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The challenge of Risk Management as a multi-sector and participative intervention strategy at the service development

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The Challenge of Risk Management as a Strategy of Multisectoral and Participative Intervention at the Service of Development¹

PRESENTATION

Conscious of the profound changes that have taken place in recent years in the way society has dealt with the subject of risks and disasters, the regional USAID/OFDA office decided to guide the subject in the direction of risk management. The traditional approach has involved acting in response to the consequences of natural and socionatural events as well as those influenced by human activities. This is a process known as *disaster management*. This approach has now evolved into a process focused on anticipating the consequences, identifying and characterizing all types of hazards, determining the factors associated with conditions of vulnerability, and creating probable risk scenarios under a multihazard approach. This approach now enables risk management to design processes of intervention, aimed at *modifying* the risk conditions, a focus known as *disaster risk management*. But progress does not end there. This risk management, initially centered on a “**corrective**” or “**compensatory**” approximation, in which, according to the Lavell proposal, *the action is concentrated on intervention in existing vulnerabilities and in cases where it is possible to act on identified hazards*. Today, it is considered imperative to go beyond this compensatory focus and evolve into a “**prospective**” approach to risk management. This latest approach is now oriented toward structurally modifying the patterns of development. In this way we seek to have new settlements, expansions of existing ones and, generally speaking, all public investment, incorporate the elements of risk management needed to ensure the safety and sustainability of these future developments.

This document is based on actions within the compensatory as well as the prospective dimensions, breaking away from the traditional treatment of the subject of disaster risk management and especially that of risk reduction in the Americas, thereby transcending the conventional focus. It is now time to pass the baton to the people who must carry the instrumentation and implementation of disaster risk management forward, from what has, up till now, been a mere exercise in conceptualization, with isolated practice sessions to demonstrate the benefits of their adoption, to a concrete contribution to the sustainability of the region’s development.

The U.S. Agency for International Development’s Office of U.S. Foreign Disaster Assistance (USAID/OFDA), part of the Agency’s Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA), through its regional office for Latin America and the Caribbean, has promoted a series of forums in the region to generate a debate on risk reduction from the perspective of environmental management, land use management, finance and public investment, oriented toward the strategic axes that make it possible to incorporate a positive and effective contribution to sustainability in the design of the region’s development.

These forums also served to lay the foundations for the creation and start up of “communities of practice” that became a venue for debate, reflection, exchange of experiences and information as well as a place to proactively propose the creation of guidelines for future endeavors.

¹ Based on the document presented to the Discussion Workshop about Environmental Management, Land Use Management and Risk Reduction, Buenos Aires, November 2005.

For practical purposes, we adopted the concept of *community of practice*, originated by Seely Brown J. & Solomon Gray E.:

“At the simplest level, a community of practice is a small group of people... who have worked together for some time. They are not a team, they are not a task force, they are not even necessarily an identifiable or authorized group... They are equals in the performance of ‘real work.’ What keeps them together is a common sense of purpose and a real need to know what their counterparts know.”

These communities, in their initial state, discussed matters of identification and characterization of methodologies, techniques and the tools available to them; they explored the inventory of processes for systematization and process validation. In their desire to continue along this road they came up with a proposal to develop thematic documents that would serve as a reference for people within the communities of practice, among neighboring communities, academic circles, government agencies and civil society, interested in broaching the subject of risk management. This document compiles three different, yet complementary, approaches, under the title **“Time to Pass the Baton: Disaster Risk Reduction from the Perspective of Environmental Management, Land Use Management, Finance and Public Investment.”**

Much remains to be done to consolidate and maintain these communities of practice: identifying key actors, interest groups and future candidates to join them, defining channels of communication and creating permanent communication with other communities of practice.

INTRODUCTION

For centuries, humans have worked with the concept of risk, as recorded by Cardona,² from the times of Ancient Barcelona (3200 B.C.) through Mesopotamia and a couple of centuries after; the Hammurabi Code in 1950 B.C., Greece in 750 B.C. until the Roman Empire.

It is with the fall of that Empire that we lose the records on practices designed to manage risk, only to have them reappear centuries later around A.D. 1000 when Italian navigators and later the Spanish and English included them, as a common practice, in the area of trade and commerce.

The need for anticipation and action before the possible effects of socionatural phenomena and those generated by humans was handled for centuries under a scheme of common sense, traditional wisdom, and trial and error. Applying the concept of probabilities to natural phenomena is first recorded around the middle of the 20th century.

So-called risk management is a fairly recent concept, whose systematic actions are focused on having better knowledge of the variables that intervene, in order to determine the intensity and extension of the impact that disasters might cause. This knowledge has been transferred from the technical and scientific to the social and political fields, and eventually to the community. Awareness of the existence of these conditions that favor the occurrence of adverse events and disasters has led to the need for designing and implementing mechanisms that can intervene in the causes, eliminating them or at least modifying them in order to prevent or mitigate their effects.

Risk management allowed for the real application of the concept of risk scenarios, and acceptable and accepted risk, the implications of which have generated a whole new reality. The deterministic elements employed by technicians begin to give way to the stochastic, which necessarily breaks away from the short-term view and obliges us to consider the long-term under different levels of uncertainty.

Risk management should be considered a strategy rather than a discipline, as it is the result of an interdisciplinary and multisectoral pattern of behavior. Risk management is not an activity for the exclusive use of institutions, but rather an activity, or even a *value* or *principle*, of and for society.

2 Cardona, O.D., Holistic Estimate of Seismic Risk using Complex Dynamic Systems. Barcelona, 2001.

THE RISK MANAGEMENT ENVIRONMENT

Risk management, understood as the set of elements, measures and tools used to alter the conditions of vulnerability, or act on threats (whenever possible), or both, is meant to reduce or mitigate existing risks. Risk management is an alternative that emerged to break the vicious circle that disaster management had fallen into.

We can definitely state that risk management is *the component of the social system that is made up of an efficient planning, organizing, direction and control process, which is designed to analyze and reduce risk, handle adverse events and assist in recovery after they have occurred.*

Several authors have concluded that the risk itself is the fundamental problem and that the disaster is a derived problem. Risk and risk factors have become the fundamental notions and concepts in the study and practice involved with the question of disasters. This transformation in the paradigmatic roots of the problem has gone hand in hand with an increasing emphasis on the relationship of risks and disasters, with the processes and planning for development, and as a consequence, with environmental factors and the sustainable or unsustainable nature of development. Risks and disasters are now visualized among the components of the development scenario, rather than autonomous conditions generated by forces outside of society.³

What was known, until a few years ago, as the disaster cycle, with its phases and stages, gave way to a new, more dynamic and proactive concept called risk management, made up of areas and components that thrive in a symbiotic relationship and that do not necessarily conform to a time sequence. The following section contains parts of a conceptualization document on risk management that was discussed on the Latin American and Caribbean level in December 2001.⁴

Areas and Components

Risk Analysis – A study of hazards and vulnerabilities.

Risk Reduction and Transfer – Prevention, mitigation, financing, and transfer of risks.

Adverse Event Management – Preparation, alarm and response.

Recovery – Rehabilitation and reconstruction.

Risk Analysis⁵

Risk analysis has progressed from being an isolated function to becoming an essential area in risk management, making it possible, under the systematic use of available information, to determine the probability that certain adverse events will occur, as well as the magnitude of their possible consequences.

Among the most relevant activities are:

- Identifying the nature, extension, intensity and magnitude of the hazard.
- Determining the existence and degree of vulnerability.
- Identifying the available measures and resources.
- Constructing probable risk scenarios.
- Developing a multihazard focus.
- Determining acceptable levels of risk, as well as cost/benefit considerations, of possible measures intended to avoid or reduce that risk.
- Setting priorities regarding timing and movement of resources.
- Designing effective and appropriate administrative systems to implement and control these processes.

As we can deduce from the above, the data generated from risk analysis are fundamental to all of the rest of the components of risk management.

3 Cardona, O.D., idem.

4 Hemispheric Conference on Risk Reduction, San Jose, Costa Rica, December 2001.

5 *Where Do We Come From and Where Are We Going? A Perspective of 30 Years on the Subject of Disasters in the Americas*, Bell, Paul C.; Sarmiento, Juan Pablo; Olson, Richard S. draft, August 2002.

Risk Reduction

This is the latest area to be included in risk management; therefore, its conceptualization is still evolving. The activities carried out in this area are aimed at eliminating or reducing the risk, in a clear and explicit effort to avoid the occurrence of disasters. Progress in the area of risk reduction has been important, although subject to limitations. The actions have always been considered costly, and perhaps one of the greatest problems faced is that of “sectoral exclusion” (compartmental focus) with which they have been handled. Risk, then, has been conceived in its fragmented rather than its integral form, according to the vision of the particular discipline involved in evaluating it. This situation has varied in its epistemological and methodological aspects. Unfortunately, this dispersion of efforts has been a hindrance to the task of the decision-makers, who require an integral, cross-sector and multidisciplinary approach to risk reduction.

Most of the organizations that have worked in this area have been educational institutions or those dedicated to research, as is the case of universities, geological and hydro-meteorological institutes, non-governmental organizations (NGOs), foundations and others, which have had the economic support of development financing and funds from friendly governments and multilateral or bilateral agencies.

This area has seen a recent increase in the participation of multilateral banks. They have come to recognize the economic, political, environmental and social effects of disasters on the development of the region’s countries and have begun a process of adjustment to include aspects of risk reduction in their development funding and financing policies.

The question of disasters has come to be recognized as a broader and more complex issue. We have come to a point where risk reduction can no longer be left in the hands of a few myopic specialists. It is for this reason that the subject must be approached in a proactive and integral manner. The old saying that “response is the solution” is no longer valid. This new paradigm requires that risk reduction be considered a matter that demands the integral participation of the entire society. To the extent that the efforts made in this area are able to

help different sectors define and put their strategies into practice, these efforts will be an important contribution to the coherent and consistent management of risk, of preparation and response, as well as recovery, and will positively affect the region’s development.

Two main components stand out in this area:

- **Prevention:** A set of actions whose objective is to **prevent** or **deter** natural, socio-natural or man-made occurrences from causing adverse events by, for example, preventing subjects’ exposure to the hazard. It is difficult to achieve measures that completely neutralize a given risk, especially if it originates from a natural hazard, such as a hurricane, earthquake, volcanic eruption or tsunami. Generally, the measures of prevention are extremely costly and of limited viability, when analyzed in the context of the real situation. Examples of preventive measures include the permanent relocation of houses, production centers or infrastructure located in high hazard zones (landslides, floods, volcanic eruptions, etc.). Prevention, undoubtedly, now takes on a greater importance and acquires its utmost application in the process of future development. Some authors have called this approach a *prospective risk focus*. By way of illustration, we can mention how a change in land use management for new areas of expansion of a city constitutes a circumstance in which the concept of prevention may be included, as an additional variable, in the criteria for decision-making, with clear repercussions for the future.
- **Mitigation:** The results of intervention intended to **reduce** the risks. The idea is to implement activities that reduce the magnitude of the event, thereby achieving a maximum reduction of the damage it may cause. Some of the activities included in this intervention strategy include the construction of engineering works to minimize or attenuate the impact, the elabora-

tion of management standards for natural resources and the confection of construction codes. Mitigation actions are usually oriented toward an existing risk, for which the actions would be, to a certain extent, reparative or, as they have come to be called, *corrective* or *compensatory*.

A third component, **Risk Transfer**, has gradually come to be recognized. This comprises the activities or instruments intended to reduce economic losses generated by an event to a minimum, or eliminate them altogether. It is convenient to clarify that these mechanisms of risk transfer do not reduce the real vulnerability, and that they are frequently ineffective from the perspective of cost. Therefore, all of the efforts to reduce the vulnerability of the assets to be covered should be exercised prior to transferring the risk. Although we tend to use the generic term “*risk transfer*,” in reality the term comprises three distinct and complementary approaches: *risk retention*, *risk transfer* and *risk financing*. Instruments or mechanisms such as emergency/contingency funds, self-insurance, insurance policies available in the market, catastrophe bonds, contingency loans and others, make up part of the arsenal available to those seeking financial protection in both the public and private sector, at the individual and collective level.

Adverse Event Management

This is precisely where plans are laid out for optimum handling of the impact generated by events and their effects; it covers the performance of those actions necessary for timely response, such as evacuation, attention to the victims and reduction of property loss.

A decade ago, disaster activities were concentrated predominantly in this area. Disaster management has traditionally enjoyed political support at national levels, as well as that of diverse international organizations, which has made it possible to achieve an acceptable level of professionalism among first response organizations. The impressive technological evolution, over the past few years, has been of undoubted benefit to this component. There are many new advances in the development and implementation of plans, programs, and projects. Impor-

tant achievements have been made in the definition of guidelines, protocols and procedures, as well as in the design of simulation and drill exercises. However, while some disciplines and organizations have made significant progress, others have fallen far behind.

In other areas, parallel to this evolution, there has been a notable increase and accumulation of vulnerability factors, a situation far from being attended to by those focused on disaster management. Added to this are the huge losses caused by disasters that have created the need for new loans to cover the processes of reconstruction, thereby worsening the already fragile financial situation of affected countries.

Disaster management works in conjunction with risk reduction, so that through risk reduction, disasters are mitigated to a point where they are within range of response capabilities, thereby reducing the losses occasioned by these adverse events. We should not let disasters turn into catastrophes. They can become simple emergencies. By doing this, we would be much closer to making their effects compatible with existing response capabilities. Following this train of thought; in the face of disaster, the better we have prepared ourselves in these two areas (risk reduction and disaster management) the fewer losses of lives, goods and services we will suffer, and therefore, the fewer resources we will have to invest in recovery, and the sooner we will have reestablished the living conditions of the affected population.

This area of disaster management considers three components:

- **Preparation:** A set of measures and actions applied to reduce the loss of human lives and other damages to a minimum, organizing the response and rehabilitation phases in a timely and effective manner. This can be illustrated through activities such as the elaboration of search-and-rescue plans, pre-established mechanisms for bringing aid and assistance to victims; as well as the formulation of contingency or procedural plans, according to the nature of the risk and its degree of affectation. Some examples of instruments used in this activity are: an inventory of physical, human and financial resources, monitoring and vigilance

over dangerous phenomena, training personnel for attending to emergencies and the definition of evacuation routes and work zones.

In some cases this includes the **Alert** as part of the preparation, while in other cases it will be considered independent. Alert is understood to mean the status declared for the purpose of taking specific precautions, owing to the probable and proximate occurrence of an adverse event. It not only informs of the imminence of disaster, but also establishes the actions that both the institutions and the population should carry out. It is important to take into consideration that a timely alert greatly depends on the velocity of the event's evolution, since there are slowly developing events (tropical storms, droughts, etc.), as well as those that appear suddenly (tornados, landslides, etc.); so it is not always possible to establish these alert status classifications. Remote sensors, tidal sensors, networks of rain gauges and records, satellite systems, etc. are examples of instruments used in this component.

- **Response:** Actions carried out, in case of an adverse event, with the aim of saving lives, reducing suffering and reducing losses. Here, immediate reaction is needed to provide timely attention to a population that has suffered a severe change in its pattern of life, brought on by the emergency. Actions such as search and rescue of affected persons, medical assistance, damage assessment, temporary shelter and the distribution of food and clothing are examples of typical response activities.

Recovery

Finally, the area designated “recovery” is where the process of re-establishing the normal living conditions of a community affected by an adverse event is initiated. This area covers two major aspects: the first involves the short-term re-establishment of temporary indispensable basic services, and the second progresses toward

a permanent long-term solution, where the goal is to return to the normal living conditions of the affected communities.

Much of the criticism concerning the management of recovery is directed at certain practices, where the infrastructure and affected processes are reconstructed without taking the risk variable into consideration. This tendency to “reconstruct the vulnerability” creates a new risk scenario. The lack of citizen participation in the reconstruction process is another frequently criticized aspect. Yet another important point has to do with the entities that take on the management of the recovery process. There is a wide range of experiences, whose options differ notably from country to country. The range goes from ad-hoc commissions, which take charge of coordinating efforts with the ministries in charge of the different sectors, (public works, agriculture, animal husbandry, housing, energy, telecommunications, etc.) to autonomous organizations that are formed with the occurrence of a disaster to independently manage the jobs of rehabilitation and reconstruction.⁶

Regardless of the differences, in terms of the future needs for the design of integral reconstruction and transformation plans, it is clear that these plans must incorporate civil society as well as the private sector into both the planning and the execution phases.

Based on recent experiences, the tendency has been to promote the establishment and adoption of certain orienting principles, to be put into practice during reconstruction, without failing to recognize that each situation deserves its own particular analysis, a faithful verification of existing conditions, idiosyncrasies, and the abilities and potential of the affected populations. It is absolutely vital to continue systematizing these experiences.

Within this area, two components are clearly identified:

- **Rehabilitation:** Short-term recovery of basic services and initiating the repair of physical, social and economic damages. This is where the gradual recovery of services affected by the event is initiated, as well as

6 Segura, N., 1995.

the rehabilitation of the damaged zone. The re-establishment of services is achieved through temporary or provisional measures that do not necessarily constitute a definitive reparation of the affected system; instead, what is sought is simply to renew the service as quickly as possible.

- **Reconstruction:** The process of medium and long-range reparation of the physical, social and economic damage, at a level of development superior to what it was before the event. It is precisely within this component that the greatest opportunities to improve on the level of development, prior to the disaster, are generated. Therefore, the measures are managed at the medium and long-range to achieve objectives, such as the creation of new jobs, the repair of material damages and the incorporation and adoption of preventive and mitigating measures.

Recovery presents a window of opportunity for improving on the level of development prior to the disaster, and includes the incorporation and adoption of preventive and mitigating measures.

As explained above, there is a close inter-relationship between the four areas – risk analysis, risk reduction, disaster management and recovery – therefore, the implementation of any of these factors has an effect on the others and on the overall process of a population's development. The process of socioeconomic development is intimately and reciprocally connected to each of the areas and components. This explains how development can have a decisive influence on risk management, creating conditions that are propitious to intervention in the reduction of risk, or, to the contrary, may generate worse conditions that lead to greater vulnerability and thereby end up increasing the risk. On the other hand, the development process itself may become compromised when existing risk conditions turn into disaster situations.

RISK MANAGEMENT AND DEVELOPMENT

From a plethora of definitions of *development* we have chosen to apply the one used in the USAID/OFDA Training and Technical Assistance Program for Latin America: “Development is the accumulated and durable increase in the quantity and quality of goods, services and resources of a community, united with social changes that tend to improve the security and quality of human life, without compromising the resources of future generations.”

This definition contains elements compatible with the concept of sustainable development:⁷ “Sustainable development is understood to mean development leading to economic growth, the elevation of the quality of life and social well-being, without depleting the base of renewable natural resources on which that economic growth relies, nor deteriorating the environment or the right of future generations to use those resources for their own needs.” This focus enables us “... to satisfy the needs of the present generation without compromising the ability of future generations to satisfy their own needs.”⁸ Resource utilization is rational, preserving its existence and its capacity for renewal.

There can be no doubt about the cause-and-effect relationship between disasters and social and economic development. Development programs are beginning to include the risk variable, either for detecting whether these programs reduce the probability of an event's occurrence or reduce its effects; or because these development programs increase the probability of the event's occurrence or create adverse effects. In both circumstances, the study of the effects that these events might cause is now included in many of today's community development programs.⁹

According to the recognition by the Habitat II Commission for Human Settlements, in its sessions of May 1995,¹⁰ “sustainable development” should be based on three inter-related pillars: the environment, the economy and society.

7 Law 99 of 1993, *The National Environmental System*, Republic of Colombia, 1993.

8 Margarita Marino de Botero, founder of the Verde de Villa School in Leiva-Colombia. A personal letter.

9 **Sarmiento, J.P.** Risk Mitigation, Environmental Management and Sustainable Development: A Public Policy, Center for Environmental Studies for Regional Development, Autonomous University Corporation of the West, **October 1996**.

10 Habitat II, *Commission for Human Settlements*, May 1995.

This premise implies that sustainable development goes beyond environmental protection and enters into aspects of economic development, with an equitable characteristic regarding access to the same opportunities by all people, without compromising the load capacity of the world.

Sustainable environment management may contribute to reducing the number of disasters and, as a collateral benefit, the measures used to diminish the effects of these disasters are good for the environment.¹¹

In spite of the achievements in this approach to the issue, there has not been much progress in improving the urban environment. Factors like flood plains and river banks prone to landslides and movements being used for the construction of housing, frequently low-quality housing, are the consequences of the existing reality in many Latin American cities that can be summarized as follows:

- An absence of development plans,
- A lack of land use policies,
- Deficiency in the application of regulatory standards on construction,
- Problems of access to appropriate housing solutions,
- Dissociation of the variables of housing and employment opportunities.

The consequence of these factors is a clear increase in vulnerability, a fact that, in its maximum manifestation, can itself become a hazard, a vulnerability, and a risk.

According to Luc Vrolijk and Elina Palm, in their publication "The Reduction of Disasters, Urbanization and the Environment,"¹² there is not the slightest doubt that degradation of the environment increases the intensity of disasters generated by natural or socio-natural hazards. A solid environmental management program would contribute to the reduction of disasters of this

type; for this it is necessary to study the fundamental points of the environment-development relationship. The opportunities for risk reduction that study the causes and determining environmental factors that worsen risk situations of natural origin, may, in many cases, serve to reduce the effects of destructive events and to carry out more sustainable management of the environment.

In spite of this, the analysis should not be limited to the environment-development association to define the determining factors of potential disaster circumstances. It is convenient to analyze the other situation: the short-term and long-term effects that natural or man-made events generate in the environment, whose results will, undoubtedly, be reflected in the development of the affected community.

In the discussion on the status of risk reduction, held in Manizales, Colombia,¹³ it was concluded that, "Risk management is an essential and integral component of sustainable human development, within the framework of a universal agenda that seeks to increase the well-being of the majority. Although this was the proposal in Cartagena and Yokohama, sadly, in practice, there is a firmly rooted conceptual and operational segregation between the policies of development and risk management. In order to overcome this artificial separation, it is necessary to guarantee that risk management be recognized and incorporated, as an essential element, in the practice of development. The achievement of the Millennium Development Objectives (MDO) will be possible only with an effective articulation of risk management within the function and practice of development."

A couple of months later, during the meeting in Hyogo,¹⁴ the following mention was made: "...We are convinced that disasters significantly and suddenly negate many of the results of investments in development, and therefore continue to be an important obstacle to sustainable development and to the eradication of poverty. We are well aware that investments in development that do not

11 Olavi Elo, *Disasters and the Environment*. Stop Disasters. Number 27.1/1996.

12 Luc Vrolijk and Elina Palm, *The Reduction of Disasters, Urbanization and the Environment*, DHA Geneva 1996.

13 Inter-American Conference on Disaster Risk Reduction, *Reflections and Proposals for Improving the Effectiveness of Management*, November 17, 18 and 19, Manizales, Colombia.

14 Report of the World Conference on Disaster Reduction, Kobe, Hyogo (Japan), January 18 to 22, 2005.

duly take disaster risk into account are apt to increase vulnerability. Therefore, one of the most important challenges faced by today's international community is to bolster the capacity to face disasters and mitigate their effects, for the purpose of making the sustainable development of nations possible."

In this same Hyogo declaration, mention is made of other declarations, such as that of the World Summit on Sustainable Development, celebrated in Johannesburg in 2002, which requested: "The application (regarding vulnerability to disasters and the evaluation of risks and disaster management) of an integrated, inclusive focus; one that considers multiple threats and that covers activities of prevention, mitigation, preparation, response, and recovery, essential for the world to be safer in the 21st century." Within the framework of the Hyogo Action for 2005-2015, reference is made to the "Increase in resilience¹⁵ of nations and communities in the face of disaster, with a predictable result; their strategic objectives and priorities of action, as well as the strategies of application and applicable follow-up measures, as constituting an orienting framework for reducing the effects of disasters in the coming decade." It also concluded "...sustainable development, the reduction of poverty, good government and the reduction of disaster risks are objectives that mutually reinforce themselves." The first objective states: "The most effective integration is to consider disaster risk as part of the policies, plans, and sustainable development programs at all levels. Special emphasis should be placed on the prevention and mitigation of disasters, the preparation of disaster scenarios and the reduction of vulnerability." Finally, it includes a statement of shared responsibility of the government in promoting risk management: "We affirm that it is principally the duty of the state to protect its population and its assets within its territories before existing threats and, consequently, it is essential that the state give high priority to disaster risk reduction within its national policy. This

should include an adjustment of the capacities and the resources it has available. We agree that it is especially necessary to strengthen community's capacity to reduce the risk of disasters at a local level, estimating that the adoption of adequate measures for disaster reduction, at this level, will allow communities and individual citizens to considerably reduce their own vulnerability to these dangers. Disasters continue to represent an important hazard to the survival, dignity, means of livelihood, and the security of the people and their communities, especially the poorest. It is therefore urgent that the capacity of developing countries prone to disasters be improved. This is especially true in the case of the least advanced and smallest of the developing island states, which need to increase their risk management capacities in order to reduce the effects of disasters by multiplying their national efforts and intensifying bilateral, regional, and international cooperation, especially through technical and financial assistance."

Concomitant with the subject of risk management and development is the matter of governance. As mentioned in the Manizales meeting of 2004, "...an effective risk management requires conditions of governance that allow for and promote the designation of responsibilities and implementation, an inalienable obligation of compliance and absolute transparency in risk management policies. Consequently, a broad based, democratic participation of the civil society, represented by its legitimized organizations, is necessary from a perspective of social empowerment and decentralized management. Furthermore, the private sector should be appealed to for its participation in reducing disaster risks, by the creation of incentives for strengthening its social and environmental responsibility."

We therefore conclude from the testimony of multiple declarations, proclamations, essays and many other types of documents, that their authors all coincide in the need to relate development to risk management.

15 The United Nations defines resilience as "the capacity of a system, community or society, potentially exposed to threats to adapt itself, resisting or changing, in order to reach or maintain an acceptable level in its functioning and structure. This is determined by the degree to which the social system is capable of organizing itself to increase its capacity to learn from past disasters, in order to better project itself into the future and improve its measures of risk reduction."

INTERDISCIPLINARY VISION

Risk management, even when it applies, as explained, to an area of recent study, has been the constant object of change and revision, which is not unusual in a matter of such dynamic and permanent evolution. This explains how an eminently single-hazard vision has seen the convenience of migrating toward a multiple-hazard approach. This greater complexity is compensated by the integral nature that it takes on when dealing with different conditions of risk within a single political, economic and social reality, thereby allowing for the identification of generalities and particularities, common and divergent areas, and interest groups with differing needs and expectations. In few words, integral risk management includes a systemic vision, coherency in policies and decisions and rationality in the use of resources.

Considering everything expressed up till now, it seems redundant to affirm the need to approach this complex matter of risk management from the multidisciplinary, interdisciplinary and ideally, transdisciplinary point of view.

A **multidisciplinary focus** comprises a way of approaching a process concentrated on the treatment of one or several issues from the perspective or view of one discipline, yet including the contents or contributions of the others.¹⁶ According to Piaget, this constitutes the lowest level of integration.

An **interdisciplinary focus** means that two or more disciplines or forms of knowledge are combined or coordinated at the conceptual level to see their inter-relationships and/or to explain an object or problem.¹⁷

A **transdisciplinary focus** deals not with a single discipline, but rather a field of knowledge. This focus allows for the interaction of different dis-

ciplines to develop a common perspective, while conserving the riches and power of their respective areas of knowledge.¹⁸

The complexity and interdependence of topics that fall under the so-called risk management heading demand an equally complex approach. Some of the most relevant include development, economic development, culture, poverty, vulnerability, environment, risk, resilience, urbanization, marginalization, land use politics, governance, and democracy, to mention but a few.

Although it is undeniable that leadership in risk management matters requires disciplines such as engineering in its multiple facets, geography, economy and public health, the contribution of the sciences, such as geology, vulcanology, meteorology and hydrology, are of undeniable value. Still other disciplines such as sociology, anthropology, health and political sciences and many others make a potentially enormous contribution to this interdisciplinary approach.

When mentioning interdisciplinary and transdisciplinary approaches, we cannot fail to consider two, in particular, that mark clear tendencies in the changing world situation: the sectoral and territorial aspects. Sectoral factors are understood to mean the interaction of institutional groups, recognized for their representation in areas of economic and social development, health, education, transportation, housing, the environment, and similar considerations. Territorial considerations refer to the political-administrative organization, from the centralized level, through the organizations on the communal base, including the intermediate structures of different denominations, such as regions, provinces, states or departments, or units indistinctly referred to as local mayoral or parochial districts.

Sectoral and territorial aspects interact and illustrate how a matrix of multiple inputs is able to generate multiple results. Risk management integrates this matrix as

16 Adapted from Quintana, Hilda, *Curricular Integration and Globalization*, Logopedic Space. www.espaciologopedico.com

17 Adapted from Klein, T.J. (1990). *Interdisciplinarity: History, Theory & Practice*. Detroit: Wayne State University Press, p. 196.

18 Lebel, Jean, *Health: An Ecosystemic Focus*, EnFoco - Alfaomega/IDRC 2005 - ISBN 1-55250-174-4

a transversal element, present in practically all situations, adding a related factor of complexity to the mix, but distributing the load among the components of the process.

THE GREAT CHALLENGES OF POPULATION EXPANSION FROM A PERSPECTIVE OF RISK MANAGEMENT

In spite of the numerous initiatives in the risk management field, there has been a notable increase in risk conditions. The only possible alternative lies in the incorporation of the risk concept into the daily routine of society. The alarm that a group of experts sounded in Manizales¹⁹ gave a concrete definition to this situation:

“New challenges for risk management are coming to light in areas of the overlapping processes of economic globalization, commercial aperture, international migrations and population dispersion resulting from armed conflicts and infrastructure mega projects, among other causes. The vicious circle of social exclusion is adding to the conditions of vulnerability among marginalized populations, adding strength to the risk factors in many countries throughout the region. The current rules that govern international economic relations and the new world economic order should be examined from a political, economic, social and environmental perspective of risk reduction.

Global environmental changes are further exacerbating existing hazards and setting new scenarios in most of the countries. These risk scenarios are derived from complex processes of environmental deterioration, unplanned urbanization and technological development with inadequate control measures. This situation demands a prospective management of risk that rewards

responsible investments in its prevention and mitigation, in the context of development and in the processes of post-disaster rehabilitation and reconstruction.

Faced with the prevalence of arguments suggesting that risk reduction is excessively costly from the cost-benefit perspective, it is important to remember that there are other, non-economic criteria that can and should be used to evaluate measures of prevention and mitigation. Poor populations will never be justifiably rehabilitated by a cost-benefit criterion, from an economic point of view. There are relevant approaches from the ethical and human rights perspectives that stimulate solidarity and mutual compensation among the different sectors of society. Therefore, the reduction of risks should be seen as a wise investment, not merely as a cost.

Risk management is an inherent and inevitable responsibility of the state. Risk, as well as the act of risk management, requires follow-up mechanisms that allow tendencies to be observed and compared, the identification of achievements and good practices, and the denunciation of negligence, corruption and practices that perpetuate risk conditions.

To follow up on risk and exercise risk management, it is necessary to develop systems of cross-check control and accountability through control mechanisms, systems of regulation and vigilance regarding the transparency of public management, as well as networks of governance that reinforce public risk management at the global, national and regional levels.”

Faced with the evidence of existing hazards and the near impossibility of making profound modification to society's present vulnerabilities, the concept of resilience takes on an ever-increasing importance, although it should be better understood and provided with the necessary instrumentation.

19 Inter-American Conference on Disaster Risk Reduction, *Reflections and proposal for improving management effectiveness*. November 17 - 19, 2004. Manizales, Colombia.

The challenge is in conceiving a true system, comprised of sub-systems and key elements for systematizing experiences, evolving and optimizing existing mechanisms based on criteria for de-concentrating, decentralizing and enhancing efficiency, where the acts seek to satisfy immediate needs, while implementing long-term solutions that would bolster the sustainability of development processes.

This demands the search for strategic partners, a permanent promotion activity and lots of persistence, in order to achieve awareness of the issue within society in general and among the political class in particular. It is vital to obtain its inclusion into the public agenda, its placement within the social structure, the definition of the necessary legal tools, the assignation of resources, and citizen participation, among many other related factors.



REFERENCES

Bell, P.C.; Sarmiento, J.P; Olson, R.S. ***Where Do We Come From and Where Are We Going? A Perspective of 30 Years on the Subject of Disasters in the Americas***, draft, August 2002.

Cardona, O.D. ***Holistic Estimate of Seismic Risk Utilizing Complex Dynamic Systems***, Barcelona, 2001.

Habitat II, ***Commission for Human Settlements***, May 1995.

Kimble, C. Hildreth, P. Wright, P. ***Communities of Practice: Going Virtual, in Knowledge***. Management and Business Model Innovation, Idea Group Publishing, Hershey (USA)/London (UK), forthcoming, Fall 2000.

Lavell, A. ***Decision Making and Risk Management***, Memories of the Meeting of the Caribbean Association for Scientific Advancement, Trinidad, 1998.

Lebel, Jean, ***Health: An Ecosystemic Approach***, EnFoco - Alfaomega/IDRC, 2005.

Luc Vrolijk and Elina Palm, ***Disaster Reduction, Urbanization and the Environment***, DHA Geneva 1996.

Olavi Elo, ***Disasters and the Environment***. Stop Disasters. Number 27.1/1996.

Seely Brown J & Solomon Gray E (no date): ***The People are the Company***. Fast Company [Online] at: <http://www.fastcompany.com/online/01/people.html> [September 9, 1998].

USAID/DCHA/OFDA Memories, ***Hemispheric Conference on Risk Reduction***. San Jose, Costa Rica, December 2001.