially restrictive basic hypothesis on the behavior of the investors and on the conditions of operability of the financial markets, some notorious models of classic finance like Markowitz\(^2\) model, recognized the redundancy of risk management at organizational level, declaring that the investor is able to replicate with own funds

\(^2\) Henry Markowitz, Nobel Prize in Economic Science in 1990, developed a very influential theory call “Portafolio Selection”
Integrated Risk Management an answer for the challenges that Municipalities face

The improvement in the quality of life of citizens in any country depends largely on a modern and efficient public sector and especially competent local public institutions. In this regard, municipalities are among the most important public institutions, where the incorporation of greater authority and autonomy, must be accompanied by the best management practices. The trends in local service delivery have been changing in the last decade. The traditional functions of municipalities such as social public services (education, health care, welfare) are expanded. New or different functions demand a different task management. While the traditional communal tasks may be managed by administrative instruments, the management of the new functions such as communal services requires different methods including those related to the municipalities' ownership to be more in line with market principles (Teller and Istvan, 2004). In these scenarios, the municipalities meet a wide variety of new responsibilities and also several kinds of risks that obligate them to implement the best tools and paradigms of modern management, optimizing the use of their resources to be more effective in implementing policies that aim at their development of their territories.

Therefore, innovative practices undertaken by the municipalities are fundamental elements for continuous improvement of its processes and services. The municipalities should be concerned to make things better as an organization and in parallel to create the basis of legitimacy that would allow them to "good governance". A modern municipal management should be concerned about being efficient, effective management of their finances, procedures, functions and performance without neglecting the requirement of a basis of legitimacy. A good local government is not only to fulfill its task improve its operational, but also store the bridges with the public to facilitate transparency and accountability. In that sense, in Chile, in a recent study of public perception (Libertad y Desarrollo, 2009).
Municipalities appeared first in the ranking of the most corrupted public institutions. This study reveals that the municipalities in Chile became the institution with more cases known for corruption in the year 2008. Effective systems of risk management can strengthen the performance of a local economy and contribute significantly to develop a culture of measurement and control. This is an important issue in view of as we mentioned increasing worldwide trends towards decentralization, devolution of authority and service provision to municipal levels of government, higher rates of urbanization, emphasis on good governance, and new forms of empowerment of local communities. Many municipal governments own or manage substantial amounts of infrastructure and real estate in some cases this includes almost all land in their jurisdiction Fernholz and Morales (2006). Often, the responsibilities over public services and authority over resources are not very clear from the legal and administrative perspectives, and conflicting jurisdictions and interests could blur the issue. Therefore the challenge for municipal governments is to manage their assets effectively so as to serve their constituencies and achieve their short and long-term goals. Municipalities are financed by the taxpayer. Therefore different forms of control exercised by the public and in some cases the of citizens in service provision and in decision-making must be ensured for the public transparency participation.

Government organizations dedicated to risk management develop a state of awareness in which their perceptions of natural and man-made perils are translated into more efficient services with fewer bureaucratic obstacles. Municipalities are the bodies that can take on risk management commitments most efficiently since their very own nature and intrinsic responsibilities permit them to create a close and often effective connection with the community. One way to control risks is to avoid certain activities where the level of risk is too high or too difficult to control. However, the role of Municipalities is to offer services to the citizens which in turn causes it to manage a host of activities which inevitably constitute certain risks. In that sense a precise model Integrated Risk Management that takes on count the characteristics of this type of organization is a very decisive aspect.

Municipalities own a variety of assets and property, both movable and immovable, such us buildings, furnishings, various equipments, computer hardware and software, machinery, vehicles, sports and recreation installations and facilities, underground mains, various other infrastructures (bridges, overpasses, dams, piers or wharves), street lights and traffic signaling equipment, tools, miscellaneous equipment (motors, pumps, generators etc.)\(^3\). Therefore, all of these assets could be exposed to loss or destruction by fire, lightning, explosion, windstorm or tornadoes, flood, earthquake, collapse, vehicle impact, sewer back-up or other water damage. In that sense Municipalities can face also risks related with vandalism and theft and equipment breakdown, burnout or explosion of boilers or other pressure vessels.

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\(^3\) Lombard General Insurance Company of Canada. Risk management and loss prevention.
The liability risks associated to the activities that Municipalities develop are likewise multiple. Thus it cannot be exaggerate the importance of controlling these risks in order to reduce or prevent the number of disasters. This in at last will make the municipal operations safer and will reduce possibly sorrowful consequences for citizens victim of accidents or other unpleasant situations for which the municipality may be held liable. Superior security and a well structured program equally reduce complaints and possibly lawsuits to seek damages. Thus, managing complaints or demand letters can represent intensive administration costs, on occasion pretty expensive especially if no indemnity is payable under an insurance policy. Hence, in civil liability, it is much more difficult to identify every risk to which a municipality is exposed, therefore is nonetheless an essential exercise in order to elaborate loss prevention and risk control program as a consequence. Therefore, there are some activities that concentrated the most claims and lawsuits in the municipal field, such as sports and recreation facilities (outdoor, parks and playgrounds), defrosting roads, bridges, overpasses and dams, underground tanks (leakage of petroleum products) and special activities (festivals, fairs and carnivals and other such manifestations)\textsuperscript{4}.

Consequently is indispensable for the Municipalities to minimize its exposure to risk, and to mitigate the consequences of risk. The concept of integrated management strategy is extremely important to ensure responsible, effective service delivery to the community. Integrated risk management strategy need to cover all potential losses against the municipality with the aim of determining risk indicators and investigate the causes and possible effect. Nevertheless there may bee other factors that can cause the municipality to suffer a loss in income such as lax security measures within the premises of the municipality. Integrated risk management strategy for the municipality has to include security awareness, anti-corruption awareness etc. It is the responsibility of the municipality to acknowledge the presence of risks in the workplace and externally and to pay serious attention to the possible losses or adverse impact that the municipality may suffer. Integrated risk management necessitates a multi-disciplinary approach implemented through an integrated strategy and plans derived from multi-level policies of various directorates. Sometimes activities related with risk management are already in place in a municipality, how ever it needs to be documented and clearly defined to be more effective. Therefore, some of these actions are delegated to managers that need to be reconsidered, because risk management should be primarily the responsibility of the head of the any organization, in this case the Mayor, Municipal Manager and the Council. However as we have mentioned, implementation of an Integrated Risk Management model varies extensively depending upon the particular organization’s business model, market, expertise, culture, and most importantly the risk profile of the organization.

\textsuperscript{4} Lombard General Insurance Company of Canada. Risk management and loss prevention.
A practical model for Municipalities

The definitions of the risks concepts explained above are the first step in a lucid appreciative of risk. This understanding in twist supports the first pace in any risk management process is risk awareness. The second pace is to measure risk, the third to control it. Despite the quantitative complexity that can be thrown at it, risk management is still in the end carried out by people, and the three parts of an organizational risk management process can usefully be illustrated in terms of the ways that people manage risks in their every days lives ((Lam, 2003). Integrated Risk Management requires an integrated risk organization. This means a centralized risk management unit reporting to the municipalities’ manager and the Council, with the responsibility for broad policy settings across risk-taking activities. Consequently a successful program for Municipalities can be broken down into following components:

- Develop an organizational governance to make certain that the Municipal Council and Management have recognized the appropriate organizational process and organizational controls to measure and manage risks throw the organization.
- Consider line Management to included risk management into the revenue engendering activities of the Municipality, including organization development and services.
- A portfolio Management to aggregate risks exposure includes diversification effects, and supervises risk concentration against established risk limits.
- Found risk transfer to mitigate risk exposure that are deemed too high, or are more cost-effective to transfer out to a third party to hold in the company risk portfolio.
- Develop risk analytics to obtain the risk measurement, analysis, and reporting tools to quantify the organizations risk exposure and also follow external drives.
- Consider data and technology resources to sustain the analytics and reporting process.
- Originate stakeholder management to communicate and report the company’s risk information to its key stakeholders.
Therefore to ensure that a Municipality has and maintains an effective, efficient and transparent system of financial and risk management and internal control process and external risk transfer strategies must be implement. A risk identification methodology used for some organizations, also public institutions is the use of risk mapping. This device ranks risk exposure by severity on the horizontal axis and by probability on the vertical axis (see figure 1º). The process of developing and applying a risk map is the following:

a) Creating a top down structure, a general catalog for classifying all sorts of risks

b) Develop a bottom-up list of definite risks considering business and functional units of an organization, founded on loss history and self considerations.

c) Estimate the probability and severity of each risk founded on management judgment or risk models, and develop the risk map.

d) Identify existing controls to incorporate their impact and determine whether new controls are needed at the business and functional levels.
e) Consign tasks for executing new controls and also for monitoring and reporting on definite risks.

d) Combined individual risk maps into an organizational level risk map, and settle on whether new controls are needed at the organization level.

e) Return to pace 1 in order to renew and improve the risk mapping process on a constant basis.

As a result, a practical handbook on integrated risk management for Municipalities should consider then, the following elements (see also figure 2°):

1) Developing a process of identification, considering risks and determining what could go in the wrong if not controlled.

Figure 2
An Integrated Risk Management model for Municipalities
Based on Paul Gabriel (2003)
2) Establishing the role of Chief of Risk Management, as leader of a risk management team that should be consider also, responsible for designing, communicating, and supporting the execution of the councils risk management approach. The team of Risk Managements main purpose should be to identify business risks and design strategies for managing them.

3) A risk management squad should be responsible for carry and recommendation and drives the risk management process by;

- Considering acting as the primary promoter for risk management at the strategic and operational levels of council.
- Establishing an agreement for council approval, framework and methods to directorates to identify, analyze, and manage their risks more effectively to achieve their objectives.
- Developing a risk response process to support a correct kind and level of responses necessary.
- Evaluating and considering insurance claims.
- Considering communication and training in risk management as permanent task.
- Establishing a monitoring performance to supply assurance that the risk management approach is operating effectively to support achievement of the organizations objectives.
- Considering reporting to the Council on risk management and act as a troubleshooting team.

4) A risk management team should include of senior managers with the Municipal Manager as leader.

5) The position of Internal Audit in this procedure is to independently and habitually evaluate the performance, operations and risks. The internal audit should according to the accepted charter report its findings to the Audit Committee and must levels of management as suitable.

6) Achievement of risk management requires that the Council regularly emphasize the “Tone at the Top” by living and communicating objectives and values. In the end the council’s human resources will make control and process improvement in the situation of recognized core objectives and values. Therefore this could only be achieved through hiring the right people and then train them in both their job and control. Thus an important issue should be that the point must be reinforced through employee judgments and incentives that not only reward financial results, but also desired behavior.
7) Develop a control as a process, affected by an entity’s board, management and other personnel designed to provide reasonable assurance regarding the achievement of objectives in the following classification:

- Effectiveness and efficiency of operations,
- Reliability of financial reporting, and
- Compliance with applicable laws and regulations.

8) Tasks and activities should be coordinated among all groups and persons with a role in the municipalities risk management process. These responsibilities and activities should be properly documented in the municipality’s strategic plans, policies, procedural manuals and job descriptions. As an example of actions and responsibilities that should be documented include:

- The setting of the strategic direction exists in with the Council
- The ownership of risks may be assigned to the Municipal Manager and senior management,
- The acceptance of residual risk may reside at a executive Comite.
- The identifying, assessing, mitigating, and monitoring activities on a continuous basis may be assigned at the operating level.

9) It is essential that the municipality perform risk analysis on habitual basis in order to inform any risk management strategy that may be developed by the municipality. Therefore this should include evacuation plan, contingency plan and or disaster recovery plan as a guideline. A summary of such plans must be submitted to other organs such as department of finance and auditor general. It is a broad concept which covers a wide scope and nature of security as a tool of control and management. It should cover up the subsequent:

- It should include a workplace ethical culture assessment.
- Analysis of document security, physical security, computer security etc.
- Development and implementation of anti-corruption prevention plan.
- Forensic management.
- Disciplinary hearing and training.

It is the responsibility of the municipality as well to recognize the presence of risks in the workplace and on the exterior and to pay severe attention to the possible losses or adverse impact that the municipality may suffer. Risk management strategy in the workplace necessitates a multi-disciplinary approach implemented
through an integrated strategy and plans derived from multi-level policies of various directorates.

10) An integrated program for Municipalities requires the accounting officer to maintain an effective, efficient and transparent system of financial and risk management and internal control.

11) It is also known that top management has a main role to play with consider to risk management but there is however a concern that a heavy workload and time constraints might jeopardize the required attention to the matter. The concept of risk management strategy is however extremely important to ensure responsible, effective service delivery to the community.

Leadership and regulations should be the key dynamic forces of any change in an organization, especially in the public organizations where we can find more adversity to change. Therefore and as we stated, the implementation of a Risk Management process varies extensively depending upon the risk profile of the Municipality. As a result, it would be very significant for the specific design of an Integrated Risk Management program to concentrate on the laws or bylaws that regulate municipalities in a determine country or territory.

**Conclusion**

Break offs, irregularities both in the public and private sector, and volatilities appear to be reproducing rather than retreating as we have seen lately. In the world of finance, new devices edges at a bewildering pace, new markets are growing faster than old markets, and worldwide interdependence makes risk management indispensable. Economic insecurity, especially in the job market, makes daily headlines. The environment, health, personal safety, and even the planet Earth itself appear to be under attack from the enemies never before encountered Bernstein, (1996). Consequently, uncertainty is increasingly demanding for the organizations to use the best tools disposables.

Therefore, organizations are compulsory to dedicate more attention to all risks that can affect their objectives to continue to struggle in an economical and financial race much global, tumultuous and therefore difficult. The growing instability of the economic-politic-social environment in which organizations like municipalities operate, the new organizational model adopted that also public organizations have accepted, the impact of the technological evolutions, the regulation, the increased demand and interest of the citizens on decided the objectives of their public organizations and more and more levels of accountability are only a few of the issues requiring an correct response from the organization. For
this reason the present recognition of risk management as a process to integrate with the other processes present in the municipality, to control in a continuous manner and to formalize through organizational solution mutual by the whole entity is fundamental.

Our attempt in this document has been the recognition of the applicable elements for the implementation of an Integrated Risk Management model in Municipalities. The allusion to Integrated Risk Management is intended to set into verification the removal of the traditional barriers of function in which have characterized traditional risk management in support of an integrated advance for this local organizations, focused on the future and oriented to the processes, which can help the municipalities to manage in an organic way all the organizations risks and to identify the opportunities occasionally associated with these risks. Thus, an Integrated Risk Management program have been proposed in the present document, developing a kind of guide on risk management for Municipalities, explaining also the theoretically and methodological aspects of a Risk Management in an integrate version. How ever, is necessary to aggregate that taking risk is an inherent activity to any organization, both public and private, therefore Risk Management should not search for to eliminate all the risks within an organization, but to control them in an acceptable range. Therefore the acceptable range it’s determined by the human, financial and technological resources available to manage the organization and its associated risks, where a cost-benefit analyzes is essential.

Reference

Bernstein, Peter (1996), Against the Gods, the Remarkable Story of Risk. USA: Willey and sons


Lam, James (2003) Enterprise Risk Management, from incentives to control, USA: Willey and sons


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