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Inter-American Network  
for Disaster Mitigation



United Nations  
International Strategy for Disaster Reduction

**CATALOGUE OF BEST PRACTICES, CONCLUSIONS AND  
RECOMMENDATIONS OF THE SANTA MARTA SECOND HEMISPHERIC  
ENCOUNTER:  
*National Mechanisms and Networks for Risk Reduction "Encounter of  
Santa Marta: From Theory to Practice"***

**Commissioned by:**

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**Submitted by:**

Le Groupe-conseil baastel ltée

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BCPR	Bureau of Crisis Prevention and Recovery (of UNDP)
CCA	Climate Change Adaptation
CDEMA	Caribbean Disaster Emergency Management Agency
CEPRENAC	Centro de Coordinación para la Prevención de los Desastres Naturales en America Central
CAPRADE	Comité Andino para la Prevención y Atención de Desastres
CRMI	Caribbean Risk Management Initiative
CDM	Comprehensive Disaster Management
DGR	Directorate for Risk Management
DR	Dominican Republic
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EOP	Emergency Operation Plan of the MDCH
EWS	Early Warning System
FUNASO	Fundación Nacional de Socorristas
GEF	Global Environment Facility
GHGs	Greenhouse Gases
GIS	Geographical Information System
GS/OAS	General Secretariat of the Organization of American States
HFA	Hyogo Framework for Action
IDA	Initial Damage Assessment
IDB	Inter-American Development Bank
INDECI	Instituto Nacional de Defensa Civil (Peru)
INDM	OAS's Inter-American Network for Disaster Mitigation
INPE	National Institute for Space Research (Brazil)
IPCC	Intergovernmental Panel on Climate Change
LAC	Latin America and the Caribbean
MCT	Ministry of Science and Technology (Brazil)
MDCH	Michigan Department of Community Health
MERCOSUR	Mercado Común del Sur
NGO	Non-governmental Organization
NOFP	National Operational Focal Points
OAS/DSD	OAS's Department of Sustainable Development
OPDEM	Office of Disaster Preparedness and Emergency Management (Jamaica)
OPHP	Office of Public Health Preparedness, State of Michigan, United States
PRIORITIES FOR ACTION	Priorities for Action (HFA)
PIAS	Programa de Ingeniería Ambiental y Sanitaria, Universidad De La Salle
POTs	Planes de Ordenamiento Territorial
PRS	Poverty Reduction Strategy
RBLAC	Regional Bureau for Latin America and the Caribbean
RISK-MACC	OAS's Risk Management and Adaptation to Climate Change Section
RPD	Regional Program Document (of RBLAC)

SEDEC	National Secretary of Civil Defense (Brazil)
SIDHMA	Sistema de Información sobre Desastres, Hidrometeorología y Medio Ambiente
SIDS	Small Island Developing States
SNIP	Sistema Nacional de Inversión Pública (Peru)
UDOP	User-Defined Operational Picture
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISDR	Secretariat of the United Nations International Strategy for Disaster Reduction



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## 1. Introduction



## 1.1 The Context

The Catalogue of Best Practices, Conclusions and Recommendations of the 2010 Santa Marta Second Hemispheric Encounter: *National Mechanisms And Networks For Risk Reduction "Encounter Of Santa Marta: From Theory To Practice"*<sup>1</sup> brings together those best practices in Disaster Risk Management (DRM) and Climate Change Adaptation (CCA) that representatives of the various types of involved institutions and organizations<sup>2</sup> from the Western Hemisphere have presented in response to an invitation issued by the Government of Colombia, through the Ministry of the Interior and Justice and its Risk Management Directorate (DGR), the General Secretariat of the Organization of American States (GS/OAS), through its Department of Sustainable Development (OAS/DSD), and the Secretariat of the United Nations International Strategy for Disaster Reduction (UNISDR), through its Regional Office for the Americas, UNISDR Americas – whom participated in the organization of the Santa Marta Encounter.<sup>3</sup>

The Catalogue systematically documents these experiences to complement the data available on lessons learned in DRM and CCA in the hemisphere and throughout the world but more specifically in Latin America and the Caribbean (LAC). It is important to note that the experiences, lessons learned and best practices included in this Catalogue were drawn from the cases submitted for (and in some cases presented at) the Santa Marta Encounter in 2010.

Disaster risk in LAC is on the rise due to many factors, including human factors such as environmental degradation, worsening socio-economic conditions and social inequity. Climate change further augments disaster risk and threatens development causing more intense and frequent hydro-meteorological events<sup>4</sup>. Disaster events take human lives and cause major socio-economic damage to countries that suffer them. For example, over a decade, Jamaica has experienced approximately 12 adverse events resulting in over J\$87 billion (approx. US\$995,243,613) in damages. Damage from hurricane Ivan in 2004 represented 8% of the GDP of the previous year.

DRM and Disaster Risk Reduction (DRR) can reduce the number of deaths caused by disasters and the negative socio-economic effects they can have on societies and communities. The challenge then is to disseminate DRM and DRR practices in countries and regions in need of policies, knowledge and tools. Awareness of the potential benefits of DRM and DRR is still limited to specialized circles and has not yet been successfully communicated to all sectors of society, and in particular, to policy makers and the general public. Education and training programs, including facilities for people professionally involved in

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<sup>1</sup> Herein referred to as 'the Catalogue'.

<sup>2</sup> Herein referred to as 'Authors'.

<sup>3</sup> In this Catalogue, the Santa Marta Encounter is referred to as 'the Encounter'.

<sup>4</sup> OAS. Online. <http://www.oas.org/dsd/Working%20Documents/Naturaldesasterandland.htm> Site visited on December 15<sup>th</sup> 2010.

the domain, and even the public at large, have not been sufficiently developed and lack the needed focus on ways and means to reduce disasters<sup>5</sup>.

Progress is being displayed in sensitization of deciders and the population in general by projects such as EDUPLAN Hemisférico in the Americas<sup>6</sup>. Indeed, EDUPLAN Hemisférico includes programs in the following areas:

- **Physical Infrastructure:** Development of adequate and safe educational buildings resilient to natural hazard events. This component includes strategies such as planning, design, construction, repair, conditioning and maintenance for the management and retrofitting of educational buildings which is related to vulnerability reduction and safety.
- **Public Participation:** Training and education of the general public for direct participation in preparedness, response, prevention and mitigation of natural hazard impacts on populations and their infrastructure.
- **Academic Aspects:** Changes in the curriculum of primary, secondary, and university level education to prepare individuals and groups from various disciplines to work toward measures for disaster reduction<sup>7</sup>.

Such projects are very beneficial to making DRM, DRR and CCA information available. The same idea motivates the production of this Catalogue whose goal is to further disseminate DRM, DRR and CCA-related knowledge and best practices, specifically from the Encounter, throughout LAC and beyond.

The following three sections explain in greater detail the process leading to the publication of the present Catalogue, starting with the description of the bodies involved, mainly the Inter-American Network for Disaster Mitigation (INDM), and following up with some brief background information on both the First Hemispheric Encounter and the Second Hemispheric Encounter.

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<sup>5</sup> UNISDR. *Yokohama Strategy and Plan of Action for a Safer World*. On line. Site last visited on November 26<sup>th</sup> 2010. [http://www.unisdr.org/eng/about\\_isdr/bd-yokohama-strat-eng.htm#basis](http://www.unisdr.org/eng/about_isdr/bd-yokohama-strat-eng.htm#basis)

<sup>6</sup> UNISDR. *Review of the Yokohama Strategy and Plan of Action for a Safer World 18-22 January 2005*. On line. Site last visited on November 26<sup>th</sup> 2010. <http://www.unisdr.org/wcdr/intergover/official-doc/L-docs/Yokohama-Strategy-English.pdf>

<sup>7</sup> UNISDR. *The role of Science and Technology in Disaster Reduction*. . On line. Site last visited on November 26<sup>th</sup> 2010. [http://www.unisdr.org/eng/public\\_aware/world\\_camp/2001/pdf/Kit\\_2\\_The\\_Role\\_of\\_Science\\_and\\_Technology\\_in\\_Disaster\\_Reduction.pdf](http://www.unisdr.org/eng/public_aware/world_camp/2001/pdf/Kit_2_The_Role_of_Science_and_Technology_in_Disaster_Reduction.pdf)

## 1.2 The Rationale – The INDM

The INDM was established by the OAS/DSD of the Executive Secretariat for Integral Development of the General Secretariat of the OAS (GS/OAS), with financial support from the Canadian International Development Agency (CIDA), in response to a series of mandates and resolutions emanating from Summits of the Americas and meetings of the General Assembly of the OAS.

As its name clearly states, the INDM's main objective is to facilitate networking in LAC by encouraging knowledge and information-sharing in disaster prevention and mitigation and emergency preparedness, response and relief. Training, capacity building, establishing effective cooperation and synergies, optimizing scarce resources and avoiding overlaps and duplication of efforts in DRM in LAC are also priorities of the INDM.

Equally, the INDM is a platform to implement the OAS/DSD's Risk Management and Adaptation to Climate Change Section (RISK-MACC). RISK-MACC's main purpose is to support the *Regional Platform of the United Nations International Strategy for Disaster Reduction (UNISDR) Hyogo Framework for Action (HFA<sup>8</sup>)*'s implementation in LAC. It is also aimed at the successful development of the *Inter-American Committee on Natural Disaster Reduction (IACNDR)* and its *Inter-American Strategic Plan (IASP) for Policies on Risk Reduction, Risk Management, and Disaster Response*. To complement this strategy, RISK-MACC uses a bottom-up, participative approach to include communities' perceptions on DRM and CCA in its analyses. The objective here is to increase local community resilience and reduce their vulnerability to natural hazards.

On December 3<sup>rd</sup>, 2006 the INDM held its first meeting in Santa Cruz de la Sierra (Bolivia), bringing together representatives of its Member States' National Operational Focal Points (NOFPs), who are at the core of the Network. Directly below is a short assessment of the INDM's progress since its inception:

At present, the INDM has:

- The mandate to incarnate “the permanent hemispheric mechanism for strengthening practical cooperation among intergovernmental agencies in the area of disaster reduction, especially by sharing technical information and best practices” since 2007;
- 14 National Operational Focal Point (NOFPs) active in the Network through their respective Permanent Missions to the OAS;
- A Network Management Board established with the participation of the Inter-American Development Bank (IDB), the Pan-American Health Organization (PAHO) and the Pan-American Development Foundation (PADF);

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<sup>8</sup> See sub-section 2.1.1 for more information on HFA's PRIORITIES FOR ACTION s.

- Signed a Cooperation Agreement with the secretariat of UNISDR aiming to “advance the implementation of the Hyogo Framework for Action in the Americas and the Inter-American Strategic Plan for Policy on Vulnerability Reduction, Risk Management and Disaster response (IASP)”;
- Co-organized and presented, with UNISDR Americas, its First Regional Platform of the Americas Session, in the City of Panama.

The INDM’s evolution is comprised of activities driven by, amongst other events, training sessions, thematic panels, Virtual Forums, data base information collection and more importantly for the Catalogue, the organization of the two Hemispheric Encounters, the First in 2007, and the Second, in 2010. These Encounters were held so that a hemispheric approach to DRM and CCA can be streamlined throughout LAC and so that effective and efficient methodologies can be discussed, shared and maybe even adopted and implemented at the national, regional, and local levels.

### 1.3 The First Hemispheric Encounter

The first Hemispheric Encounter, entitled *Cost-Benefit Analysis: Making a Case to Invest on Vulnerability Reduction in the Americas*<sup>9</sup> was organized by the Colombian government, through the Ministry of the Interior and Justice and its Directorate for Risk Management for Disaster Prevention and Relief (DGRPAD), and by the GS/OAS/DSD through its INDM. It was also financed by CIDA. The event took place in the Palacio de San Carlos in Bogotá, Colombia, on December 11<sup>th</sup> and 12<sup>th</sup>, 2007. Given the advances in DRM experienced in Colombia, Bogotá was chosen as the host city for the event, thereby seeking to “...show-case the Colombian experience as a reference for discussion.”<sup>10</sup>

This First Encounter was a direct follow-up to resolutions adopted by the General Assembly of the OAS that essentially mandate the OAS/DSD to help improve the cost-benefit economic analysis of disaster risk mitigation and reduction. The event’s main goal was to explore the strategies to highlight and promote the benefits of investing in DRR in comparison to investing in response, recovery and reconstruction.

The First Encounter attracted around 70 participants, representatives and experts from public and private institutions – including insurance and re-insurance companies – international co-operation organisations, inter-governmental institutions, development banks, non-governmental organisations and international co-operation agencies.

Policy makers from all sectors involved in risk management were also present: from public protection institutions or civil defences, to public works, finance and economy ministries and planning offices, and

<sup>9</sup> All information on the First Encounter comes from the final report produced on its results.

<sup>10</sup> OAS, 2007. *Report on the Implementation of Ag/Res. 2184 (Xxxvi-O/06) and Ag/Res. 2314 (Xxxvii-O/07)* p. 4

from health ministries and social insurance institutes to education, environment and natural resources ministries and all relevant emergency committees.

The exchange of experiences and discussions on all related issues lead to the following conclusions from the First Encounter:

1. When it comes to national development plans, it is necessary to develop a shared DRM vision for the medium and long term between all involved stakeholders – policy makers, decision makers, private companies and organized civil society groups. This will facilitate the structuring of transversal disaster prevention and management systems and the implementation of a practical norm in all sectors of society. It will also guarantee that DRM will become the main goal of the developed activities and not only an additional component of the plans.
2. Although land-use and territorial planning represents an important instrument for Risk Management, many significant challenges still slow its mainstream development in Latin American countries. One of these challenges is that even though risk and vulnerability maps and land-use zoning resulting from these maps exist, land-use and territorial plans are difficult to apply outside of big cities. This is partly caused by: a) the fact that there are no complementary regulations or that the authorities are not aware of their existence; b) the States are not capable of implementing them, c) small communities lack the needed resources to do so and/or d) the difficulty of resettling the affected communities. In addition, when such plans do exist, they are developed in a hurry and only to comply with the related law requirements. Even if they are well developed, the augmentation of informal human settlements limits the governments' capacity to enforce land-use plans. The development of strategies that facilitate indigenous and border land-use plans – regions that are usually populated by the most vulnerable and poor communities – have to become the most important priorities.
3. Risk transfer mechanisms such as insurances and re-insurances have not been sufficiently developed in LAC in comparison to countries in Europe or to the United States of America. The most important progress has been accomplished with insurances against earthquakes with a focus on resistance to seismic shocks of structural and non-structural elements; risk indicators; comparison between environment and society; and cost/benefit analyses. However, it is important at the present stage to develop and use new technologies to collect data and establish information sharing mechanisms between insurance and re-insurance companies to better respond to the asymmetries and lack of information that is needed to realize more reliable estimations. In addition, it is necessary to modify the norms to stimulate the insurance sector's reaction, keeping in mind that the risk transfer mechanisms need to be developed in an active, stable and transparent market which in turn will stimulate investment in Risk Reduction.

Nevertheless, life threatening risks and risks to the well being of the population are not transferable. Hence, the only viable solution is vulnerability reduction.

4. The insurance sector usually works with probabilistic models that apply to events that are recurrent in the long term – for example 500 to a 1000 years – and that require map information collection on larger scales (1:1 000, 1:500, and to 1:100). This means that events of smaller periodicity, like floods, that occur more frequently, are not adequately included in risk transfer mechanisms.
5. Although investment in risk reduction has been increasing in the past years, it usually still does not reach the poorest and most vulnerable of the population. This situation is usually caused by a lack of governments' political will and insufficient knowledge of other assessment and estimation methodologies, for example the cost/benefit analysis that complements the actual principal instrument, vulnerability analysis. Equally important is the training of the members of the poorest communities in house construction given the number of informal housing establishments that are being built by the populations themselves. It is also important to incorporate the architects, engineers and contractors' graduate and post graduate curriculums in the application of building codes and land-use planning.
6. Social aspects such as communities' well being and security are the main reason why investments are made in vulnerability reduction in the sectors which are usually most important (health and education). The relevant experiences that come out of such initiatives are replicable in many different regions of the hemisphere. Some of the most representative available examples come from the specific cases of Mexico and Costa Rica.
7. Presently, international organizations and co-operation agencies make available resources for the development of investment projects in risk reduction but governments from LAC do not always ask for them. This is partly because the relevant entities do not know of the existence of such resources, and partly because the governments already have their own funds assigned to disaster reduction.

## 1.4 The Second Hemispheric Encounter

The Santa Marta Hemispheric Encounter: *National Mechanisms and Networks for Risk Reduction “Encounter of Santa Marta: From Theory to Practice”* took place from April 14<sup>th</sup> to the 16<sup>th</sup>, 2010, in Santa Marta, Colombia. Again, it was co-sponsored by Colombia’s Ministry of Foreign Affairs and the DGRPAD of the Ministry of the Interior and Justice; the GS/OAS, through its OAS/DSD and its Risk Management and Adaptation to Climate Change Section (RISK-MACC); and by the UNISDR regional office of the Americas.

The aim of the event was: first, to facilitate the sharing and exchange of successful national experiences and good practices in DRM and Climate Change Adaptation (CCA) between participants from LAC<sup>11</sup>; second, to strengthen the OAS/DSD’s INDM<sup>12</sup>; and finally, as an ultimate goal: “to advance the establishment and strengthening of National Platforms for DRR under the Hyogo Framework for Action (HFA).”<sup>13</sup> A key connection between these objectives is that as national DRM platforms get stronger through the sharing of best practices, the regional DRM network can grow in scale and effectiveness. Indeed, the Encounter integrates itself in a larger process established during the first session of the Regional Platform for DRR in the Americas, which took place in Panama, on March 17-19, 2009.

### 1.4.1 Conclusions from the Encounter

Generally speaking, there were many lessons learned and conclusions drawn from the Santa Marta Encounter and the thematic sessions that took place. A short draft report was developed by the OAS, UNISDR Americas and the Government of Colombia, integrating this information in bullet point form, around the five thematic areas that are described herebelow. It is important to note that the following consolidated points are derived directly from this aforementioned report.

#### Financing

The report states among the following conclusions in this thematic area:

- Generating relevant information to evaluate and monitor needs in terms of DRM is considered very important for stimulating political will at the national and sub-national levels to implement a DRM agenda and to provide for sufficient financing to do so. Since funds are generally insufficient, mostly in DRR, the transversal integration of these themes in general development of public policies remains both a priority and a challenge. There is an ongoing need for the production of plans to sensitize all stakeholders from the public and private sectors to the

<sup>11</sup> The United States of America, Sri Lanka and regional organizations from the LAC also submitted proposals.

<sup>12</sup> See OAS, April 2010. *Inter-American Network For Disaster Mitigation (INDM) Progress Report: From Inception To April 2010*.

<sup>13</sup> OAS, 2010. *Second Hemispheric Encounter National Mechanisms And Networks For Risk Reduction “Encounter Of Santa Marta: From Theory To Practice” Call For Case Studies, Lessons Learned And Best Practices*, p. 9.



importance of DRM as a development variable. This could be accomplished through the strengthening of financing institutions such as the Treasury Boards and Ministries of Economics and Finances across LAC countries.

- Creating new national and international DRM networks and reinforcing the ones that already exist to facilitate sharing of information, best practices and lessons learned is vital. These networks make possible the structuring and consolidating of regional, national and sub-national strategies and public policies that support DRM and can eventually trigger the activation of financing mechanisms. These strategies and public policies can also help to identify and build financing and management models and instruments that can contribute to the prevention, reduction and mitigation of disaster risks and can facilitate risk transfer to all government levels.

### **Governance**

The report states among the following conclusions in this thematic area:

- Decentralization is essential for DRM and CCA to be effective. Indeed, coordination at the municipal level among cities and villages that face similar vulnerabilities can successfully open communication channels between local level DRM actors and also generate the population's participation.
- DRM must be understood as an ongoing process that engenders results that are often measurable in the longer term only. Transforming theoretical DRM knowledge into concrete practices in the day to day lives of people is not an easy task and takes time.
- Monitoring, evaluating and reporting on DRM results through the creation of a relevant set of indicators built as a system that is both specific and sensitive is fundamental to the realization of short, medium and long term prospective exercises that will shed light on the impacts that DRM actions can bring over time.

### **Disaster Risk Management and Climate Change Adaptation**

The report states among the following conclusions in this thematic area:

- It is important to articulate CCA concepts and practices into DRM and vice versa.
- Regarding the many strategies and methodologies that are being proposed and implemented in the area of CCA: since many uncertainties exist in climate change, it is recommended to use less optimistic climatic scenarios (worst-case scenarios) to build CCA concepts.
- It is important to close the gap between the scientific community and the decision makers and policy developers.

- Investments to strengthen states' capacities to adapt to climatic change should always be coordinated with National Disaster Prevention and Preparedness Systems to better adapt the strategies and make the tools and instruments more efficient.

### **Land-use and Territorial Planning**

The report states among the following conclusions in this thematic area:

- The conception of and vision behind territorial planning must always be developed through a systemic focus emanating from joint set of activities in planning, management, organization and control, to optimize the use of the territory to improve the populations' well being.
- The integration of DRM in territorial planning must be addressed in a public policy environment that will transcend the political will of different heads of governments at national, sub-national and local levels. By doing so, decision making would be marked in plans, projects and programs that will have been developed in a context of optimized social cost/benefit analysis and hence that will lead to better quality of life for LAC countries' citizens.

### **Preparedness, EWS and Education**

The report states among the following conclusions in this thematic area:

- Sensitization and education must lead to a profound change of culture in vulnerable societies from the 'potential victim' to the 'central actor' in DRM, which will stimulate participation in civil society. The latter must become a fundamental actor in the strengthening of the institutions involved in DRM and will help to ensure the sustainability of efforts being made.
- The development of EWSs must integrate aspects of diffusion of warnings to the exposed communities and not only aspects of surveillance of potential events. Training the vulnerable communities and stimulating their participation in the activation of the EWS are also important factors.
- It is important to integrate gender and children's considerations in DRM especially in post-disaster situations and reconstruction.

In light of the above, the Catalogue therefore presents the best practices, conclusions and recommendations of this Second Encounter.

## 1.5 Catalogue Structure

The remainder of this Catalogue is structured as follows:

- **Chapter 2** gives a brief description of the method that was used to develop the Catalogue, including the importance of the HFA Priorities for Action and related terminology, the chosen categories, and other Catalogue considerations.
- **Chapter 3** presents the experiences (i.e. best practices) stemming from the Santa Marta Encounter. It is divided into the five thematic areas of the Second Encounter, namely: 3.1 Financing; 3.2 Governance; 3.3 Disaster Risk Management and Climate Change Adaptation; 3.4 Land-use and Territorial Planning; and lastly, 3.5 Preparedness, Early Warning Systems and Education.
- **Chapter 4** addresses the Conclusions from the Santa Marta Encounter and from the analysis of the experiences in the Catalogue, and also formulates some Recommendations based on this information.



## 2. Development of the Catalogue of Best Practices

## 2.1 Experiences Presented at the Santa Marta Encounter

In order to situate the Encounter experiences within the HFA and its five Priorities for Action and to better understand the process by which the experiences were categorized for the Catalogue, it is important to depict the criteria, categories and the process that was used by the Santa Marta Encounter's Program Committee (herein referred to as "the Committee") for selection of experiences that were subsequently presented at the Encounter. Naturally, the Catalogue is built upon and aligned with the already existing categorization process although almost all experiences are considered and addressed in the Catalogue.

Therefore, to introduce the Catalogue, this chapter systematically addresses the steps taken starting from the organization of the Encounter to the production of the Catalogue; specifically, section 2.1 focuses on the Santa Marta Encounter's general framework; section 2.2 outlines the process of the development of the present Catalogue; and section 2.3 addresses general considerations for the Catalogue.

### 2.1.1 Hyogo Framework for Action and the Priorities for Action

To set the context of this Chapter, a brief overview of the over-arching HFA and its five Priorities for Action is necessary.

In committing to take concrete actions to reduce disaster risk, Member States of the United Nations have adopted a guideline to reduce vulnerabilities to natural hazards, namely, the HFA. Through its five areas of Priorities for Action – briefly discussed below – the HFA aims to build resilience of nations and communities to disasters, by achieving substantive reduction of disaster losses by 2015, in terms of lives, and social, economic and environmental assets of communities and countries.

The five Priorities for Action provide guiding principles and practical means for achieving disaster resilience and reducing disaster losses for vulnerable communities within the broader context of sustainable development.

The five HFA Priorities for Action are:

1. **Make DRR a Priority: Ensure that DRR is a national and local priority with a strong institutional basis for implementation.** The area of focus here is the collaborative development and/or modification of countries' policies, laws and organizational arrangements, as well as plans, programs and projects, so as to effectively integrate DRR. In allocating sufficient resources to support and maintain them, this development/modification and this Priorities for Action involves: the creation of effective, multi-sector national platforms to provide policy guidance and to coordinate activities; the integration of DRR into development policies and planning (e.g.

Poverty Reduction Strategies – PRSs); and the focus on community participation which would ensure that local needs are met and initiatives are tailored to the local context.

2. **Know the Risks and Take Action: Identify, assess, and monitor disaster risks – and enhance early warning.** In order for communities to know the risks they face and to take appropriate actions based on that knowledge, risks need to be understood; this requires investment in scientific, technical, and institutional capabilities to observe, record, research, analyze, forecast, model and map natural hazards, and in doing so, to develop and disseminate tools (e.g. statistical information about disaster events, risk maps, disaster vulnerability and risk indicators), all of which are critical components of the Priorities for Action. In addition, as early warning is widely accepted to be a crucial component of DRR that can save lives, countries need to use the knowledge gained to develop effective early warning systems that are appropriately adapted to the unique circumstances of the people at risk.
3. **Build Understanding and Awareness: Use knowledge, innovation, and education to build a culture of safety and resilience at all levels.** If people and communities are well informed and motivated about measures they can take to reduce vulnerability, disasters and loss of life can be reduced significantly. This Priorities for Action is composed of key activities aimed at increasing awareness of disaster prevention, namely: provision of relevant information on disaster risks and means of protection and especially to citizens in high-risk areas; the strengthening of networks and promotion of dialogue among all stakeholders (disaster experts, technical and scientific specialists, planners, etc); the inclusion of DRR subject matter in formal, non-formal, and informal education and training (including local knowledge transfer); the development and strengthening of community-based DRM programs; and lastly, collaboration and work with various media in DRR awareness activities.
4. **Reduce Risk: Reduce the underlying risk factors.** As vulnerability to natural hazards can be increased in many ways – e.g. locating communities in hazard prone areas (e.g. flood plains), destroying natural storm barriers like forests, wetlands, coral reefs and mangroves, building facilities and housing which are unable to withstand the impacts of hazards, or not having social and financial safety nets in place – it is vital for countries to invest in simple, well-known measures to reduce risk and vulnerability, and in turn, build and sustain resilience. This Priorities for Action therefore focuses on activities centered on: application and enforcement of relevant building codes to protect critical infrastructure (schools, homes, hospitals) and retrofitting of buildings for higher safety; protection of precious eco-systems that act as natural storm barriers; and effective insurance and micro-finance initiatives which can help to transfer risks and provide additional resources.
5. **Be Prepared and Ready to Act: Strengthen disaster preparedness for effective response at all levels.** Besides making DRR an institutional priority and understanding the risks to be able to

build resilience at all levels through various risk reduction measures, strengthening disaster preparedness through various activities is key to enabling people to build resiliency and reduce the vulnerability of people and their livelihoods. Preparedness can involve many types of activities, for example; preparation and risk assessment before development at all levels; the development and regular testing of contingency plans and regular disaster preparedness exercises, including evacuation drills; the establishment of emergency funds to support preparedness, response and recovery activities including coordinated regional approaches for effective disaster response; and finally, continuous dialogue between response agencies, planners and policy-makers, and development organizations, all of which from part of the Priorities for Action. Preparedness plans and organization can also help to cope with the many small and medium-sized disasters occurring repeatedly in many communities.

### 2.1.2 Criteria and Themes

The selection criteria for presentation of experiences at the Santa Marta Encounter are also used to build this Catalogue, as are the 5 thematic areas, connected to the above described Priorities for Action. The Committee in charge of selecting the experiences to be presented during the Encounter included representation from:

- Colombia's Risk Management Directorate;
- The OAS/DSD;
- Office of Disaster Preparedness and Emergency Management (ODPEM) of Jamaica;
- The UNISDR Americas;
- The Colombian Red Cross;
- Caribbean Disaster Emergency Management Agency (CDEMA);
- Centro de Coordinación para la Prevención de los Desastres Naturales en America Central (CEPRENAC);
- Instituto Nacional de Defensa Civil (INDECI); and,
- MERCOSUR International Actions in the Fight against Hunger. Ministry of Foreign Relations

In all, 92 experiences/proposals from 21 countries/regional institutions/organizations were submitted to the Committee.<sup>14</sup> The authors of proposals had to present their experiences before February 20, 2010 to be considered for selection. By February 28, 2010, the Committee shortlisted a number of experiences and asked authors for an eight page paper to be handed in before March 20, 2010 describing in greater detail their respective experience. Finally, 17 proposals were presented during the Santa Marta Encounter.

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<sup>14</sup> See Annex A for the list of all the 92 experiences and the 17 that were chosen to be presented at the Encounter. Additionally, Appendix I of the Catalogue contains all 92 fact sheets of the Encounter experiences that were compiled by the Catalogue authors, from the authors' Encounter submissions and from the filled-out, Second Call questionnaires.



To attract relevant proposals/experiences for the Encounter, the Committee published what they titled “Call for Case Studies, Lessons Learned and Best Practices”. This Call instructed the eventual authors of proposals to first match their experience within 5 thematic areas. These 5 thematic areas were matched with the 5 Priorities for Action of the HFA, as outlined below in Table 1. The authors were asked to use a relevance scale of 1 to 5 – 5 being the most relevant – to rate their experience within the thematic area(s). Also, for each thematic area(s) chosen, the authors were asked to breakdown the areas addressed by the experiences under pre-defined sub-themes by assigning a percentage to each one (see Table 1 below for more details). Appendix I of the Catalogue contains all information related to the classification by the authors of their experiences in the five thematic areas.<sup>15</sup> The thematic areas were also used to title the five thematic sessions and orient the presentations and discussions that took place during the actual Encounter, with each thematic area representing a session.

It is important to note at this point that the five thematic areas (as outlined in the Catalogue Structure above under Chapter 3 divisions) are also used in the Catalogue to present the best practices and determine the division of the sections. The first classification in these thematic areas was done by the authors who submitted to the Encounter. The second classification, which, in very few cases represented a transfer of an experience from one thematic area to another, was carried out by the OAS and the Program Committee. Naturally, some experiences can be easily classified in two or more different thematic areas for different reasons but mostly because it is rare that any one given experience fits *uniquely* in one thematic area. This overlap is noteworthy because it demonstrates how DRM and CCA are comprehensive and integral and how the five relevant categories developed specifically for the Encounter feed continuously into one another. This subject will, in some cases, be further discussed in the Catalogue for an added level of discussion and analysis of the experiences.

Table 1, directly below, shows the links between the thematic areas and sub-themes which were subsequently used for the rating and selection of experiences to be presented at the Encounter. In turn, Table 2 shows the links made by the Committee between the thematic areas and the above described HFA Priorities for Action. Both tables equally serve as a basis for the next section which details the identification of categories for and the classification of best practices for the Catalogue.

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<sup>15</sup> Appendix I is voluminous and contains numerous documents which were classified in different folders, and is submitted as a separate Appendix to accompany the Catalogue.

**Table 1. Thematic areas and subthemes<sup>16</sup>**

<p><b>1. Financing (relating to HFA priorities 1 and 4)</b></p> <ul style="list-style-type: none"> <li>a. Risk transfer mechanisms</li> <li>b. Resource management</li> <li>c. Public and private investment</li> <li>d. Financing tools</li> </ul>	<p><b>2. Governance (relating to HFA priority 1)</b></p> <ul style="list-style-type: none"> <li>a. Sector agendas</li> <li>b. Planning at different levels of government</li> <li>c. Decentralization</li> <li>d. Participation of civil society / private sector</li> </ul>
<p><b>3. DRM and CCA (relating to HFA priorities 2 and 4)</b></p> <ul style="list-style-type: none"> <li>a. Watershed management</li> <li>b. Environmental management</li> <li>c. Use of Climate Change scenarios</li> </ul>	<p><b>4. Land-use &amp; Territorial Planning (relating to HFA priority 4)</b></p> <ul style="list-style-type: none"> <li>a. Codes, regulations and standards</li> <li>b. Information tools (e.g. GIS)</li> <li>c. Land-use planning</li> <li>d. Urban and Rural Human Settlements</li> <li>e. Resettlement programs</li> </ul>
<p><b>5. Preparedness, Early Warning Systems (EWS) and Education (relating to HFA priorities 2, 3 and 5)</b></p> <ul style="list-style-type: none"> <li>a. Early warning systems</li> <li>b. Emergency preparedness</li> <li>c. Protocols for relief assistance</li> <li>d. Public education and awareness-raising</li> </ul>	

**Table 2. Links between Thematic areas and HFA Priorities**

Thematic areas	HFA Priorities
Financing	<ul style="list-style-type: none"> <li>• Make DRR a Priority</li> <li>• Reduce Risk</li> </ul>
Governance	<ul style="list-style-type: none"> <li>• Make DRR a Priority</li> </ul>
DRM and CCA	<ul style="list-style-type: none"> <li>• Know the Risks and Take Action</li> <li>• Reduce Risk</li> </ul>
Land-use & Territorial Planning	<ul style="list-style-type: none"> <li>• Reduce Risk</li> </ul>
Preparedness, EWS and Education	<ul style="list-style-type: none"> <li>• Know the Risks and Take Action</li> <li>• Build Understanding and Awareness</li> <li>• Be Prepared and Ready to Act</li> </ul>

The forms submitted by authors to the Committee also contained a brief summary providing general information on the particular experience. When the Committee had all information in hand its members analysed and classified every case using a set of Criteria to later determine which experience would get shortlisted. The criteria used by the Committee are the following:

- *Thematic relevance:* relating to risk reduction and/or risk management in keeping with the thematic areas mentioned above.

<sup>16</sup> OAS, 2010. *Second Hemispheric Encounter National Mechanisms and Networks for Risk Reduction "Encounter of Santa Marta: from Theory to Practice" Call for Case Studies, Lessons Learned and Best Practice*, p. 9.

- *General approach*: methodological and conceptual approach, depth of analysis, overall coherence and strength of argument.
- *Relevance*: innovative practices and lessons learned in relation to the objectives of the Second Hemispheric Meeting.
- *Replicability*: it can be applied or adapted to different social, economic, financial, political, institutional, physical and/or environmental conditions.
- *Sustainability*: the establishment and/or understanding of the social, economic, financial, political and institutional conditions needed to ensure sustainability over time.<sup>17</sup>

## 2.2 Best Practices for the Catalogue

This section summarizes the process leading to the development of the Catalogue, including the mandate itself, the pre-catalogue development activities, and the identification of additional categories for classification of the experiences.

### 2.2.1 Mandate

In September 2010, the OAS/DSD engaged the consulting firm *Le Groupe-conseil baastel Itée* to develop a Catalogue of Best DRM Practices in LAC, as committed at the Santa Marta Encounter.

As part of this mandate, the Consulting Team was asked to:

- Build a template based on thorough criteria and categories to facilitate general classification of best disaster risk management (DRM) practices in LAC, as submitted for the Encounter.<sup>18</sup>
- Use this template to select and classify a certain number<sup>19</sup> of best practices among the 92 proposals that were submitted to the OAS/DSD by different LAC organizations and institutions – ranging from national governmental agencies and ministries to community and municipal groups, universities and Non-governmental Organizations (NGOs) – for the Santa Marta Encounter.
- Use (and collect) information available on the selected experiences to write a Catalogue on best DRM practices, conclusions and recommendations selected amongst all proposals submitted for the Santa Marta Encounter.

### 2.2.2 Process for Catalogue Development

The process of developing the Catalogue was built on the criteria, thematic areas, and sub-themes outlined in the previous section. Additionally, further ways of categorizing and classifying the Best

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<sup>17</sup> OAS, 2010. *Second Hemispheric Encounter National Mechanisms and Networks for Risk Reduction “Encounter of Santa Marta: from Theory to Practice” Call for Case Studies, Lessons Learned and Best Practice*, p. 5

<sup>18</sup> Refer to Appendix I of the Catalogue to see the designed templates used for general classification.

<sup>19</sup> See Section 2.3 for more details on this.

Practices were chosen and are described in the following sub-section. A collaborative and participatory approach was followed through every step of the process leading up to the final production of the Catalogue.

The process for the development of the Catalogue and more specifically the additional *categories* selected to organize the information in the Catalogue were suggested in a draft document<sup>20</sup> for *comments, input and questions* by the OAS/DSD and the Committee. This process ensured that the categories and the general way forward for the development of the Catalogue were vetted in a participatory and consultative manner, strengthening the categories while fostering buy-in from all key partners and stakeholder.

Once agreed upon, the categories served as reference to finalize the *questionnaire* that was sent to all authors of proposals to obtain supplementary and/or missing information on all 92 experiences, a wide-scoping data collection phase that was indispensable for the development of the Catalogue (The Second Call). A month was allocated for the authors to answer, with a two weeks extension for some whom were contacted directly by email and/or by phone, followed by the compilation of data in the questionnaires, further synthesis of all available data, approval of the Table of Contents and ultimately, the development of the Catalogue.

### 2.2.3 Additional Information from Stakeholders

The benefits of the Encounter selection process, as outlined in section 2.1, are undeniably important in the development of the Catalogue and so building on these, further ways of categorizing the experiences were developed which were used in addition to those already existing to classify Best Practices for the Catalogue. The chosen criteria, categories and the sub-thematic areas have the potential to systematize and enhance the INDM's database and the Catalogue, as interested individuals will be able to manipulate data by applying them, and thereby researching experiences using other relevant themes and search terms.

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<sup>20</sup> Le Groupe conseil Baastel Itée. 2010. *Proposal of the Criteria for the Identification, Categorization and Systemization of the Best Practices and Lessons Learned Linked to Disaster Risk Management and Climate Change Adaptation.*

The additional categories for classification of experiences are presented and briefly described directly below:

### 2.2.3.1 Hazards

Listed below is the list of hazards considered in the Catalogue:

- Floods
- Earthquakes
- Landslides and mudflows
- Tsunamis
- Volcanic Eruptions
- Hurricanes
- Droughts
- Various/Multi-hazard

Evidently, some experiences are based on more general DRM processes not necessarily linked to a specific hazard (for example: some general mitigation strategies) and others deal with more than one hazard at a time. That is why the “various/multi-hazard” option is listed above. In itself, this option helps classify and eventually, by combination with other criteria, select broader, more general experiences for the Catalogue.

### 2.2.3.2 Comprehensive Disaster Management (CDM) Elements

CDM is essentially DRM, disaster management and DRR as defined by the CDEMA and its participating states in the Caribbean. *“CDM includes planning for all and responding to all hazards and threats (both natural and man-made) during all phases of the disaster cycle (mitigation, preparedness, response and recovery) and involves all levels and sectors of society in an integrated management approach. It requires continuous engagement of political and other decision makers.”* The following CDM elements are generally agreed to by the majority of the 18 CDEMA participating states and other partners in the Caribbean region. Even if other organizations have a different set of phases (such as the IDB’s 6 phases), they are compatible with the CDM ones. Even the HFA priorities, as discussed earlier, can be integrated into these 4 CDM elements. It should be noted that each of the phases are used to categorize and generally classify best practices selected and enhance the validity of the best practices chosen. They are not envisioned as disaster ‘phases’ in the Catalogue per se, but rather elements of DRM and DRR, as agreed upon. A brief description of each is presented directly below.

#### **Mitigation**

The lessening or limitation of the adverse impacts of hazards and related disasters.

#### **Preparedness**

The knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

### **Response**

The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

### **Recovery**

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

### **Various**

Application of these as CDM or DRR elements as another category in the presentation of best practices in the Catalogue will, again, allow for more benefits to the reader(s) and user(s) of information, as one may search for experiences that address a specific element or aspect that might be of interest. A “various” option is also added for experiences that cover more than one element.

#### **2.2.3.3 Territorial level**

This category is simple but is considered useful for the categorization of the experiences in the Catalogue. It is a way to account for and search for experiences by the different territorial contexts within which each experience operates. Territorial levels or contexts could include the following:

- Regional
- National
- Sub-regional
- Local (community/municipality)
- Multi-level

#### **2.2.3.4 Geographical**

The geographical criterion simply allows readers or users to find experiences of geographic interest or relevance to them. The different geographical areas of LAC, including countries, sub-regions and regions are considered for the Catalogue.

#### **2.2.3.5 Achievement of Results**

One critical area of additional information to be sought from the authors of each experience during the Second Call was the level of achievement of results and successes (and potentially even some challenges experienced or lessons learned in the process). By asking all authors to complete the summary of their experiences by introducing an Achievement of Results section, an essential value added was brought to the Catalogue which does not only deepen its informative value but also strengthens its ‘raison d’être’.

### 2.2.3.6 Institutional level

The institutional category assists the user of the Catalogue to identify the specific actors involved in the experiences, by classifying them based on their institutional contexts. These include the following:

- Political (presidential / ministerial)
- Technical
- Operational
- Scientific (academic / research)

### 2.2.3.7 Sector(s) targeted

Finally, a classification of experiences by sector targeted is considered to add another area of value for readers and users. Readers and users will easily be able to reference a sector of their interest, and this also permits the aggregation of an illustrative sample of experiences the LAC in different sectors. The sectors to be considered would include:

- |                       |                             |
|-----------------------|-----------------------------|
| • Education           | • Insurance                 |
| • Health              | • Tourism                   |
| • Agriculture         | • Environment               |
| • Good governance     | • Trade and Industry        |
| • Economy and Finance | • Planning and public works |

## 2.3 Catalogue Considerations

Notwithstanding the fact that information from almost all experiences is used in the Catalogue, the latter addresses, in more depth, a reduced number of experiences that were selected using the same criteria and rating the Committee applied.

Other important considerations pertaining to the final *categorization* of Best Practices for the Catalogue are the following:

- One key overarching criterion was the *level of availability* of the information needed for presentation of any best practice. Certainly, all authors of proposals and relevant personnel of organizations and institutions involved in the Encounter were contacted to obtain missing information and more in-depth information.
- *Results achieved*: to re-iterate, this criteria helps explain why an experience can be seen as a good practice versus a good idea.
- *Filled questionnaire and selection for encounter* were important factors for consideration.



- *Relevance*: The grading the Committee gave each experience was taken into consideration and merged with the analysis to determine which experience would be used and best suited to the Catalogue.

The Experiences/Best Practices of the Catalogue are presented in Chapter 3 and the following considerations apply:

- The Catalogue includes a wide selection of experiences with different scope, in terms of beneficiaries, budgets, types of hazard they deal with, territorial level, etc.
- The Catalogue is divided in 5 sections, the 5 thematic areas mentioned above. Any balance in the Catalogue within the five thematic areas in accordance with the second classification of the experiences by the Program Committee for the Encounter was completely dependent on information received. As is evident from Figure 1 below, which depicts the breakdown of experiences presented, there are a noticeably higher number of experiences in the fifth thematic area (Preparedness, EWS and Education) and a lower number of experiences in the first one (Financing) – hence, the first section of the Catalogue is smaller than the fifth section. Furthermore, Figure 2, below, maps the country/regional breakdown of the Experiences, from the Encounter, to experience selections for the Catalogue.
- Each section discusses its associated thematic area by giving examples from *all relevant experiences* – keeping in mind the integrated nature of the experiences and of the subject matter – with particular attention to some of them that were chosen to be introduced in *tables* that present more in-depth information (e.g. amongst others, the additional information collected through the filled and returned questionnaires). These experiences are also further discussed in the core text. For the selection of experiences to be presented during the Encounter, the Committee developed a sample that balanced out the presentations for the five sessions of the event. The same procedure was adopted for the above mentioned *tables* in the Catalogue although for the text itself, and as mentioned, all relevant experiences were considered. It should be noted again that all experiences will also be catalogues in the INDM database, wherein information pertaining to each would also be found (see Appendix I for more detailed information on all experiences that could eventually populate the database).
- A number has been attributed to each experience. When an experience is addressed and named in the Catalogue, its number is attached to its title in parenthesis to facilitate the search for more information on a given experience in Annex A and Appendix I where all relevant documentation for every experience is classified by thematic area and by number. These numbers are also associated to the pictures used in the Catalogue indicating which experience the picture was taken from.

- The Catalogue presents the experiences as “best practices” which does not mean that the content of the document only addresses positive aspects of the experiences. Some authors discussed challenges and obstacles to their experience’s implementation in the information on hand and the presentation of these brings an added value to the Catalogue, and the possibility of deriving other lessons and/or recommendations. In addition, it is worth re-iterating that “best practices” selected do not represent overarching objectives or “best practices” in DRM or CCA in the LAC; rather, as discussed, they represent those within the context of the First and Second Encounter and the information available for the Catalogue.
- All that is presented in the present Catalogue is information the authors have generously accepted to hand over to the committee and the OAS. On the rare occasion when the authors’ (of the Catalogue) impressions or comments are being reported, this is clearly stated.

Figure 1: Experiences per Thematic Area

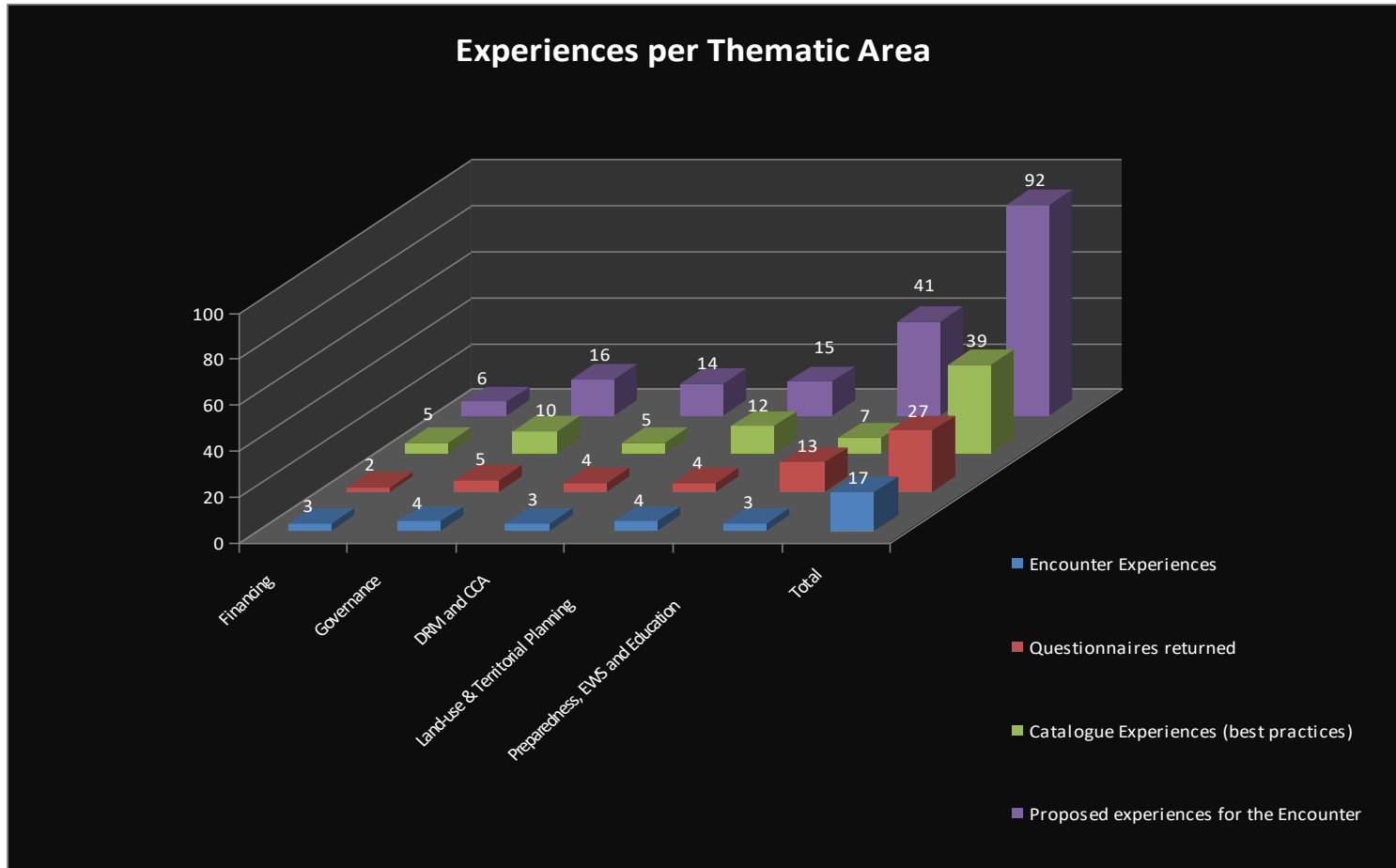
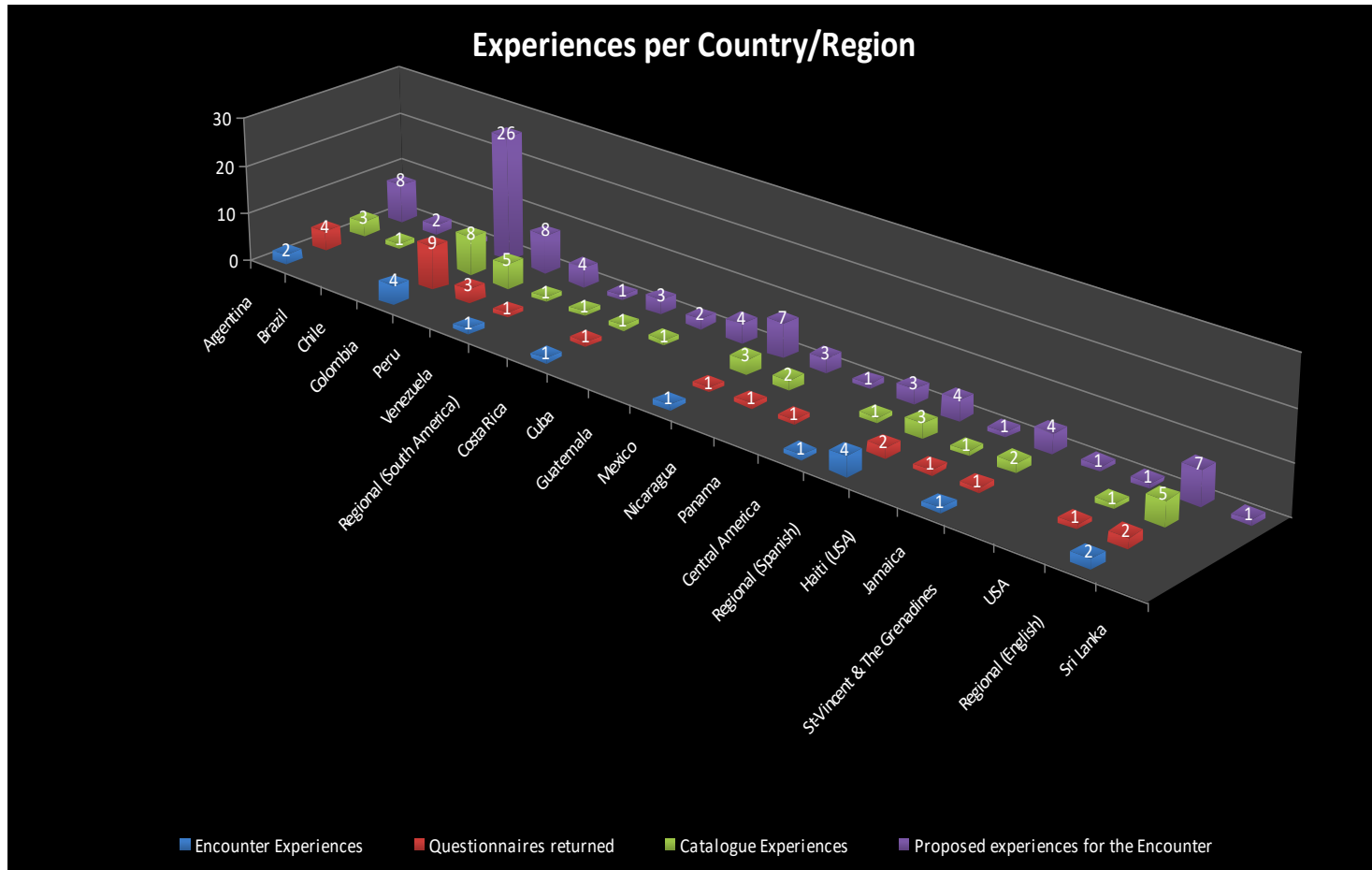


Figure 2 : Experiences per Country/Region





II Encuentro Hemisférico  
Mecanismos y Redes Nacionales  
para la Reducción del Riesgo  
**De la Teoría a la Práctica**

Santa Marta Colombia  
14 al 16 de Abril de 2010

### 3. Best Practices

Chapter 3 compiles all relevant experiences in their respective thematic area on the basis of the categorization the authors and the OAS/DSD have chosen for each Encounter experience. It is important to reiterate that this vital categorization process ensures the structural logic of the Catalogue and clearly establishes the link with the broader context of the Encounter. This being said, many experiences cover much DRM, DRR and CCA ground. Therefore, the classification of some of the more wide-spanning experiences in a given thematic area is more challenging than for others, as some experiences' work programmes cover more than one thematic area. Similarly, for those wide-spanning experiences and even for those that are more easily classified under one thematic area, there are often links that can be made across not only thematic areas but sub-thematic areas as well.

Notwithstanding this challenge and as agreed upon, the categorization along the five thematic areas is utilized in the Catalogue, and in this Chapter, as the principal division tool.

Thus, the following five sections of Chapter 3 are: 3.1 Financing; 3.2 Governance; 3.3 Disaster Risk Management and Climate Change Adaptation; 3.4 Land-use and Territorial Planning; and lastly, 3.5 Preparedness, Early Warning Systems, and Education.

### 3.1 Financing

Risk transfer mechanisms, resource management, public and private investment, and financing tools are all part of Financing in the context of DRM and DRR. This Santa Marta Encounter thematic area is linked to the first and fourth PRIORITIES FOR ACTION of the HFA, namely: *Make DRR a Priority* and *Reduce Risk*. By investing in DRM and DRR measures, countries, regions and relevant institutions from the public and the private sectors can augment populations' resilience to disasters. For the Santa Marta Encounter and for the Catalogue experiences, many examples from the Americas demonstrated how this critical process can be addressed and are highlighted below.

Although the highlighted experiences showcase particular financing mechanisms, some others can be highlighted, like: the Disaster Risk Financing and Insurance (DRFI) Program from the Global Facility for Disaster Reduction and Recovery (GFDRR), which was established to support the implementation of the HFA (<http://www.gfdr.org/gfdr/node/337>); Disaster Financing Mechanisms Ex Ante (e.g. Disaster Prevention Sector Facility, managed by the Inter-American Development Bank; Prevention and Mitigation Projects Mechanism, managed by the World Bank; Disaster Mitigation Facility for the Caribbean (DMFC), managed by the Caribbean Development Bank (CDB); National Disaster Fund Managed by the respective Federal Government - one example of this mechanism is the FONDEN – National Fund for Natural Disasters (*Fondo Nacional para Desastres Naturales*) in Mexico - <http://www.gobernacion.gob.mx/>; Community Financing Mechanisms for Communities affected by Disasters); and Disaster Financing Mechanisms Ex Post (e.g. Budget Support Managed by Donor Entity

and recipient Government; Disaster Management Fund for the Eastern Caribbean Donor Group (ECDG); and the Thematic Trust Fund for Crisis Prevention and Recovery, managed by UNDP.<sup>21</sup>

### **DRM and DRR Investment Modalities**

The Caribbean initiative, “Experiences from the Caribbean Emergency Legislation Project (CELP)” (79), aims to build legislative capacity to enhance legal and institutional frameworks in state of emergency situations and budget appropriation and execution in eleven CARICOM countries and the Dominican Republic (DR). It addresses how to improve legislative channels and administrative procedures during, and immediately after the occurrence of a disaster by reviewing global best practices, and promoting dialogue with national and regional stakeholders.

One finding of this project is that National Disaster Management Policies and National Disaster Plans in the CARICOM region and the DR usually lack pre-approved financing measures that will ensure their implementation. This situation can be improved through greater coordination between NOFPs (or their equivalent) and regional, national and local governments to improve needs assessment, priority settings and hence budget structuring and fund allocation. Budget appropriation and execution mean that funds need to be available to implement Emergency Powers Acts, and Disaster Management or Preparedness legislation and regulations which, according to the CELP, are already well established in the region. An example outside the Caribbean region of budget appropriation for Preparedness legislation implementation comes from Mexico where “The Disaster Prevention Fund” (*El Fondo para la Prevención de Desastres (FOPREDEN)*) (56), created in 2003, brings complementary resources to regular, more reactive funds that the federal government already has in place. FOPREDEN works within the legal framework of the General Civil Protection Law and funds prevention projects (mitigation and preparedness) that are presented by relevant institutions to a Technical Scientific Committee for the evaluation of the technical viability of the projects and to a Council that determines their final eligibility, both bodies having been created specifically for the fund. Projects that are aimed either at identifying and/or mitigating risks or that promote a culture of prevention are addressed by the committee and the Council.

From CELP, three main lessons learned are clearly delineated, namely: 1) Constitutional and other legislative instruments need to be revised to address conflicts and establish clear and transparent budget management procedures/mechanisms that are to be triggered in the event of a natural disaster; 2) Governments need to establish a substantial and separate national fund specifically for disaster management and emergency response; and, 3) Disaster funds should be supported by procedures and guidelines that ensure impartiality, accountability, efficiency and discourage waste. Though not all new

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<sup>21</sup> The Disaster Financing Mechanisms Ex Ante and Ex Post can be found on: [http://www.acs-aec.org/disasters/disaster\\_financing\\_eng.htm](http://www.acs-aec.org/disasters/disaster_financing_eng.htm) Site Visited on February 1st 2011.



per se, since the closing of the project, these lessons have been at the center of a policy review in many CARICOM countries and in the DR.

Stakeholders agree that the way resources are managed and delivered is vital for disaster plans to be executed in a timely manner and with sufficient impacts when disaster-related emergency situations occur. To reach a higher level of efficiency, evaluations of implementation procedures are also indispensable. The Colombian government for example, after a full evaluation was performed of the “Strategy to Consolidate the National Disaster Prevention and Mitigation Plan’s Execution in the Short- and Medium-Term” (*Estrategia para Consolidar la Ejecución del Plan Nacional para la Prevención y Atención de Desastres – PNPAD – en el corto y mediano plazo*) (25), had consolidated its national disaster plan’s execution, which in turn made the latter more timely and effective. In the medium term, experience suggests that this type of exercise also helps focus DRM energies on the right type of risks for a given country and/or region.

In terms of useful tools and methodologies in DRM or DRR financing, the IDB experience, “Application of the IDB Indicators of Disaster Risk and Risk Management” (88), demonstrates how the use of certain types of indicators can help a country determine to what risk it is prone and where it should invest to better mitigate and prepare itself for such risks.

#### Application of the IDB Indicators of Disaster Risk and Risk Management (88)

##### Profile

**Hazards:** Various hazards

**CDM Elements:** Mitigation, Preparedness, Response, Recovery

**Territorial level:** National

**Geographical:** LAC

**Sector(s) targeted:** Education, health, agriculture, good governance, tourism, insurance, environment, trade and industry, planning and public works and economy and finance sectors

**Institutional level:** Political, Technical and Operational

##### Achievement of Results

- A multi-sectoral dialogue was initiated in many countries
- A financial protection strategy can be elaborated from use of the indicators
- A process of normative, institutional and political reforms has been pushed forward in some cases
- Wide-scoping DRM/DRR indicators developed and utilized
- Used in 18 countries in LAC (2008-2010)

##### Lessons learned

- To use the indicators, information must be made available by countries
- The use of the indicators is only a first step that can lead to the use of more refined instruments that will help a more in-depth analysis to be carried out

##### Summary

**The IDB has developed four indicators to measure:** 1) Estimated economic losses a disaster event would cause to a country; 2) How prone a country is to a disaster and the accumulated impact these events have on the local development; 3) Predominant vulnerability conditions in terms of propensity by areas, socio-economic fragility, and lack of resilience; and, 4) How DRM is carried-out using benchmarks

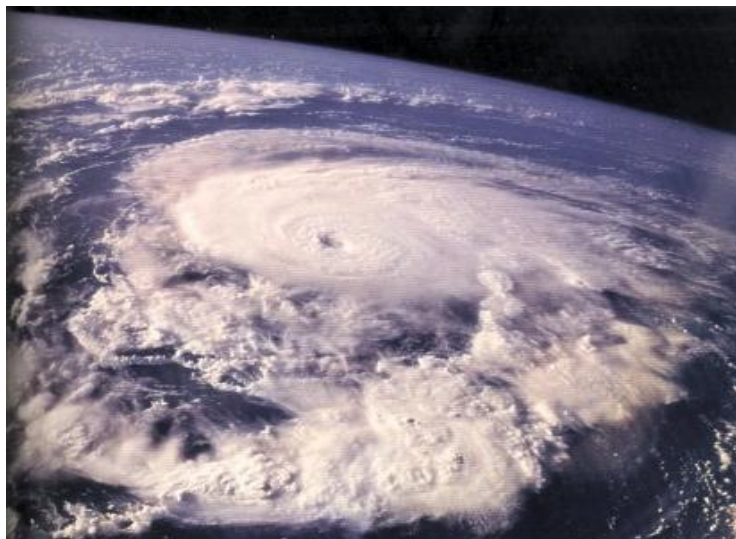
**The use of these four indicators improves:** a) The presentation and the management of risk information to invest more effectively in prevention and mitigation of disaster risk and better direct the recovery process after a disaster has occurred; b)

The measurement of the vulnerability of the countries, the impact the disaster mitigation public policies and investments have on risk management, and the needed means to better manage risk; and, c) Technical information-sharing possibilities in the LAC region.

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#### Pictures from Powerpoint 88 –

#### Evaluación de Riesgos Naturales – América Latina [www.ern-la.com](http://www.ern-la.com)



The IDB DRM Indicators provide for a useful tool used by certain countries at the national level to better determine where, how much, and in what type of DRM to invest. On a smaller scale, and at the municipal level, where vulnerabilities to disasters are better known by local populations and decision-makers, experiences suggests that resource management is a more pressing issue than is the establishment and narrowing of scope of DRM investment. The following experience (61) outlines a local resource management project implemented in Nicaragua.

#### **Mancomunidad Telica River Basin: Strategic Planning with a Focus on DRR and Local Indigenous Development** **Mancomunidad Cuenca Río Telica: Planificación Estratégica con Enfoque de Reducción de Riesgo de Desastres y Desarrollo Local Endógeno (61)**

##### **Profile**

**Hazards:** Various hazards (except Tsunamis)

**CDM Elements:** Mitigation, Preparedness, Response, Recovery

**Territorial level:** Local

**Geographical:** Nicaragua (Municipalities of

##### **Achievement of Results**

- By sensitizing decision makers at the local level, Strategic Planning, DRM and Food Security are incorporated in annual municipal budgets
- The agriculture sector is involved in all aspects of the project management, including finance management
- Strategic Planning used as a development tool for the communities

Telica, Quezalguaque and Larreynaga)  
**Sector(s) targeted:** Education, health, agriculture, good governance, environment, planning and public works  
**Institutional level:** Political and Operational

- Project is self-funded (with support from the central government)
  - *Mancomunidad* was nominated as a model community for DRR during the UNISDR 2010-2011 World Campaign "Making Cities resilient: My City is Getting Ready!" ("Mi ciudad se está preparando")
- Lessons learned**
- Working at the local level creates direct results for the communities because the technicians know the local territory

### Summary

This project's main characteristic is its local level reach. All aspects of its implementation are oriented to and delivered at the municipal level, including financing operations. Aimed at the HFA implementation in highly vulnerable communities through "development from within" (*desarrollo endógeno*), the project funds alternative local and sustainable development initiatives and risk management. Municipal governments integrate risk reduction in their investment plans for poverty reduction to augment resilience of the population to natural and manmade disasters (e.g. mining). Local experts were involved in the project and advised the municipal decision makers.

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The Mancomunidad project stands out as it combines resource management and local level project operational activities and integrates poverty reduction investment plans into disaster resiliency building by encouraging community members' participation. In addition to emergency response, the experience highlights that municipalities need to be involved in mitigation and preparedness which facilitates strategic planning and permits a more comprehensive process in that sense. Furthermore, the experience also highlights that municipalities and communities need to be considered as important actors in DRM because they can make the DRM applicable for the population. Lastly, the experience is also inextricably linked to the following thematic area, Governance, which, in practice, is required to make any funding arrangement functional and sustainable.

## 3.2 Governance

Although 'Governance' in different contexts can rightly be understood in different ways and as covering a variety of aspects, in the context of the Encounter, this thematic area includes experiences related to activities such as setting sector agendas; participation of civil society; planning at different levels of government; and, decentralization. The HFA priority related to the Governance thematic area is *Make DRR a Priority*. In this sense, policies, laws, plans, and organizational arrangements are the main areas of focus of the experiences this section addresses.

### Linking, coordinating and stimulating efforts from different levels of Governance

Planning at different levels of government and decentralization, and related organizational arrangements or disaster management systems are at the core of many experiences presented for the

Encounter. For example, in Argentina, the planning of DRM at the local (municipal) level is the focus of an initiative called “Progress in the Implementation of a DRM Municipal System” (*Avances en la implementación de un Sistema Municipal de Gestión de Riesgos*) (4), which aims to reach further than addressing just the response to disaster-related events, but also elements of disaster preparedness, mitigation, recovery, as well as response. Planning for the longer-term and building policies in cooperation with relevant institutions to set a harmonized path for all DRM activities at the local level is the ultimate goal of this project. Thus, a Central Committee regrouping 3 municipalities has been set up with four specific commissions to better plan for DRM at the local level. They are:

- The Prevention and Mitigation Commission
- The Preparedness and Response Commission
- The Recovery Commission
- Information and Communication Commission

This Argentine initiative focuses on smaller municipalities working together to build a risk management system in the region but bigger urban centers can also be classified as municipal level projects although for many of their elements, the scope changes.

In Bogotá, a project called “Recovery Planning: After an Earthquake, Bogotá Has a Life Plan” (*Planeación de la Recuperación: Para después del Terremoto, Bogotá tiene un Plan de Vida*) (14) is addressing disaster management systems with a focus on recovery. In cooperation with the UNDP, the Dirección de Prevención y de Atención de Emergencia (DPAE), Colombia’s capital is planning for recovery ahead of time in case an earthquake occurs. In addition to stimulating the participation of the affected population, this type of long-term recovery planning permits the development of strategies that will enable needed production to be started again rapidly, thereby facilitating the re-organization of the work force in the short-term, immediately after an earthquake has taken place. By making relevant municipal institutions and organizations’ reaction, coordination and information management functions more efficient, the aim is to catalyze a more effective recovery of Bogotá’s population after such an event. Thus, an action plan has been put together that contains the policies, principles and the strategies that guide preparation, planning and execution of programs and projects that will lead to a sustainable recovery in the occurrence of an earthquake. A technical guide for operations has also been developed that dictates actions and procedures for public, private and community actors involved. Other plans and frameworks have been put together to ensure a successful recovery in case Bogotá suffers a disaster.

One of the main conclusions of the Encounter’s Thematic Session 2 (Governance) has been that while efforts at the local level and decentralization are certainly relevant, links between local DRM and national, regional and even international level DRM efforts are indispensable.

Indeed, although the local level is the centre of attention of many Santa Marta relevant experiences, many experiences highlighting the linkages between the national, regional and international levels have also been presented. The following best practice (89) exposes how links between DRM activities at different governance levels' can be envisaged. Managed internationally, this initiative stimulates civil societies' participation at the local level in 20 states around LAC and helps manage and coordinate efforts from all level of government.

**The White Helmet Initiative**  
*Iniciativa Cascos Blancos (89)*

**Profile**

**Hazards:** Various hazards

**CDM Elements:** Mitigation, Preparedness, Response, Recovery

**Territorial level:** Regional, National, Sub-Regional, Local and Public Sector

**Geographical:** LAC (initiated by Argentina)

**Sector(s) targeted:** Education, health, agriculture, environment sectors

**Institutional level:** Technical and Operational

**Achievement of Results**

- 4,500 international and national volunteers trained in LAC
- 16 designated international focal points: Argentina, Brazil, Bolivia, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Panamá, Paraguay, Peru, Trinidad and Tobago, Uruguay and Venezuela.
- 13 training projects for local volunteers: Belize, Bolivia, Ecuador, Guatemala, Haiti, Honduras, Jamaica, Paraguay, Dominican Republic, Trinidad and Tobago and Uruguay.
- 11 regional workshops to install the Cascos Blancos: Ecuador, Bolivia, El Salvador, Guatemala, Jamaica, Paraguay, Peru, Dominican Republic, Trinidad and Tobago, Uruguay and Zones in Belize/Guatemala.

**Summary**

The White Helmet (*Cascos Blancos*) initiative is a volunteer selection and training model implemented in LAC for all aspects of DRM. It is adapted to the many different disaster vulnerability contexts in the 20 member states. It brings together efforts and resources that are usually scattered and spread out and help focus energies in disaster-related emergency situations. The model acts as a focal point for professionals, technicians, representatives of local organizations and it supports the development of resource distribution systems and risk management plans. The White Helmet Initiative is depicted as a tool that helps mobilize and coordinate resources from all levels of government and even facilitate regional and international assistance during emergency situations caused by disasters.

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**Picture from Powerpoint 89 – A White Helmet Team**

Another such example, linking this time the national political level to the sub-national levels comes from Brazil whose Government, through the Ministry of National Integration and its National Secretary of Civil Defense (SEDEC), promoted information-sharing on climate change and ways of tackling it through a network of five sub-national regions in the country. The project, called the *Civil Defense practices against Climate Change* (9) started off with five seminars especially organized for each sub-national region involved. During these seminars, representatives from Government (Federal and State levels), professionals, researchers and civil society representatives discussed climate change issues and exchanged their lessons learned from their experiences and studies, and considered the Brazilian adaptation of international recommendations on the subject. Representatives of specialized organizations and universities such as the Intergovernmental Panel on Climate Change (IPCC), Ministry of Science and Technology (MCT), and the National Institute for Space Research (INPE) were invited to present the conclusion of their research. One final event ended the process and integrated all accumulated knowledge to formulate recommendations to all involved and relevant institutions and organizations.

This type of project supports DRM and CCA planning at the national level by stimulating stakeholders' participation and interaction within the country. For smaller countries organized regionally, like the Caribbean region's countries, national DRM planning has also been affected by the actions of a regional institution. The following example also demonstrates some of the benefits of bringing together different national ministries and organizations. In this case, it was to answer questions in a regional benchmarking tool for DRM, but also served to enhance the sharing of knowledge and experiences at the national level.



**Disaster Risk Management Benchmarking Tool [BTool] (77)**

**Profile**

**Hazards:** Various hazards  
**CDM Elements:** Four CDM elements  
**Territorial level:** Regional  
**Geographical:** Caribbean  
**Sector(s) targeted:** Planning and public goods and Economy and finance  
**Institutional level:** Political, technical and operational

**Achievement of Results/Lessons learned**

- Enhanced the knowledge-base of political directorates, Permanent Secretaries, and Chief Executive Officers of major public and private agencies on the utility of the BTool as a self-assessment disaster risk management evaluation tool.
- Built effective public awareness program that promotes stakeholder participation and involvement in the use and adaptation of the BTool

**Summary**

- Evaluate, assess, and identify the state of readiness of participating countries to disasters. It provides a snapshot of a country's exposure to natural disaster. With such information in hand, pro-active DRM planning for national governments, civil society organizations, and the private sector is facilitated.
- The tool was developed in six stages:  
*Stage 1: Selection of a comprehensive disaster management framework*  
*Stage 2: Identification of disaster risk management tools and resources*  
*Stage 3: Design of risk management assessment questions*  
*Stage 4: Stakeholder review and modification of the BTool*  
*Stage 5: Workshop on the use of the BTool*  
*Stage 6: Adoption of the tool by local, national, and regional stakeholders.*
- The six areas covered by the BTool are:  
 Hazard identification, Hazard mitigation, Risk transfer, Disaster preparedness, Emergency response, and Rehabilitation and reconstruction.

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Some of the aforementioned experiences are large in scope and operate at the international and regional levels such as the Cascos Blancos experience and the BTool. For the Cascos Blancos initiative, all 20 member states from Latin America are concerned and participate in the network. The BTool is a regional tool that helps countries in the Caribbean assess their vulnerability to disasters.

Both being big projects and addressing many DRM issues at once, the classification of the above described initiatives under the Governance thematic area has its limits. For example, one could easily argue that the Cascos Blancos experience should be analyzed in the Preparedness, EWS and Education thematic area. This experience incorporates training sessions for local volunteers that could be understood as activities to *prepare* the vulnerable communities in case of emergencies related to disasters. Through workshops, these volunteers are being *sensitized* to the impact any disaster can have

on local populations. Similarly, the Brazilian initiative of information-sharing and network building in climate change overlaps with areas of focus under DRM and CCA (Section 3.4).

Both Cascos Blancos and the Brazilian initiative have shown results and are considered to be among the Encounter's best practices. While they promote networking between different social, institutional and political spheres, another advantage is their replicability. These projects can be replicated and are useful in many different contexts, i.e. formal institutional frameworks or day-to-day operations of an informal organizational structure.

### **Replicability**

Replicability speaks to experiences that can be considered easily replicable and adaptable at regional levels. The OAS manages a program called "Central American Program for Flood EWS in Small Basins and Vulnerability Reduction: Development of a Regional Platform" (*Programa Centroamericano para la Alerta Temprana ante Inundaciones en Pequeñas Cuencas (SVP) y Reducción de la Vulnerabilidad: Desarrollo de una Plataforma Regional*) (84) which was first implemented in 1995 in Honduras, Nicaragua and Guatemala where no less than 20 community-centered flood EWS have been installed in these countries. The project then snowballed to all other Central American States and the DR. Almost twenty years later, as a result of the program, more than 80 EWSs are in place in the region.

Although the experience has been successfully implemented and replicated, a sustainability challenge is now threatening its survival. A lack of a harmonized methodology for the design and implementation of these systems has been made evident. Another obstacle is the fact that the EWS's financing depends on international aid, and when this is discontinued, results in the interruption of their operation. Integrating the management and financing of these systems in regular national governmental operations is the solution proposed during the Encounter to solve the problematic situations. The lesson learned from this experience is that Central American States, and more broadly all others that use such systems, may take over the administration and financing of their community-centered flood EWS. After the regional start-up phase, decentralizing governance to the national level might ensure sustainability.

### **Stakeholder Participation**

Another way to ensure sustainability of DRM projects is to encourage the participation of as many stakeholders as possible. "The Comprehensive Disaster Management Governance Mechanism" (80) brings together six sectors of society, i.e. education, health, civil society, agriculture, tourism and finance which have been prioritized areas of focus in the Enhanced Regional CDM Strategy 2007-2012. These six sectors are organized in committees and are coordinated by CDEMA, a regional disaster management body that acts as a facilitator, a driver, a coordinator and motivating force for the promotion and engineering of CDM in all the Caribbean participating states. In addition to providing policy and technical advice for CDM implementation at the national levels for governments, this governance mechanism also does so for the private sector. The idea is to build up accountability of those other than public sectors in



DRM and DRR. The governance mechanism has contributed to the successful mainstreaming of CDM from the planning stage to implementation at the regional level and is starting to do so across the six different sectors at the national level. This process takes time because of the participatory approach to CDM Governance the mechanism adopts with institutions involved.

A similar mechanism exists in Peru but focuses on public institutions, NGOs and civil society. At the time the Santa Marta Encounter took place, the groups “GRIDES: (Disaster Risk Management and Climate Change Adaptation Promotion Group): institutional networks for disaster risk management” *GRIDES (Grupo Impulsor de Gestión de Riesgos de Desastres y Adaptación Climática): redes institucionales para la gestión de riesgo de desastres* (67), financed by OXFAM America, were active in 8 regions of Peru and represented 160 institutions all together. By January, GRIDES are now present in 11 regions of the country and represent 200 institutions.

**GRIDES: (Disaster Risk Management and Climate Change Adaptation Promotion Group): institutional networks for disaster risk management**  
*GRIDES: redes institucionales para la gestión de riesgo de desastres (67)*

**Profile**

**Hazards:** Various hazards  
**CDM Elements:** Preparedness  
**Territorial level:** Regional, national, sub-regional, local, and public sector  
**Geographical:** Peru  
**Sector(s) targeted:** Education, agriculture, good governance, Environment, and planning and public works  
**Institutional level:** Political

**Achievement of Results**

- Strengthened DRM and CCA capacities of its members
- Augmented its presence in the National Civil Defence System and in international networks
- Has integrated DRM and CCA in regional development policies through the work of the Civil Society

**Lessons learned**

- The organization of DRM in GRIDES facilitates the evaluation of the advancement of the country in the HFA PRIORITIES FOR ACTION s.
- GRIDES get their strength from involvement of all relevant institutions.

**Summary**

GRIDES work in a network around the country to integrate DRM in the educational sphere at every level and in local and participative budgets. The groups work towards sensitization of the population to disaster risk to stimulate the citizen's participation in DRM. Since they work all around Peru, they adapt their activities to the context and to the disaster risk of the sub-national region they work in. Although the groups aim at the preparedness element of CDM, in the past year and on a small scale only, they are starting to train representatives from the network in response activities.

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Interestingly, experiences have suggested that another way to involve Civil Society in the advancement of DRM has been to solicit their opinion on the progress of countries in HFA PRIORITIES FOR ACTION's implementation. In 2009, such an initiative has been undertaken around the world by the United

Kingdom and involved 7000 individuals, representing 400 organizations. Uruguay, Bolivia, Venezuela and Peru participated in what was called “The Global Society Network for DRR in America: An Evaluation of the Progress Made in the Implementation of the Hyogo Accords from the Local Perspective” (*La Red Global de la Sociedad Civil para la Reducción de Desastres en América: una evaluación desde la perspectiva local del los avances en el cumplimiento de los acuerdos de Hyogo*) (85). By establishing a local monitoring system in many countries around the world, this evaluation intended to collect information and opinion directly from the population. The data collection process and the analysis of the accumulated information was then used to sensitize the public sector on the importance of the participation of countries to the implementation of DRM policies and to strengthen dialogue and common understanding of the different institutions and organizations responsible for disaster reduction.

For the Project “School, Community and Business Plans for Risk Management integrated into Mandatory Student Social Service Programme” (*Planes Escolares, Comunitarios y Empresariales de Gestión del Riesgo Articulado con el Programa de Servicio Social Estudiantil Obligatorio*) (30) of the Colombian Fundación Nacional de Socorristas (FUNASO), participation in DRM is intrinsically linked to education. Students from all levels are sensitized to DRM through education plans, a process that facilitates the dissemination of a culture of resiliency in the communities, beyond the social spheres of schools and universities. This project aims to use the mandatory student social service of the country (*servicio social estudiantil obligatorio*) as a center for mitigation of disaster risk for communities in which each are present. The participating students, mostly from more vulnerable areas, are trained in DRM and can then spread the knowledge they gain in the Project in their personal social circles (e.g. in families, communities and even in the private sector through the companies they work in). This project evokes elements of the fifth thematic area. As is the case with the Cascos Blancos, education plays an important role in governance especially at the local and/or community level.

### 3.3 Disaster Risk Management and Climate Change Adaptation

The links between DRM and CCA abound, as is evident in the experiences presented above under the Governance theme. CCA is increasingly integrated into DRM and its associated policies and subsequent local and regional action and educational initiatives. This thematic area explores experiences dealing with integrated water resource management, watershed management, and environmental management, in the context of growing climate variability and existing climate change scenarios. *Knowing the risk* in defined regions to then *reduce its underlying risk factors* are the two HFA objectives related to this thematic area. Naturally, countries that are vulnerable to Climate Change-driven disasters have been equally active in DRM, and the Encounter experiences below reflect progress in locally-driven initiatives, network building, knowledge and tool building and their dissemination through DRM and CCA educational programming which is being integrated into state and local planning and policymaking processes. Additionally, the following experiences advance the integration of DRM and CCA, including the integration of risk reduction into human development frameworks.

#### Building Local and Regional DRM and CCA Networks

Setting harmonized goals and policies at municipal levels and improving efficiency in DRM and CCA is an area of concentration for Argentina's experience: "The Paraná Basin: Towards a Network of Safer Cities in Argentina's Littoral" (*Cuenca Del Paraná: Hacia Una Red De Ciudades Más Seguras En El Litoral Argentino*) (5), whose sub-regional network is taking shape and is oriented towards strengthening DRM locally in relation to flood hazards, within a broader regional framework (Littoral Region). For example, in the Paraná basin, municipalities have decided to unite to better manage disaster risk and augment the resilience of the sub-region to disaster risks and climate variability. This initiative started in October 2009 with a regional event, "First Encounter of Mayors of the Paraná, Littoral Region: Towards a Network of Safe Cities" (*Primer Encuentro de Intendentes de la Cuenca del Paraná, Región Litoral: hacia una red de ciudades más seguras*), aimed at sharing ideas and best practices between municipalities in order to better manage disaster risk and increase communities' resiliency to disaster risks and climate variability. A noteworthy characteristic of this initiative is, on the one hand, its local focus and on the other, the collaboration of municipalities and its DRM and CCA actors within a broader, sub-regional and regional context, in order to maximize efficiency and to coherently address the common disaster and climate risk factors facing the localities. Therefore, the forming of a regional network of municipalities of a common river basin is aimed at developing conditions for better sustainability and security of those communities, thereby concentrating DRM and CCA-related efforts in the same direction.

**The Paraná Basin: Towards a Network of Safer Cities in Argentina's Littoral**  
*Cuenca Del Paraná: Hacia Una Red De Ciudades Más Seguras En El Litoral Argentino (5)*

**Profile**

**Hazards:** Floods

**CDM Elements:** Mitigation, Preparedness, Response, Recovery

**Territorial level:** Sub-regional

**Geographical:** Argentina

**Sector(s) targeted:** Governance, environment, planning and public works

**Institutional level:** Political, Technical and Operational

**Achievement of Results**

- Knowledge was shared between the municipalities of the Network at the 1<sup>st</sup> regional event on criteria and guidelines for policy development
- Compromise was reached to work with common strategies/guidelines rooted in HFA PRIORITIES FOR ACTION s to reduce disasters and improve resiliency of communities to disaster risks and climate variability that is specific to their geographical location and the Paraná basin
- Preliminary regulation was elaborated for the integration of the Network within HFA PRIORITIES FOR ACTION s, and regular information was sent about aspects of interest from participating municipalities
- Preliminary goals to be reached were outlined and activities to be developed were planned

**Lessons learned**

- It is important to streamline criteria and work guidelines, given that the Network's municipalities manage disaster and climate risks through different organizational structures
- The joint management of Network's municipalities can facilitate the achievement of initiatives of common interest (e.g. acquisition of technology associated with meteorological forecasting and the monitoring of events potentially dangerous for the region's communities)
- Although the space offered by the Network is validated by its constituent municipalities, however, there are periods in which local priorities are displaced by other themes, rendering team work more difficult

**Summary**

The Network of municipalities is looking to share criteria and guidelines for the development of policies for DRM and CCA at the local level, including technical and operational aspects required for their implementation. The experience is focused in different sectors, according to the interests of the distinct municipalities although there is a common emphasis on governance and DRM and CCA planning. As a follow up to the first regional event that took place and the 13 cities that were in attendance from the Argentine provinces of Santa Fe, Entre Ríos, Corrientes and Chaco, additional municipalities from the provinces of Misiones and Formosa had expressed an interest in joining the Network. The second meeting of the Network's municipalities (Oct. 2010) within the global campaign to build resilient cities (*'Desarrollando ciudades resilientes: Mi ciudad se está preparando'*), was used as a foundation to add other municipalities from the Littoral.

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### Knowledge Creation and Tool Building in DRM and CCA

Another important approach to CCA and DRM is the cross-roads between the creation of scientific and technical knowledge that yields the appropriate tools to manage climate vulnerability and risks, including the corresponding infrastructural changes and necessary collaborations. Naturally then, knowledge building and the building of methodologies and tools for capacity building in communities vulnerable to climate change is equally vital to understanding risk factors and mitigating anthropogenic risks.

Colombia's project "Higher Education and Risk Management: Experiences from University De La Salle, Bogotá" (*La Educación Superior Y La Gestión Del Riesgo: Experiencias De La Universidad De La Salle, Bogotá*) (28) is stimulating higher education in the CCA and DRM field through De La Salle's Environmental and Sanitary Engineering Programme (PIAS). Interestingly, this program is integrating itself in the State's plans and supporting local authorities' work in the strengthening of the Territorial Plans/Land-use Plans, and in so doing, it is generating work in the communities and putting in place a disaster and environmental information system (SIDHMA). Furthermore, the inclusion of the risk component in municipal territorial planning resulting from this project allows for dealing with potentially dangerous events, including risks amplified by anthropogenic change.

#### Higher Education and Risk Management: Experiences from University De La Salle, Bogotá *La Educación Superior Y La Gestión Del Riesgo. Experiencias De La Universidad De La Salle - Bogotá (28)*

##### Profile

**Hazards:** Multi-hazard (Floods, Earthquakes, Landslides and Mudflows, Tsunamis and Volcanic Eruptions)

**CDM Elements:** Preparedness, Mitigation, and Response

**Territorial level:** Sub-regional and Local

**Geographical:** Colombia

**Sector(s) targeted:** Education, Good governance, environment, planning and public works

**Institutional level:** Technical and Scientific

##### Achievement of Results

- About 60 academic institutions and two prison centers (El Buen Pastor and La Picota) with emergency plans
- Identification and analysis of risk factors of 17 municipalities, including 12 of the upper watershed of the Bogotá river
- Identification of risk factors of the National Parks Tayrona and Los Nevados

##### Lessons learned

- There is a low percentage of institutions with emergency infrastructure in place (80%) and in the majority of the municipalities observed, territorial plans lack a proper treatment of risk
- Considering the importance of education as a source for understanding risk factors, territorial planning and sustainable development are pillars for the educational DRM processes which include CCA aspects
- Operational level should not be discarded because DRM education is done based on the 'action-participation' model and efforts of the universities in their DRM and CCA work should be centered each time

### Summary

As part of this long-standing initiative, in 17 municipalities of the country and in 12 municipalities of the upper watershed of the Bogotá river, risk factors have been identified and analyzed by Universidad de la Salle whose experts have subsequently worked with local institutions and have developed better emergency plans (some 50 plans) in and around the city. Resulting from the applied research conducted since the project's inception in 2001, some 50 public and private sector emergency plans have been elaborated to support initiatives in education and prison institutions. Currently, the Fucha river community is being trained to deal with the growing risks of flooding in a participatory manner.

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The above-mentioned initiatives overlap in the way that they address DRM and climate vulnerability in watershed management and emergency planning, through collaborations between local level authorities in both Argentina and Colombia. Both create guidelines for DRM and CCA and propose assessment and addressing of risk factors, thereby harbouring potential to affect policy at higher levels. In the Argentinean example, there is an interest in codifying the local balance of power to bring funds closer to municipalities, where decisions are taken faster and where duplication of tasks and responsibilities would be eliminated at higher levels. Interestingly, the Colombian example is centered on the importance higher education plays in transferring and disseminating knowledge from the bottom-up, and influencing emergency planning at all levels.

### Integration of DRM and CCA and Projection and Management of Future Climate Risks

Minimizing the effects of anthropogenic climate change and managing climate-related risks through the deeper integration of DRM and CCA or via development of national CCA policies, is the focus of some experiences in this thematic area. Furthermore, climate modelling has become an increasingly useful quantitative method, particularly used by the IPCC and other related organizations/initiatives to: study the dynamics of the climate system and to project future climate; build tangible tools like climate scenarios; and identify the concentration and type of climate risks which themselves are vital in risk reduction and management of varying risks.

An exemplary case of the vital integration of risk reduction into the human development framework is “The Caribbean Risk Management Initiative (CRMI) - A Regional Approach to Advance the Integration of Disaster Risk Management and Adaptation to Climate Change” (78) – launched in 2004 by the United Nations Development Programme's (UNDP's) Bureau of Crisis Prevention and Recovery (BCPR) and the Regional Bureau for Latin America and the Caribbean (RBLAC), and aimed at strengthening the

Caribbean regional and national capacities to manage and mitigate the risks of disasters, thereby strengthening regional capacity to adapt to climate change. In order to build this capacity, the CRMI facilitates the development of policies and mechanisms for improved management, recovery and development in Small Island Developing States (SIDS) in support of the Mauritius Strategy and the RBLAC Regional Program Document (RPD 2008-2011).<sup>22</sup>

Similarly to the Argentine and Colombian experiences, the CRMI relies on continuous dialogue and closer engagement between climate scientists and the operational community of disaster managers so as to increase the capacity building through south-south collaboration and the exchange of existing technical capacities. Knowledge building and tool creation through documentation and dissemination of best practices and lessons learned in different aspects related to DRM adaption to climate change, is another key strategy of CRMI. Some of the key CRMI outputs to date include: research on “Enhancing Gender Visibility in Disaster Risk Management and Climate Change in the Caribbean”; support to Climate Change modeling and extreme weather forecasting; vulnerability and capacity assessments; and knowledge-building through enhanced and strengthened partnerships.

The experience “Use of Regionalized Climate Scenarios for México” (*Uso de Escenarios de Cambio Climático Regionalizados Para México*) (53) is rooted in uniting the DRM community and the CCA community, using regionally-focused climate scenarios in México to predict and mitigate future climate risk. The project, which started in 2007, functions along the premise that “the reduction of risk of disasters of meteorological origin is a fundamental condition for climate change adaptation and vice versa”.<sup>23</sup> In the realm of national adaptation to climate change policies, the Colombian government’s “National Climate Change Adaptation Project” (*Proyecto Nacional de Adaptación al Cambio Climático*) (18) is integrated in the adaption programming of the Global Environment Facility (GEF), through which

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22 Small Islands, Big Stakes, Mauritius Official Conference Site, <http://www.un.org/smallislands2005/>. The Mauritius Strategy is aimed at the further implementation of the Barbados Programme of Action, and emphasizes that SIDS “are located among the most vulnerable regions in the world in relation to the intensity and frequency of natural and environmental disasters and their increasing impact, and face disproportionately high economic, social and environmental consequence,” as highlighted by the tragic impacts of the December Indian Ocean tsunami. The Strategy proposes to use the opportunity the Conference on DR in Kobe (Japan) to consider the specific concerns of SIDS, including in the areas of insurance and reinsurance arrangements. Notably though, the Strategy integrates Climate Change concerns in DRR: the island dwellers “believe that they are already experiencing major adverse effects of climate change” and that “adaptation to adverse impacts of climate change and sea-level rise remains a major priority” for them. Within this new priority area, the Strategy promotes “increased energy efficiency and development and use of renewable energy as a matter of priority, as well as advanced and cleaner fossil fuel technologies.”

<sup>23</sup> In Spanish: “...La reducción del riesgo de desastres de origen meteorológico es una condición fundamental para la adaptación al cambio climático y viceversa”, Powerpoint Presentation: Use of Regional Climate Modelling for Mexico, Uriel Bando Murrieta.

pilot projects are being financed for developing countries in areas and sectors highly vulnerable to negative climate change impacts.

Although DRM and CCA are often stand-alone areas of work in the national and international realms, these experiences show the important strides being made in integrating the two through varying approaches, policies, and tools, including network and knowledge creation, all of which are inherently vital in streamlining the related processes. Naturally, the integration of risk in territorial, municipal and land-use planning, as demonstrated above by De La Salle University is also the focus of Land-use and Territorial Planning, the fourth thematic area that follows.



### 3.4 Land-use and Territorial Planning

This thematic area encompasses building codes, regulations and standards, information tools, land-use planning, urban and rural human settlements and resettlement programs. *Reducing risk* (HFA priority linked to Land-use and Territorial Planning) through retrofitting of vulnerable buildings to attain a higher degree of safety and building public facilities and housing that can withstand impacts of hazards is an important part of DRM. The following experiences are focused on: different levels and types of planning, the ever-growing need to integrate DRM and DRR in that planning, and lastly, the important generation and management of information that needs to be disseminated.

#### Infrastructure and Urban Planning

Land-use and territorial planning are usually integral parts of broader national, regional and/or local DRM plans. For example, Costa Rica presented its “National Risk Management Plan” (*Plan Nacional de Gestión del Riesgo*) (40) at the Santa Marta Encounter which contained Land-use and territorial planning. This plan, developed in 2009, is firstly integrated in the broader social context of the fight against poverty, and secondly, it is integrated in DRM. Mitigation, preparedness, response and recovery are all addressed in the plan but particular attention was given to sections of the plan that deal with integration of mitigation and preparedness in urban planning and development. The strategic plan incorporates financial sustainability and public infrastructure investments issues in one of its axes, promoting analysis and prospective management in national and local public infrastructure investments. This implies improving and even relocating already existing infrastructure.

Taking into account more vulnerable populations in urban planning is also a preoccupation addressed in the strategic plan. Indeed, the impacts of disasters affect, in an unequal manner, different segments of the population because impoverished settlements are usually located in more disaster-prone and vulnerable areas.

Since 2004, public investment in Peru has started to be oriented by methodological guidelines for integration of disaster analysis in public investment projects, amongst others, infrastructure projects. The implementation of these methodological guidelines in the day to day planning in the Sistema Nacional de Inversión Pública (SNIP) was ensured by training of civil servants through the “Integrating of DRM in Public Investment” (*Incorporación de la Gestión del Riesgo de desastres en la Inversión Pública*) (65).

Following the same line of thought and in the aftermath of the 2007 earthquake in Peru, authorities were sensitized to the importance of improving land-use and territorial planning by integrating DRR in housing, urbanism and sanitary infrastructure. The initial step of the experience “DRM in Housing and Urban Planning” (*Gestión de Riesgos de Desastres en Vivienda y Desarrollo Urbano*) (66) was to create the territorial management program which undertook policy implementation and inter-institutional

coordination to respond to the now demonstrated needs for DRR in Peru's urban planning. Many tangible and practical results have come out of the program, such as:

- National regulation on building and construction (*Reglamento Nacional de Construcciones y de Edificaciones*);
- Regulation on urban housing and construction license emissions (*Reglamento de Habilitaciones Urbanas y Licencias de Construcción*);
- Regulation on territorial restoration and urban development (*Reglamento de Acondicionamiento Territorial y Desarrollo Urbano*);
- Manual on the preparation of urban development plans (*Manual de Elaboración de Planes de Desarrollo Urbano*); and,
- Regulation on sanitation services (*Reglamento de Servicios de Saneamiento*).

A breach was detected between institutional policies adopted and the institutional practices and so the program's efforts have now shifted to strengthening implementation rather than elaborating more regulations. Indeed, the implementation (and enforcement) of land-use, urban and related plans remain a critical issue in the LAC region, experiences suggest.

### **Planning of Rural Economic Activities**

In the rural context, economic activities need to take into account land-use and territorial planning. In Peru, in addition to urban planning at the national level, at the regional level, much is being done in territorial planning in the countryside also. To adapt to the manifestations of Climate Change, the Morropón district through the "Climate Change Vulnerability Reduction" experience (*Reduccion de la Vulnerabilidad Frente al Cambio Climatico en el Distrito de Morropón*) (70) follows the country's trend and integrates disaster analysis in territorial planning of physical elements of, amongst others, agriculture infrastructure. Accompanying these practices, economic policies and strategies of land-use and territorial planning promote productive re-conversion for affected producers to recover from the adverse effects of the Climate Changes, ranging from:

- Decreasing quantity and quality of crop production;
- Increased production cost of agricultural activities;
- Deviation of public spending from commercial assistance to producers to emergency response and reconstruction; and,
- Job losses and lower income for agricultural households.

### Integration of DRM and DRR in Land-use and Territorial Planning

The following experiences deal with links between DRM and DRR and land-use and territorial planning. Initiatives that integrate DRM and DR in land-use planning are carried out in many countries in LAC. For example, in Nicaragua, the “Risk Analysis and Integration of Preventive Management in Municipal Planning” (*Análisis de Riesgo e incorporación de la gestión preventiva en la planificación municipal*) (60) initiative brought together four levels of government to evaluate and map the vulnerability to natural disaster threats of citizens, vital infrastructure and public buildings and to economic activities in every city of the country. The result was a DRM plan for every city with major sections on land-use and territorial planning and urban zoning. Thus, DRM was complemented by these major sections and vice versa. On a broader scale, Argentina and Colombia carried out similar initiatives, both of which are presented in greater depth in the following two tables.

#### Integration of DRR in Territorial Planning

##### *Incorporación de la Reducción el Riesgo de Desastres en la Planificación del Territorio (7)*

#### Profile

**Hazards:** Various hazards

**CDM Elements:** Preparedness, Mitigation, and Response, and Recovery

**Territorial level:** National, sub-regional, local, and public sector

**Geographical:** Argentina

**Sector(s) targeted:** Good governance, Environment and planning and public goods

**Institutional level:** Political and technical

#### Achievement of Results

- A document integrating conclusions from workshops on integration of DRM in Territorial Planning organized throughout the country in the framework of the experience has been developed: *El Riesgo de Desastres en la Planificación del Territorio- Primer Avance*.
- DRR was effectively incorporated in the National Strategic Territorial planning on the basis of the above-mentioned document.
- A pilot project was implemented in the Formosa province which facilitated the passage from theoretical discussion to practical actions being executed to integrate DRR in Territorial Planning, taking into consideration contextual DR data from the province (data collected during the regional workshops).

#### Lessons learned

- Throughout project implementation, it is essential to keep in mind the different perceptions on DRM issues of provincial and municipal institutions to adapt it to the different context and to ensure buy-in from municipal civil servants.
- Networking, information-sharing, identification of the actors and different organizations involved and highlighting of their particular strengths are indispensable for the success of such an experience.
- Training officials involved in the project in risk and vulnerability information gathering and management of information analysis methodologies is vital for the data collection phase of the project.

### Summary

The main objective of this project is to permanently implement DRR in the strategic territorial planning (Plan Estratégico Territorial (PET)) at the national and provincial levels of Argentina, which is developed by the countries' Sub-secretariat of Territorial Planning and Public Investment (*Subsecretaría de Planificación Territorial de la Inversión Pública*) and provincial organizations involved in territorial planning. The idea is to prioritize DRR in public territorial planning investments. A series of regional workshops were organized bringing together pertinent national and provincial organizations and institutions to discuss how to integrate DRR actions in strategic territorial planning and to create longstanding networks between the participating organizations to push forward the issue. These workshops facilitated data collection on specific regional institutional vulnerabilities which then helped guide territorial planning investments towards DRR linked priorities.

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### Integration of Risk Management in Strategies of Environmental Management and Territorial Planning of De Amalfi Municipality, Antioquia

*Incorporación de la Gestión del Riesgo Dentro de las Estrategias de Gestión Ambiental y Ordenamiento Territorial del Municipio De Amalfi, Antioquia (27)*

#### Profile

**Hazards:** Floods, earthquakes, landslides and mudflows, and volcanic eruptions.

**CDM Elements:** Mitigation, Preparedness, Response and Recovery

**Territorial level:** Regional, local, public and private sectors

**Geographical:** Colombia

**Sector(s) targeted:** Environment

**Institutional level:** Technical and operational

#### Achievement of Results

- An information management tool has been developed to support decision-making (for the public and private sector) in DRM, land-use and territorial planning at the municipal level using local knowledge.
- Citizens are now involved and sensitized to environmental management and land-use (e.g.: farming).

#### Lessons learned

- Involving the community and municipalities facilitates local level decision-makers to assume their responsibilities in DRM and land-use and territorial planning.
- Networks between regional, national and local levels makes data collection and decision making easier.

### Summary

The first phase of the experience was aimed at the incorporation of the analysis of disasters in the municipality of De Amalfi, (Antioquia), as part of the broader socio-economic development challenge at the local level. A study on the interactions between DRM, environment management and land-use and territorial planning was then produced on that basis. Once the study was completed in 2010, the strategies developed were implemented to build, put into practice and monitor a DRM system that considers land-use and territorial planning and socio-economic issues. Working at the municipal level facilitates territorial planning since knowledge on vulnerable settlements is more easily available and/or obtainable. Also, the project promotes community participation in environmental diagnostic and analysis for decision-making in DRM.

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### Information Generation and Management

In Venezuela, the National Organization for Civil Protection and Disaster Management is implementing a Geographical Information System (GIS) as a part of its Mapserver. Training sessions in the domain, for relevant civil servants have been organized with teachings from international and national professionals in 2008. These public officers are now able to operate the GIS and manipulate the maps it provides. During phase A of the project, "Preliminary Risk Maps at the National Level" (*Mapas Preliminares de Riesgo a nivel Nacional*) (76) a prototype GIS produced national preliminary maps, on the scale of 1:2 000 000, of seismic, hydrogeomorphological, hydrometeorological, and electric blackout risks. These maps facilitated prioritizing resource management for DRM. Scaling down, studies have then presented more detailed zoning of vulnerable areas for decision-makers at the municipal level to plan disaster scenarios, preparedness, mitigation and recovery projects and programs.

A GIS has also been implemented in Mexico. "The Integration of geo-spatial Information Multi-users Visualization Systems, an Indispensable Tool for DRM" (*La integración de información geoespacial en sistemas de visualización multiusuarios, herramienta indispensable para la gestión del riesgo*) (58) experience shows that since 2002, when the latter started, the biggest national database of spatial data was developed thanks to the GIS and it can be used to conduct studies before, during and after any disaster. Mexico also replicated and disseminated the experience at the local level, for municipal civil servants but also for the civil society. Another experience shared is from Cuba where, in the Matanzas province, as part of the "Program for Integrated Risk Management in DRR" (*Programa de Gestión Integrada de Riesgos para la Reducción de Desastres en la Provincia de Matanzas*) (41), GIS was also utilized.

The "Vulnerability Ranking Methodology" (49) is an initiative carried out in Jamaica whose goal is to collect data in vulnerable communities to inform decision makers, but that uses different means. Developed by ODPEM, the methodology reveals high risk communities with the aid of hazard maps (obtained through GIS), information then used to conduct vulnerability analyses. The vulnerability indicators that examined using the methodology are:

- Dependency Ratio
- Population Density
- Poverty Index
- Hazard Frequency
- Community Resilience

Determined high risk areas become the center of DRR efforts in the country. The first step is to augment information and data quality by improving data collection methods of local government and non-governmental entities in resource limited communities. Some adaptations are needed to improve the methodology; for example, it was found that variables for community resilience are not static and selection of suitable variables was important to ensure relevance to the outputs of the methodology.

The following, last experience presented in this section is wide-scoping. It brings together almost all elements of Land-use and Territorial Planning including some additional ones. As the title of the experience clearly states, the principal logic behind is the development of an integral approach to DRM.

### **Caldas, a Departmental Vision in Integral Risk Management** *Caldas, una visión departamental en la gestión del riesgo integral (20)*

#### **Profile**

**Hazards:** Various hazards

**CDM Elements:** Mitigation, Preparedness, Response and Recovery

**Territorial level:** Local, public sector

**Geographical:** Colombia

**Sector(s) targeted:** Education, health, agriculture, good governance, environment, trade and industry, planning and public works and economy and finance.

**Institutional level:** Political, technical, operational and scientific

#### **Achievement of Results**

- The land-use and territorial plans have been reviewed to integrate DRM (specifically for landslides and flooding). This has been done by identifying and mapping vulnerable areas and by determining the actions to be taken to mitigate the risk through zoning and territorial planning.
- Building codes, relocating and resettlement plans have been developed and implemented.
- 1,600 families have been relocated to less vulnerable areas, a long process that involved participation of the civil society all the while respecting the customs, the needs for land (agriculture), the vision of the future of the relocated
- Evacuation zones have been determined and prepared.

#### **Lessons learned**

- Networking amongst all institutions, organizations and groups is indispensable to the implementing of CDM
- Civil society involvement ensures sustainability of initiatives.

#### **Summary**

The departmental vision of CDM in Colombia is based on the idea that DRM is accomplished through the participation of every segment of society and especially of the municipal level. Through the adoption of the law 388 in 1997, the department of Caldas has made it mandatory for every city of the region to identify the disaster threats and risks and to evaluate its vulnerability to these risks. Through networking and civil society participation, CDM has become the cornerstone of the DRM strategy of the department, specifically in land-use and territorial planning.

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### 3.5 Preparedness, Early Warning Systems (EWS) and Education

The fifth and final thematic area of the Catalogue is broader in scope and touches on a larger range of topics, as compared with the previous four themes. Examples of experiences dealing with EWSs, emergency preparedness, protocols for relief, and public education and awareness-raising are numerous. Some of the experiences highlighted here include: emergency preparedness tools across sectors; user-friendly web-based tools that are adaptable and integrated with GIS; capacity building through various means; creation of knowledge-sharing networks; and fostering of necessary communication channels to produce effective results in various sectors. Because of its broader scope, this is the only thematic area linked to the HFA through *three* Priorities for Action, namely: *Know the Risks and Take Action*, *Build Understanding and Awareness* and *Be Prepared and Ready to Act*.

#### **Emergency Preparedness Tools for Various Hazards across Sectors (Health and Education)**

It is evident that when a disaster occurs, hospitals are central emergency units. If these establishments are located in highly vulnerable areas, as is the case for more than half of the 16,000 hospitals in LAC, preparedness and hospital security are all the more important. The “Hospital Security Index” (*Índice de Seguridad Hospitalaria*) (90) is a regional LAC initiative based on a tool that guides hospital staff and decision-makers through the evaluation of the security of their establishment in case an emergency situation takes place. The index quantitatively rates the probability that a health establishment will resist and continue to function during and after a disaster. The simplicity of the index and its low implementation cost ensures its replicability, its sustainability and wide-use in hospitals throughout LAC. To build the Index, simple information is required and logical and easy steps need to be taken. Amongst others, here are some of the variables considered in the building of the Hospital Security Index:

- Location: geologic, hydro-meteorological, environmental, etc.
- Structural security: antecedents, structural systems, construction materials, etc.
- Non-structural security: vital lines, equipment, architectural aspects, etc.
- Functional security: organization, responses plans, training, available resources, etc.

This experience suggests that such a tool is important for and supports decision-making and prioritization of financing at a higher level (national), because it gives a broad and detailed picture of a given establishment’s situation. It also provides information for the monitoring of the progress made by the hospitals in LAC countries. Nineteen LAC countries have started using the Index but one of the avowed challenges of the experience, as it continues to take effect, is its expansion to the majority of LAC. Additionally, it would be important that the Index be used for the construction of new and improved health establishments and not only for improving existing ones.



Assessment of emergency preparedness, and the building of capacities for this preparedness is not only important in the health sector. Another vital sector for building and fostering long-term DRM awareness across all segments of a country's population is the education sector. The following experience (64) highlights the importance of managing risks to educational centres and effectively links health and education.

**Project – Integrated Index for Management of Risks for the Education Sector – United Nations Educational, Scientific and Cultural Organization (UNESCO)**

**Proyecto Ficha integral de gestión de riesgos para el sector educativo (64)**

**Profile**

**Hazards:** Various/Multi Hazard

**CDM elements:** Preparedness, Mitigation, Response and Recovery

**Territorial level:** National and Public sector

**Geographical:** Peru, with extension to Central America and the Dominican Republic

**Sector(s) targeted:** Health and Education

**Institutional level:** Political, Technical, Operational, and Scientific

**Achievement of Results**

- Revised and validated index with Ministry of Education and educational institutions.
- Application of the index in a total of 37 various educational institutions.
- Trained teachers in DRM and other social risks and the Index.
- The database software is in the process of being finalized.
- UNESCO Hanoi is adapting the Index to be applied in Vietnam.
- Replicability in Central America and Dominican Republic is in progress.

**Lessons learned**

- Generally, schools are exposed to big social and disaster risks.
- Government authorities have an instrument at their disposal that allows them to make decisions and allocate resources to those schools that are the most vulnerable and that have a higher level of risk exposure.
- Schools have an instrument at their disposal with which to analyze the physical vulnerability of educational establishments and their immediate surroundings, to systematize the main information referring to the institutional problematic on disaster risk and social risks.
- Educational communities are conscious of the risks to which they are exposed and are aware of their vulnerabilities and capacities. Also, they are better organized and prepared to confront the social and disaster risks, and have increased their resilience to the latter.

**Summary**

This UNESCO integrated index is a DRM instrument aimed at the creation of a reliable database to diagnose, plan, manage, coordinate and execute integrated DRM actions in the public and private educational institutions (primary education) in Peru. The project aims to obtain relevant information about the conditions of vulnerability or pre-disaster threats and other social risks to which are exposed the basic education institutions that are part of the Peruvian educational system. Following this assessment, a classification of institutions is done based on the level of exposure. In terms of replicability, UNESCO Peru has found allies in UNESCO San José, and in Coordinación Educativa y Cultural Centroamericana-SECC/SICA, so as to extend the application of the index in Central America and the Dominican Republic, the extension already being in progress.



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### User-friendly, Web-based Tools for Emergency Preparedness and Recovery Efforts

Web-based, technologically advanced tools are vital not only for territorial and land-use planning but for pre-disaster preparedness, post-disaster assessments, and coordinated recovery efforts. For example, the “Web-based Collaborative System for Spatial Data” (47), used in Haiti, and also called the three dimensional User-Defined Operational Picture (UDOP), is a user-friendly GIS tool for a wider user base that is designed to assist with preparedness, management, and recovery efforts for any natural disaster scenario. It permits the wide user base to fuse their data and allows any given user to immerse oneself in relevant content and share that information amongst involved parties. The need for integration and amalgamation of spatial data quickly arose on January 12, 2010 in the aftermath of the Haiti earthquake, where there was a need to coordinate the collection of massive amounts of geographic information among a broad, disparate group.

A noteworthy aspect of this technology is its adaptability, that is, as users contributed input and content, the capability of the tool evolved, and ultimately replaced many pre-existing tools utilized for the national and civil-level relief efforts. This created an abbreviated learning curve, allowing for a large user base practically overnight, facilitating the exchange and analysis of spatial data easily and rapidly. Therefore, the combination of participatory geospatial content, the collaborative nature of the UDOP and the ability to integrate mobile applications as direct content production tools provided new insights for future disaster relief efforts. UDOP’s subsequent use in Chile, Guatemala, and the Gulf of Mexico oil spill, showcases the tool’s potential replicability as a instrument that is not only sector and territorially agnostic, but that has the potential to provide the basis for future disaster relief, preparedness and recovery work, through real-time solutions to impediments encountered during spatial data-sharing in disaster events.

#### Web-Based Collaborative System for Spatial Data (47)

##### Profile

**Hazards:** Various/Multi Hazard

**CDM elements:** Preparedness, Mitigation, Response and Recovery

**Territorial level:** Regional, National, Sub-national, Local, Public and Private sectors.

**Geographical:** Caribbean/Haiti

**Sector(s) targeted:** Health, Agriculture,

##### Achievement of Results

- The 3D UDOP united over 2,000 users/content producers geospatially to create, add, edit, and share data aggregated from UDOP authoring, other GIS tools, existing databases, mobile applications.
- The application of the UDOP in Haiti optimized collaboration among government, military, and other first responders by inviting a large, diverse community to share data on one intuitive platform.
- UDOP was applied in Chile, Guatemala, and the Gulf of Mexico oil spill

Environment and Planning and Public works.

**Institutional level:** Political, Technical and Operational

#### Lessons learned

- Information management is a key factor to maximize efficiency of coordination of disaster relief and recovery services.
- The importance of collaboration across industries, levels, and sectors.
- The user-friendly nature of the tool is important to ensure maximum participation of stakeholders.

#### Summary

Serving as a framework for interactions with the Google Earth Browser Plug-in application programming interface (API), the software interface (iSpatial geospatial framework) provides an open platform for integration of dynamic data and development of interactive applications. The rapid fielding of a capability referred to as UDOP, a geographic information management and sharing web-based tool that facilitates coordination of data input from many different users before, during and after a disaster, provided the location for all users to share, edit and use available data. As a result of its use in Haiti, a massive compilation of volunteered geographic information was exposed and fused into a single, publicly accessible location containing timely, dynamic data. Notably, this information consisted of 5 core elements:

- 1) Imagery;
- 2) Static data;
- 3) Images from mobile devices;
- 4) Three Dimensional (3D) structural information; and,
- 5) Various, real-time operations data to include crowd sourced information such as twitter and blogs.

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Another important aspect of disaster preparedness and broader recovery efforts is the post-disaster assessments of an affected area so that appropriate response and recovery measures can be taken. As an initial damage assessment methodology, Jamaica's "National Emergency Response Data Analysis Tool (NERDAT) – A Tool for Post-impact Response Decision-Making" (48), is an important step to conducting a post-disaster needs assessment with vital pre-impact data. Although the tool is not in use, funding for it has been identified and procurement of services is underway. Similarly to the Haiti experience above, an obvious advantage of this tool is that it is web-based, integrated with GIS, timely, and accessible to local assessors even in remote areas. Notwithstanding the early stages of the tool's development, its usefulness as a post-impact decision-making tool was highlighted in 2007 when Hurricane Dean affected the island. Also, it is based on a proven successful methodology, namely, the Initial Damage Assessment (IDA) methodology, introduced in the Caribbean region in 2000 through the United States Agency for International Development (USAID), based on its success in Latin America.

Specifically, as a result of experiences gained with IDA assessments in critically affected areas in Jamaica, NERDAT was developed as a tool for analysing data from the initial damage assessments to better inform decision-making, and especially within the first 48 hours of the post-impact phase, thereby informing a projection of needs. The tool uses both pre-impact data (e.g. total population in a community; number of persons per household; number of vulnerable populations; average size (square

meter) of each dwelling; and construction material and associated construction costs per square meter) and combines it with Initial Damage Assessment (IDA) data, that has four levels of damage ranging from level 1 (no significant damage) to level 4 (destroyed), to indicate the number and percentage of population displaced, vulnerable population displaced, estimated reconstruction cost for damaged houses and shelter capacity required for displaced persons. This assessment, in turn, feeds into the generation of needs lists. Although still in the development phase, the tool can be replicated in any region that uses the IDA methodology, with very little to no modification. Consequently, several Caribbean territories have expressed an interest in the tool and it is expected the tool will be shared with the region.

### Capacity Building through Contingency Planning and Education

Capacity building of individuals, communities and institutions within which they operate is an essential element of emergency planning and the design of appropriate preparedness measures. The Colombian experience, “Response Capacity Building Project for the Tumaco Municipality through Community and Institutional Preparedness and Implementation, Dissemination, Evaluation and Monitoring of the Local Emergency and Contingency Plan” (*Proyecto de Fortalecimiento de la Capacidad de Respuesta del Municipio de Tumaco, mediante la Preparación Comunitaria e Institucional y la Implementación, Divulgación, Evaluación y Seguimiento del Plan Local de Emergencia y Contingencias*) (17) highlighted in the table directly below emphasises the need for not only awareness-raising but also training at the local, community level while making the necessary links with local organizations and national institutions to assure buy-in.

#### Response Capacity Building Project for the Tumaco Municipality through Community and Institutional Preparedness and Implementation, Dissemination, Evaluation and Monitoring of the Local Emergency and Contingency Plan *Proyecto de Fortalecimiento de la Capacidad de Respuesta del Municipio de Tumaco, mediante la Preparación Comunitaria e Institucional y la Implementación, Divulgación, Evaluación y Seguimiento del Plan Local de Emergencia y Contingencias (17)*

##### Profile

**Hazards:** Earthquake and Tsunamis  
**CDM elements:** Preparedness  
**Territorial level:** Local  
**Geographical:** Colombia  
**Sector(s) targeted:** Education  
**Institutional level:** Technical and Operational

##### Achievement of Results

- Strengthening of the Community's and the Institutional Capacity in DRM.
- Updating and testing of the Local Emergency and Contingency Plan for Tsunami.
- Replicability of the experience in the whole Pacific region of Colombia.
- A second phase was financed after the first one finished to expand
- The EWS was strengthened by the experience.

##### Lessons learned

- Importance of adapting the technical and scientific messages to the community language, to the communities' beliefs, customs and local risk perceptions to appropriately sensitize the population

- Importance of using local knowledge to understand the needs of the community and better comprehend the specific details and particularities of the zone they live in.

#### Summary

The Municipality of Tumaco is vulnerable to earthquakes and tsunamis and the sensitivity of the local population to building resilience to disasters is still underdeveloped. This experience aims to raise awareness of the citizens on the disaster risk they face and to train them on how to be prepared for disasters. By developing links with the national Education Secretariat, the local Firefighters, the Local Committee of Mitigation and Prevention of Disasters (CLOPAD in its Spanish acronym), SENA, and Ecopetrol, it promotes and stimulates community participation.

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### Sustainable Communication and Knowledge-sharing Channels Before, During and After Disasters

Building capacity also means building and maintaining vital communication channels before, during and after disasters and empowering regional training and knowledge centres. LAC's experience, "Information management – Exchange Mechanisms with innovative experiences with concrete results – Gestión del Conocimiento" (*Mecanismos de Intercambios de Conocimiento con experiencias innovadoras con resultados concretos*) (91), shows the importance of solidifying and institutionalizing permanent, regional capacity-building structures through the National Societies and the Secretariat of the International Federation of the Red Cross. With the help of the Secretariat, the decision was taken to create two Reference Centres in DRM, one with the focus on institutional preparedness for the response and the other, focusing on community education for the prevention of disasters. Both have, as their mandate, the development of new and creative methodologies, the facilitation of development and the harmonization of tools for training, with the end goal of strengthening the capacity of the National Red Cross societies and the other organizations working with vulnerable communities.

As demonstrated by the Hospital Security experience at the beginning of this section, accurate information exchange and health communications are vital in responding to multiple health threats coming from various hazards. The United States of America's experience, "Crisis and Emergency Risk Communication (or Risk Communication Strategies: The Michigan Experience; Risk Communication and the News Media Roles, Experiences in the United States)" (72), confirms that health communications figure prominently among the tools used to contain emergencies and guide the public, the media, response partners and vulnerable populations in the appropriate response to health and safety measures.

Since 2002, state and local health departments across the United States have been working to improve their capacity to respond to biological, chemical, radiological, emerging infectious diseases and other

public health threats. One goal for the Michigan Department of Community Health (MDCH) and all 43 local health departments has been to decrease the time needed to provide counter-measures and health guidance to all the residents of Michigan. Fulfilling this goal, the Office of Public Health Preparedness (OPHP) recently completed version four of the MDCH Emergency Operation Plan (EOP) which outlines all of the plans that have been developed over the past seven years. For overall preparedness, OPHP revises the Crisis and Emergency Risk Communication Plan and provides guidance to local health departments as they do the same. In turn, the Risk Communication Team works to expand the capacity to disseminate information by: building linkages to collaboratives and coalitions; training staff to use the technical equipment in the public health coordination center; gathering a library of emergency information ([www.michigan.gov/prepare](http://www.michigan.gov/prepare)); and by maintaining databases of contact information for partnering organizations and special populations.

A notable focus of this initiative is the broader public, which is included in the preparedness planning, which, again, is a key area of building community resilience through empowerment and accessibility to information (HFA Priorities for Action: *Build Understanding and Awareness*). A notable success then of the initiative is the very existence of a Risk Communication team, and that Communication Team's ability to disseminate information (through websites, newsletter inserts, PSAs, e-mail lists, databases, call centers and hotlines, ethnic media organizations) to the public, media, partners, and stakeholders more rapidly, and collaborate with key organizations and trusted community leaders, who help push information out to hard-to-reach audiences. In effect then, the information disseminated through these channels is amplified and in effect, acts like a type of early warning system.



## 4. Conclusions and Recommendations

## Catalogue Conclusions

It is firstly important to note that the Santa Marta Encounter took place in the context of South-South Cooperation, which itself complements North-South cooperation taking place on DRM and CCA. This type of broader cooperation framework intends to build networks and partnerships to advance a certain cause, in the present case, improved DRM and CCA through better informed decision-making. Creation and sharing of significant and high quality information among countries with similar development levels brings relevant and practical results for stakeholders because the information is, to a certain extent, better adapted to the realities of the targeted region.

The idea of leveraging national and donor funds was also a recognized goal of the Encounter. Indeed, the event provided a showcase opportunity to prove the importance of and show the results achieved through DRR, DRM and CCA to decision-makers and representatives of multiple donor entities.

Equally notable are some additional conclusions that can be drawn from the development process of the Catalogue. Through the development of the Catalogue and the analysis of the cases under each thematic area, it is clear that categorization of experiences under one or more thematic areas is a challenging exercise, all the more complicated by the fact that under the sub-thematic areas, and even under the titles chosen to group the best practices, there exist other, more nuanced divisions and links and trends. Some of the others are:

- ✚ There is a need for reliable, up-to-date, information-exchange networks and tools (web-based or interactive) and platforms that can facilitate this exchange amongst global, national, regional, DRM, DRR and CCA communities, practitioners, and beneficiaries.
- ✚ In exchanging information, there is a continued need for catered (participatory, one-on-one, etc) education and specialized training at all levels (elementary, higher, etc) on the application of community-specific DRM, DRR, and CCA knowledge and tools. Without intra-generational knowledge-transfer the tools that the Catalogue experiences touch on are not sustainable or viable for small communities, for example.
- ✚ Increasingly, CCA is being integrated in all thematic and sub-thematic areas mentioned in this Catalogue. The mainstreaming of CCA and other DRM/DRR measures in already existing policy frameworks is a viable avenue for advancing HFA's Priorities for Action.

Given that such nuanced links and trends exist, a broader lens is necessary and would certainly be useful. The cataloguing of DRM, DRR, and CCA of practices stemming from the Encounter specifically does not adequately reflect other or all best practices in the region; these practices, therefore, would need to be built upon the cataloguing of all or a more comprehensive set of best practices. This exercise can be carried out through various means, and the recommendations directly below provide insight into possible next steps.

## Recommendations

These recommendations are derived from: the Encounter lessons learned, the lessons stemming from the development of the Catalogue and the analysis of the experiences therein, and the potential uses of this Catalogue. Again, they are not meant as comprehensive DRM, DRR and CCA recommendations but merely draw on useful lessons and possible future steps, as connected to ideas stemming from the Encounter, the Catalogue, and the above conclusions.

- ✦ **Although this Catalogue is oriented towards the Santa Marta experiences and best practices, it would be useful to contemplate the development of a Global Best Practices Catalogue that would be more comprehensive and cover a broader range of Best Practices in DRM, DRR, and CCA, from a broader range of stakeholders and not only covering the LAC in great depth and scope but also covering a more vast geographical area.** This Catalogue's area of focus does bring value-added and a broader Best Practices Catalogue may equally enrich the INDM database and provide a real snapshot of relevant and timely global issues in DRM, DRR and CCA, thereby contributing to streamlining and the availability of fast, accurate, and in-depth information for all stakeholders, at all levels.
- ✦ **Systematization of the INDM Database would be useful for, among others, DRM practitioners, governments, development partners, NGOs, and communities for increasing the usefulness and effectiveness of the database as a knowledge-sharing tool.** The experiences that form the basis of this Catalogue could form the basis of this systematization process. Within this process, the Network would be complemented by continuous updating of cases to enhance the availability of accurate, up-to-date information available to the Network. It would also be enhanced through a broadening of search terms via more in-depth searches based on Catalogue divisions and/or future changes, or other relevant categories or criteria. Use of sub-divisions under each thematic area in Chapter 3 is recommended to build-in search terms into the database as a starting point, so as to make searches more effective and the tool itself more dynamic and deeper in scope.
- ✦ **Within the scope of the systematization of the database, and possible future enhancements to the system once the basic search terms and categories have been entered, it would be useful to develop a feature along the lines of an 'Experience Tracker'.** The 'tracker' would allow the user or content-producer to track and update progress on a particular initiative at a given interval, set-up email reminders for updating to concerned parties, etc. Furthermore, the numbers that follow the bilingual experiences in this Catalogue can be electronically linked to Appendix I for easy reference and can also be linked to any mention of a particular experience and/or term within that experience in the database.



- ✦ The development of this Catalogue and the streamlining of the INDM could be considered as a basis for the creation of other, more regionally- or nationally-based knowledge-sharing mechanisms that can be effectively linked with other mechanisms, should they exist or be subsequently created.
- ✦ The present catalogue could be announced and made available on the UNISDR's web site which would help it reach even more involved stakeholders and generally interested individuals or organizations.

Annex A

Country	Experience title	Returned questionnaire	Presented at the Encounter
Argentina	1) Las Actividades Lúdicas: Una Herramienta En La Educación Para La Reducción De Riesgos A Desastres		
	2) EDUCACIÓN PARA LA PREVENCIÓN DE RIESGOS Y REDUCCIÓN DE LA VULNERABILIDAD ANTE EMERGENCIAS Y DESASTRES: DISEÑO DE UN MODELO DE CAPACITACIÓN Y PARTICIPACIÓN COMUNITARIA		
	3) SISTEMA DE ALERTA TEMPRANA EN LA CUENCA DEL ARROYO LUDUEÑA - PROVINCIA DE SANTA FE – ARGENTINA: EXPERIENCIA DEL TRABAJO CONJUNTO DE ORGANISMOS GUBERNAMENTALES DE NACIÓN, PROVINCIA Y MUNICIPIO Y LA UNIVERSIDAD PÚBLICA		
	4) “Avances En La Implementación De Un Sistema Municipal De Gestión De Riesgos”	√	
	5) “Cuenca Del Paraná: Hacia Una Red De Ciudades Más Seguras En El Litoral Argentino”	√	√
	6) “Por Una Ciudad Más Preparada”	√	
	7) Incorporación De La Reducción El Riesgo De Desastres En La Planificación Del Territorio	√	√
	8) Un Posgrado Para Formación De Hacedores De Políticas Públicas En Gestión Y Reducción Del Riesgo De Desastres		
Brazil	9) Civil Defense Practices Against Climate Changes		
	10) Adaptar Brasil: Programa De Adaptação Às Mudanças Climáticas Em Ilhas Brasileiras		
Chile	11) SISTEMA NACIONAL DE ALERTA TEMPRANA		
	12) Campaña “Bogotá Con Los Pies En La Tierra”		
	13) Talleres Lúdico-Pedagógicos Con Pietra Terrosa		
	14) PARA DESPUES DEL TERREMOTO, BOGOTA TIENE UN PLAN DE VIDA		√
	15) Simulacro Distrital De Evacuación		
	16) SISTEMAS DE ALERTA TEMPRANA DE INUNDACIONES		
Colombia	17) Proyecto De Fortalecimiento De La Capacidad De Respuesta Del Municipio De Tumaco, Mediante La Preparación Comunitaria E Institucional Y La Implementación, Divulgación, Evaluación Y Seguimiento Del Plan Local De Emergencia Y Contingencias	√	
	18) Proyecto Nacional De Adaptación Al Cambio Climático		√
	19) Asistencia Técnica En Gestión Del Riesgo A Nivel Municipal Y Departamental En Colombia		
	20) CALDAS, UNA VISION DEPARTAMENTAL EN LA GESTION DEL RIESGO INTEGRAL	√	√
	21) Cultura Integral De La Prevención Y Control De Riesgos Para Dependencias Y Entidades De Apoyo. Una Experiencia Organizacional Con Proyección Comunitaria.		
	22) EDUCACIÓN COMUNITARIA EN GESTION DE RIESGOS		
	23) “EL COSTO – BENEFICIO DE INVERTIR EN REDUCCIÓN COMO MEJOR OPCIÓN.” EXPERIENCIA MANIZALES		

Country	Experience title	Returned questionnaire	Presented at the Encounter
	24) ESCENARIOS DE RIESGO EN ZONAS COSTERAS: EVIDENCIA DE EFECTOS TEMPRANOS DEL CAMBIO CLIMATICO		
	25) Evaluación Preliminar Del Documento Conpes 3146 De 2001 "Estrategia Para Consolidar La Ejecución Del Plan Nacional Para La Prevención Y Atención De Desastres – PNPAD – En El Corto Y Mediano Plazo"		√
	26) Gestión De Los Riesgos Tecnológicos Con La Participación En Las Empresas-La Comunidad Y El Estado- Un Compromiso De Responsabilidad Social".	√	
	27) INCORPORACIÓN DE LA GESTIÓN DEL RIESGO DENTRO DE LAS ESTRATEGIAS DE GESTIÓN AMBIENTAL Y ORDENAMIENTO TERRITORIAL DEL MUNICIPIO DE AMALFI, ANTIOQUIA.	√	
	28) LA EDUCACIÓN SUPERIOR Y LA GESTIÓN DEL RIESGO. EXPERIENCIAS DE LA UNIVERSIDAD DE LA SALLE - BOGOTÁ	√	
	29) LA GESTION DEL RIESGO, DIRIGIDA A PERSONAS CON DISCAPACIDAD		
	30) PLANES ESCOLARES, COMUNITARIOS Y EMPRESARIALES DE GESTIÓN DEL RIESGO ARTICULADO CON EL PROGRAMA DE SERVICIO SOCIAL ESTUDIANTIL OBLIGATORIO		
	31) Programa De Gestión De Riesgos En Valle Del Cauca, Nariño Y Putumayo	√	
	32) LA GESTION DEL RIESGO EN LA PRESTACION DE LOS SERVICIOS PUBLICOS DOMICILIARIOS DE ACUEDUCTO, ALCANTARILLADO Y ASEO EN COLOMBIA		
	33) Refuerzo De Las Capacidad De Respuesta De Las Comunidades Y Autoridades Ante Los Riesgos Volcánicos.	√	
	34) Reducción De La Vulnerabilidad Social, Ambiental Y Física De Los Habitantes De La Ciudad De Medellín A Través De Una Estrategia De Corresponsabilidad Y Participación Comunitaria Orientada A La Gestión Del Riesgo	√	
	35) Sistema De Gestión Del Riesgo En Colombia Visto Desde Lo Regional.		
	36) CAPACITACIÓN TECNICA PARA EL FORTALECIMIENTO DE LAS INSTANCIAS SOCIALES DE LAS COMUNAS DE MEDELLIN.	√	
	37) Incorporación De La Gestión Del Riesgo En Los POT		
Costa Rica	38) Ordenamiento Territorial Y Gestión Del Riesgo En Costa Rica " Incendio Químicas Holanda"		
	39) Metodología Para El Análisis Del Riesgo Ante El Cambio Climático Para El Sector Hídrico En La Gran Área Metropolitana (GAM) – Costa Rica	√	
	40) PLAN NACIONAL DE GESTIÓN DEL RIESGO		√
Cuba	41) Programa De Gestión Integrada De Riesgos Para La Reducción De Desastres En La Provincia De Matanzas, Cuba		
	42) Strengthening Of Local Capacities For Vulnerability Reduction In Isla De La Juventud.		
Guatemala	43) La Organización Comunitaria En Consejos De Microcuenca Y La Planificación Del Territorio Para La Conservación De Los Recursos Naturales, Gestión Del Riesgo Y Desarrollo Integral. Caso: Microcuenca Del Río Esquichá.		
	44) EXPERIENCIA CON MUJERES COMUNITARIAS EN LA PREVENCIÓN, MITIGACIÓN Y RESPUESTA A DESASTRES DESDE UNA PERSPECTIVA INTEGRAL.		
	45) Método Para Evaluación Probabilística De Riesgo Sísmico Del Sector Vivienda		

Country	Experience title	Returned questionnaire	Presented at the Encounter
	46) "Redes Comunitarias De Mujeres Para El Monitoreo De Lluvia Y Alertamiento Ante Deslizamientos En Asentamientos Precarios De La Ciudad De Guatemala, Guatemala"		
Haiti	47) Web Based Collaborative System For Spatial Data	√	
	48) NATIONAL EMERGENCY RESPONSE DATA ANALYSIS TOOL (NERDAT) – A Tool For Post-Impact Response Decision Making	√	√
Jamaica	49) Vulnerability Ranking Methodology		
	50) Debris Flows And Sediment Flooding In Small And Steep Watersheds		
	51) Vulnerability Of Roads And Water Systems To Hydro-Geological Hazards In Jamaica		
México	52) PLANEACIÓN TERRITORIAL DE LA GESTIÓN DE RIESGOS DE DESASTRE		
	53) USO DE ESCENARIOS DE CAMBIO CLIMÁTICO REGIONALIZADOS PARA MÉXICO	√	√
	54) La Evaluación Socioeconómica De Los Desastres En México: Una Herramienta Para La Gestión Del Riesgo		
	55) Vigilancia Del Volcán Popocatepetl Y Mecanismos De Comunicación		
	56) El Fondo Para La Prevención De Desastres (FOPREDEN)		
	57) Enfoque De Reducción Del Riesgo De Desastres En La Educación Básica En México		
	58A) Programa De Reducción De Riesgos De Desastres En El Ámbito Escolar.		
	58) La Integración De Información Geoespacial En Sistemas De Visualización Multiusuarios, Herramienta Indispensable Para La Gestión Del Riesgo		
Nicaragua	59) SISTEMATIZACION PROYECTOS DE PREPARACION ANTE DESASTRES EN LA COSTA CARIBE Y PACIFICO DE NICARAGUA, EN EL MARCO DEL PROGRAMA DIPECHO-ECHO		
	60) Análisis De Riesgo E Incorporación De La Gestión Preventiva En La Planificación Municipal		
	61) Mancomunidad Cuenca Río Telica	√	
Panamá	62) Incorporación De Medidas De Adaptación Y Mitigación Del Cambio Climático Y Los Efectos De La Salud Pública, A Través De La Organización Comunitaria En Salud Para Emergencias Y Desastres.	√	
Perú	63) Educación Para La Gestión Del Riesgo Universitario Y Su Transferencia A La Comunidad Local		
	64) Proyecto Ficha Integral De Gestión De Riesgos Para El Sector Educativo	√	
	65) Incorporación De La Gestión Del Riesgo De Desastres En La Inversión Pública		
	66) GESTIÓN DE RIESGOS DE DESASTRES EN VIVIENDA Y DESARROLLO URBANO		
	67) GRIDES: Redes Institucionales Para La Gestión De Riesgo De Desastres	√	
	68) Preparación De Las Personas Con Discapacidad Y Otras Necesidades Especiales, Ante Los Desastres	√	

Country	Experience title	Returned questionnaire	Presented at the Encounter
	69) Programa APELL De Gestión De Riesgo En 15 Comunidades Alto Andinas En Ancash Perú		
	70) "REDUCCION DE LA VULNERABILIDAD FRENTE AL CAMBIO CLIMATICO EN EL DISTRITO DE MORROPÓN"		
Saint Vincent & The Grenadines	71) The Disaster Awareness Game (Dag): A Tool For Promoting Disaster Awareness Among School Children In The Caribbean		
USA	72) Crisis And Emergency Risk Communication (Or Risk Communication Strategies: The Michigan Experience; Risk Communication And The News Media Roles. Experiences In The United States)	√	
	73) Los Consejos Comunales Como Esquema Principal En La Reducción Del Riesgo En Las Comunidades.		
Venezuela	74) IDENTIFICACIÓN Y TRATAMIENTO DEL RIESGO TECNOLÓGICO URBANO DE LA CIUDAD DE MÉRIDA		
	75) EDURIESGO.ORG, UNA HERRAMIENTA PARA LA GESTIÓN DE RIESGOS Y REDUCCIÓN DE DESASTRES EN EL SECTOR EDUCATIVO.	√	
	76) Sistema De Información Geográfico (Mapserver) De La Dirección Nacional De Protección Civil Y Administración De Desastres (Fase A: Mapas Preliminares De Riesgo A Nivel Nacional)		√
	77) Disaster Risk Management Benchmarking Tool [Btool]	√	√
Caribbean Region	78) The Caribbean Risk Management Initiative (CRMI) - A Regional Approach To Advance The Integration Of Disaster Risk Management And Adaptation To Climate Change		
	79) Experiences From The Caribbean Emergency Legislation Project		√
	80) The Comprehensive Disaster Management Governance Mechanism		
	81) Health Sector (HS) Self-Assessment Tool For Disaster Risk Reduction		
Centro América	82) Sistemas Comunitarios De Alerta Temprana		
	83) PROGRAMA DE REDUCCION DE RIESGO URBANO		
	84) Central America Small Valleys Flood Alert And Vulnerability Reduction Program (SVP): Regional Platform Development		√
Sur América	85) La Red Global De La Sociedad Civil Para La Reducción De Desastres En América : Una Evaluación Desde La Perspectiva Local Del Los Avances En El Cumplimiento De Los Acuerdos De Hyogo		
	86) Marco Conceptual Giro (Gestión Integral Del Riesgo).		
	87) "Rolling Out Of The Guidance And Indicator Package For Implementing Priority 5 Of The Hyogo Framework – Disaster Preparedness For Effective Response"		
LAC	88) Application Of The IDB Indicators Of Disaster Risk And Risk Management.	√	√
	89) Iniciativa Cascos Blancos	√	√
	90) INDICE DE SEGURIDAD HOSPITALARIA		√

Country	Experience title	Returned questionnaire	Presented at the Encounter
	91) Gestión Del Conocimiento - Mecanismos De Intercambios De Conocimiento Con Experiencias Innovadoras Con Resultados Concretos		√
Sri Lanka	92) Método Para Evaluación De Escenarios De Impactos De Un Tsunami En Diversos Sectores De Desarrollo.		
	<b>Total</b>	<b>27</b>	<b>17</b>

Annex B



## Experience Profiles<sup>24</sup>

### Advances in the Implementation of a Municipal DRM System Avances en la Implementación de un Sistema Municipal de Gestión de Riesgos (4)

#### Profile

**Hazards:** Floods, Various/multi hazards  
**CDM Elements:** Preparedness, Mitigation, Response, Recovery  
**Territorial level:** Local  
**Geographical:** Argentine  
**Sector(s) targeted:** Education, health, good governance, Environment, and planning and public goods  
**Institutional level:** Political, technical, operational, and scientific

#### Achievement of Results

- Creation and implementation of a legal and institutional framework for DRM in the city of Santa Fe
- Regulation of the operations of the Central Comity (CMGR) and its specific comisions: the Prevention and Mitigation Comission, the Preparedness and Response Comision, the Recovery Comision and the Information and Communication Comision

#### Lessons learned

- The implementation of a risk management policy and of its instruments requires more time than a single government mandate and its continuity depends on the participation of a multitude of actors from many different sectors involved in risk management.
- As a process, risk management is not linear and no recipes exist. Recommendations and experiences are necessary but creativity is also important to make the most of local capacities and development of opportunities without creating new risks.

#### Summary

By its geographical and topographical characteristics, the city of the Santa Fe is exposed to floods associated with the rise of the surrounding rivers usually caused by intense and abundant rains. This context is central in the decision taken by the municipal government to implement risk management as a state policy and as a central theme of the community. Moreover, the Risk Management Secretariat was created which directly depends on the mayor and its cabinet. But risk management is not the assured by only one actor. The secretariat *coordinates* actions and *articulates* efforts of distinct government areas and community organizations involved to reduce the risks in the city. By creating the Municipal Risk Management System, the traditional focus on response was shifted towards prevention, community preparedness and recovery. To implement the system, the focus on risk management was shared with other municipal civil servants, as well as representatives of provincial and national organisations with offices at the municipal level, NGOs and community organizations. This was accomplished through the coordination of regular participative workshops and meetings. The biggest challenge is to plan initiatives at the medium and long terms all the while integrating short term actions that aim avoiding the transformation of a natural or manmade event into a disaster. The implementation of a risk management process requires more time than the normal mandates of the involved institutions. For this reason, it is important to embed it in legal, institutional and juridical frameworks that consolidate the policies which ensure its continuity.

<sup>24</sup> The experiences in Annex B include the remainder (14 in all) of the experiences for which Questionnaires were filled out. The other experiences for which questionnaires were filled out can be found in Chapter 3 (13 in all from a total of 27 as per Annex A).

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**For a more prepared City**  
*Por una Ciudad más Preparada (6)*

**Profile**

**Hazards:** Floods

**CDM Elements:** Preparedness and Response

**Territorial level:** Local

**Geographical:** Argentina

**Sector(s) targeted:** Education, health, good governance, Environment, and planning and public goods

**Institutional level:** Political, technical, and operational.

**Achievement of Results**

- The Municipal government, with support from the provincial government, installed meteorological radars in the surroundings of the city of Santa Fe
- A contingency plan was developed concerning emergency situations caused by excessive rains (ex.: The municipality's role in such cases (protocols), predetermined necessary resources and evacuation procedures)
- Risk management training sessions were organized for relevant involved actors

**Lessons learned**

- The sensitization to risk management of all potentially involved actors and sectors is at the base of preparedness in risk reduction
- Decentralization of risk management is also very important
- The institutionalization of preparedness and the coordinating authorities and community participation are essential for the sustainability of preparedness measures in risk reduction which need to be stable but dynamic at the same time.

**Summary**

See achievement of results and Lessons Learned.

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**Technology Risks Management with the Participation of the Companies, the Communities and the State: A Social Responsibility compromise**  
*Gestión de los Riesgos Tecnológicos con la Participación en las Empresas-La Comunidad y el Estado- Un Compromiso De Responsabilidad Social (26)*

**Profile**

**Achievement of Results**

**Hazards:** Various hazards  
**CDM Elements:** Preparedness, Mitigation, and Response  
**Territorial level:** Local, public and private sectors  
**Geographical:** Colombia  
**Sector(s) targeted:** Education, Environment, Trade and Industry  
**Institutional level:** Political, technical and operational

- 17 communities were sensitized to Risk Management and involved in the designing of their evacuation plans.
- 19 Educative Institutions Emergency plans were designed that benefited 57 697 persons around the Industrial zone (with the support from the Red Cross, the Fire fighters and the Civil Defense).
- Capacity building for teachers and Evacuation Simulations were conducted
- More tan 4 500 persons trained in 12 years.

**Lessons learned**

- Involving every sector of the community, including the companies, fosters results. This implies bringing the companies together.
- Personel rotation in the government slows the ongoing process.

**Summary**

Cartagena de Indias, part of World Heritage, possess one of the most important industrial zones in Colombia, Mamonal, which contains 210 companies on a 4100 hectar (10 131 acres) field. Amongst others, oil, ppetrochemical, chemical, and plastics companies are present. Around the industrial zone live 35 communities, representing in all 100 000 inhabitants. Since 1996, these companies, conscious of their surroundings, joined efforts to help the communities face emergency situations. The work strategy integrates prevention and preparedness by involving their employees, government entities and the local community which:

- Formed work committees (Environmental, Industrial Security committees and protection) in which the companies' specialists work. These committees have designed and implemented plans to mitigate the occurring of an accident: Design of Integrated Terrestrial and Maritime Emergency Plans
- Signed agreements: Regional Environmental Agenda and Mutual Help Agreement
- Developed risk Analysis: Technical and Physical.

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**Risk Management Program in the Cauca, Nariño and Putumayo Valley**  
**Programa de Gestión de Riesgos en Valle del Cauca, Nariño Y Putumayo (31)**

**Profile**

**Hazards:** Various hazards  
**CDM Elements:** Mitigation  
**Territorial level:** Regional, and the private sector  
**Geographical:** Colombia  
**Sector(s) targeted:** Education, and Environment  
**Institutional level:** Technical

**Achievement of Results**

- Training of 1250 leaders in risk management, citizen participation, environmental education, project design, risk management in local planning, SNPAD, SINA, PNC and PDC norms, first auxilories, Search and Rescue, fire fieghters' technics, community and service first responders
- 33 community CLOPAD support groups formed.
- Strengthened rescue organizations (crew training, and capacity building
- 34 strengthened CLOPAD through training

- A more transparent communication between the public Enterprise (ECOPETROL) and the community
- Progress in community leadership towards social, political and environmental responsibility for the inclusion of risk management in the community's culture.
- Emergence from the formative (trainings) to social impact by designing and implementing projects that stimulates community participation

#### Lessons learned

- The sectorial articulation facilitates the effectiveness of Risk management and resource implementation.
- The importance of communication and ludic tools and art in the articulation of the technical and the popular knowledge in educational processes.
- The methodology must be adapted to the different regional socio-cultural contexts, acknowledging the traditional know-how.
- The efficiency of risk management is proportional to the political will of the municipal decision makers in the development process
- A sensitization strategy that aims to acquire the municipal administrations sympathy must be permanent for the risk management process to be a priority.
- Citizens must be knowledgeable in fundamental, civil, environmental rights protection and constitutional instruments to prevent the infringement of their rights.
- When the municipal administration has high and medium level personnel sensitized and trained and to whom are given risk management responsibilities, the whole process becomes much more dynamic

#### Summary

See achievement of results and lessons learned.

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### Reinforcement of the community and the authority's response capacities in volcanic eruptions' risks *Refuerzo de las Capacidad de Respuesta de las Comunidades y Autoridades ante los Riesgos Volcánicos (33)*

#### Profile

**Hazards:** Volcanic eruptions

**CDM Elements:** Preparedness and mitigation

**Territorial level:** Regional

#### Achievement of Results

- EWS implemented
- Elaboration, implementation and evaluation of a municipal contingency plan

**Geographical:** Colombia

**Sector(s) targeted:** Education

**Institutional level:** Political, technical and operational

- School and community disaster attention brigades
- Implementation and signalization of evacuation routes
- Improvement of shelter areas in case of emergencies
- Reinforcement of the municipal response capacity (of the members of the disaster prevention system).

**Lessons learned**

- The importance of adapting the initiative to the local context and stimulating the local personnel's participation (a translator was contracted because of the presence of indigenous communities they worked with)
- The continual actualization and adaptation of the processes to the contexts and to the emergency warnings.

**Summary**

The impact of the DIPECHO V project implemented in 2007 and 2008 was demonstrated during the mudflow events that took place on November 20<sup>th</sup> 2008: the project has diminished the human toll. It was also possible to verify the implementation and the smooth running of mechanisms such as the EWS and the contingency plans. However, this last event has completely changed the geographical landscapes and the risk scenarios, the community, school and local contingency plans developed through INGEOMINAS became obsolete. The augmentation of the population's vulnerability and its exposition to new risks that were not covered by DIPECHO V hence became evident. For this reason, the project's second phase developed in the Páez, Inzá y la Plata regions is presently being implemented.

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**Reduction of the Social, Environmental and Physical Vulnerability of the Inhabitants of the City of Medellin through a Coresponsability and Community Participation Risk Management Strategy**  
*Reducción de la Vulnerabilidad Social, Ambiental y Física de los Habitantes de la Ciudad de Medellín a Través de una Estrategia de Corresponsabilidad y Participación Comunitaria Orientada a la Gestión del Riesgo (34)*

**Profile**

**Hazards:** Various hazards

**CDM Elements:** Preparedness

**Territorial level:** Regional, national, sub-regional, local, and public sector

**Geographical:** Peru

**Sector(s) targeted:** Education, agriculture, good governance, Environment, and planning and public goods

**Institutional level:** Political

**Achievement of Results**

- The experience was presented at the Second Urban Health Forum in New York on October 24<sup>th</sup> 2010 and won the first prize in the first contest of good practices in urban planning organized by the PAHO (Pan-American Health Organization) and the WHO

**Summary**

This project aims the development of a risk management community participation experience through the creation, promotion,

consolidation, education, training and implementation of quarter committees (formed from volunteer citizens). This is done through the development of a participatory mechanism and the promotion of a community organization in disaster prevention and mitigation to reduce the social vulnerability.

Through knowledge sharing and training, the project reduces the citizens' level of exposition to potential risks by changing customs and attitudes that deteriorates the quality of the natural resources and the Environment.

Formulate a immediate emergency and disaster response strategy to support the municipal administration's work by involving citizens in vulnerability reduction.

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### Technical Training for the Strengthening of the Social Institutions of the Medellín districts (36) CAPACITACIÓN TÉCNICA PARA EL FORTALECIMIENTO DE LAS INSTANCIAS SOCIALES DE LAS COMUNAS DE MEDELLIN (36)

#### Profile

**Hazards:** Floods, Earthquakes and Various hazards

**CDM Elements:** Preparedness and Response

**Territorial level:** Local

**Geographical:** Medellín- Antioquia - Colombia

**Sector(s) targeted:** Education

**Institutional level:** Political and technical

#### Achievement of Results

- Strengthening of the communities as main actors for disaster prevention
- The communities recognition about their responsibilities
- Around 200 people trained throughout the three years long Life Basic Support for first respondents (0.01% of Medellín's total population)

#### Lessons learned

- Engagement of the youth population
- Thematic implementation in the academic curricula of schools and colleges.

#### Summary

The cumulative experience of disasters occurred, should pave the way to search for mechanisms to effectively reduce their impact in the population. The formation of Emergency Neighborhoods Committees surges from the idea that the lack of disaster awareness in the population should be tackled with training to diminish the vulnerability of the communities most exposed to emergencies and disasters. The Emergency Committees link the community through actions developed by the local authorities and are integrated by the Medellín SIMPAD (Municipal System for Prevention and Attention to Disasters). They constitute an emergency community network that successfully engages the participation of 170 Committees in each one of the 21 districts of the city. The University *Pontificia Bolivariana* has also been a key player in the strengthening of community prevention and response to disasters, as they train the members of the Emergency Neighborhood Committees with views to create a strong, agile and capable volunteer force. To date, 3000 volunteers have been trained in basic programs of community first respondents, rooted in an administrative and altruist strategy that promotes active participation in the consolidation of the Committees; achieving their increased visibility and permanence in the population.

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**Methodology for the Analysis of Risk before Climate Change For the Hydrological Sector in the Greater Metropolitan Area (GMA) – Costa Rica**

*Metodología para el Análisis del Riesgo ante el Cambio Climático para el Sector Hídrico en la Gran Área Metropolitana (GAM) – Costa Rica (39)*

**Profile**

**Hazards:** Floods and droughts  
**CDM Elements:** Mitigation  
**Territorial level:** National, local, public sector and private sector  
**Geographical:** Costa Rica, Heredia Province  
**Sector(s) targeted:** Environment  
**Institutional level:** Technical and Scientific

**Achievement of Results**

- Extension of the coverage of the study to the whole country
- Successful application of the MPA methodology and replication nationally

**Lessons learned**

- It is suggested to work with different actors during the different steps and not the same group for the whole process.
- Working with only one climate indicator is suggested
- The experience is more applicable to 'actual risk' than to future risk.
- Very good meteorological coverage is needed for calculating the Climate Threat Index

**Summary**

This experience corresponds mainly to the Hydrological/Water Resources Sector, but it is integral in its approach and includes other areas of Education as well. In 2006, the National Meteorological Institute of the Ministry of Environment, Energy, and Telecommunications finalized the regional project 'Promotion of Capacities for Step II of Climate Change Adaptation in Central America, México and Cuba' and consequently, the Framework for Adaptation Policies was applied. It was financed by the GEF and implemented by the UNDP; the Regional Executive Agency relied on CATHALAC. In Costa Rica, a pilot area was chosen in the Central Valley, that included areas of the three provinces (Heredia, San José, and Alajuela), where the majority of the population is found, where there is major competition for goods and services that are by-products of hydrological resources, and where there are the highest indicators for health, housing and wealth. In accordance with previously reported studies in Costa Rica's National Communications, information was reported, on a more macro scale, on the vulnerability of the hydrological resources. For this project, the analysis was done considering risk in relation to the climate threat and vulnerability. Actual risk was determined just like future risk, using various indicators that were aggregated into an aggregated index.

The pilot project was carried out at the local level, with national replication currently in progress (at 50% completion) and expected to wrap up in 2011. Although replicated from the initial local-level project, the national project's variables and methodology are being analyzed differently due to the form the data is available in and initial lessons learned. The unique opportunities presented by this project have been: the improvement in analysis capacity and creation of better models and concepts. Like similar projects, a limiting factor for vulnerability assessment is the lack of information and a continued challenge has been obtaining financing for analysis of future climate change scenarios at greater resolutions, and especially at the watershed levels.

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**National Emergency Response Data Analysis Tool (NERDAT) – A Tool For Post-Impact Response Decision-Making (48)**

**Profile**

**Achievement of Results**



**Hazards:** Various hazards

**CDM Elements:** Preparedness, Mitigation, Response, and Recovery

**Territorial level:** Multi-level and public sector

**Geographical:** Jamaica

**Sector(s) targeted:** Planning and public works

**Institutional level:** Technical and Operational

- Used as a post-impact decision-making tool in 2007 when Hurricane Dean affected the island.
- Once NERDAT is in full use, a more complete set of results can be identified

**Lessons learned**

- NERDAT is applicable in any region that uses the IDA methodology
- Once NERDAT is in full use, a more complete set of lessons learned can be identified

**Summary**

Although this tool is currently not in use, it has shown positive progress in its application, funding has been identified, and procurement of services is underway. As highlighted in greater detail under ‘User-friendly, Web-based Tools for Emergency Preparedness and Recovery Efforts’ (in section 3.5 of Catalogue), the tool is an initial damage assessment methodology that is designed for use locally and/or nationally during emergency response but is useful in targeting areas for preparedness interventions, mitigation interventions, etc. NERDAT is used to assess buildings and can be applied across all sectors to assess damage; although the main target is the housing sector, the methodology can be adapted for use in other areas such as agriculture, infrastructure. The tool uses both pre-impact data (e.g. total population in a community; number of persons per household; number of vulnerable populations; average size (square meter) of each dwelling; and construction material and associated construction costs per square meter) and combines it with Initial Damage Assessment (IDA) data, that has four levels of damage ranging from level 1 (no significant damage) to level 4 (destroyed), to indicate the number and percentage of population displaced, vulnerable population displaced, estimated reconstruction cost for damaged houses and shelter capacity required for displaced persons. This assessment, in turn, feeds into the generation of needs lists to inform post-impact decision-making and facilitate response and subsequent recovery of an affected country.

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**Use of Regionalized Climate Scenarios for Mexico**

*Uso de Escenarios de Cambio Climático Regionalizados para México (53)*

**Profile**

**Hazards:** Climate Change

**CDM Elements:** Preparedness

**Territorial level:** National

**Geographical:** México

**Sector(s) targeted:** Agriculture

**Institutional level:** Technical and Scientific

**Achievement of Results**

- Mexico has regionalized climate change scenarios built around the main GEI emissions scenarios. This has made possible the climate change risk and impact evaluations.
- The range in temperature changes and showers could be estimated, in the same way as was presented by the IPCC in the AR4 thanks to the availability of more than 20 GCMs used by the IPCC, each of them with more than one experiment, and the application of the statistics methodologies.
- The scenarios achieved for Mexico have been compared in magnitude with the regional climate model, “Earth Simulator” from Japan, with a 22x22 km2 resolution; and in special structure with the system “Providing



Regional Climates for Impacts Studies (PRECIS)” from the UK, with a 50x50 km2. Forecasts were integrated considering 30 years periods, from which three climatologies were drawn: a) 2020s (2010-2039 period); 2050s (2040-2069 period); and c) 2080s (2070-2099 period).

**Lessons learned**

- The volume of information for the General Circulation Models was reduced through downscaling. This resulted in the reduction of the statistical scale, which produced probabilistic scenarios for multi-model grouping while using conventional computer infrastructure.
- The use of a stochastic weather generator, operated through monthly temperature changes, is recommended to estimate changes in the probability distribution function for temperature and showers, mainly in extreme events.
- Regionalization experiments should be carried out through the reduction of a dynamic scale with 20x20 km2 resolution, under a multi-model approach.
- There should be a shift to an information system in which the risk evaluator could obtain the data to estimate risk, instead of having to generate scenarios and producing information about changes in the average conditions for specific periods.

**Summary**

The experience “Use of Regional Climate Modelling for México” (*Uso de Escenarios de Cambio Climático Regionalizados Para México*) (53) is rooted in the union of the DRM and CCA communities, using regionally-focused climate scenarios in Mexico to predict and mitigate future climate risk. Given that experiments could be carried out through conventional computer equipment the volume of information could be reduced through downscaling, which resulted in a more practical statistical scale. It is to be noted that the weather information network in Mexico does not have a high special density, for which attempting to draw conclusions about the weather by using lower scales (50x50 km2) to the average distance between seasons is challenging and risky. There should be a shift to an information system in which the risk evaluator could draw data to estimate risk, instead of having to generate that data himself. Already there are research groups in the country that have undertaken the task to reduce the dynamic scale to achieve a higher special resolution in the short term.

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**Incorporation of Climate Change Adaptation and Mitigation Measures and Public Health Effects, through the Community Organization for Health in Emergencies and Disasters**  
*Incorporación de Medidas de Adaptación y Mitigación del Cambio Climático y los Efectos de la Salud Pública, a través de la Organización Comunitaria en Salud para Emergencias y Desastres (62)*

**Profile**

**Achievement of Results**

**Hazards:** Floods, landslides and mudflows, strong winds, and multi-hazards

**CDM Elements:** Preparedness, Mitigation, Response and Recovery

**Territorial level:** Regional, local, public sector and private sector

**Geographical:** Panama

**Sector(s) targeted:** Education, health, agriculture, good governance, tourism, environment, trade and industry, planning and public works, and economy and finance

**Institutional level:** Political, technical, operational and scientific

- Training of community leaders in basic concepts of risk reduction and disaster reduction.
- Organization at the community level was achieved, in the form of an emergency community committee with the participation of every sector of the Yaviza community.
- The community carried out a risk analysis identifying vulnerabilities and recognizing the most frequent threats they are exposed to.
- A consensus document was elaborated for the Community Plan of the response to emergency and disaster situations.
- Links and mechanisms of coordination were established between emergency entities in place and the Emergency Committee of the community of Yaviza.

#### Lessons learned

- In isolation, no organization can assume full risk management and response preparedness to emergency and disaster situations, so multi-sectoral and interdisciplinary participation is fundamental.
- The approach to risk management and preparedness to disasters is a continuous process that necessarily requires the participation of all sectors and actors of the referenced community.
- When the community receives the training needed regarding risk management and disaster preparedness, it is capable of taking ownership of the process and produces the results that are required for the achievement of the objectives proposed in the areas of self-management, commitment and leadership.
- The formulation of a plan for risk reduction, as a response to emergencies and disasters is imperative as it will serve as an implementation tool for these processes and should be formulated with the participation of every sector of society.

#### Summary

Having a community response plan to emergency and disasters with actions that cover the four phases of disaster management is important. Social actors and representatives of every single one of the sectors selected, were involved such a response plan in Panama. The notion that when a disaster occurs and everyone is affected by it, directly or indirectly, was internalized and resulted in a commitment to the sustainable development of the community. From an institutional point of view, the involvement of the political sector was achieved as was evidenced in the participation of officials from the local government and technicians from the health sector and the operational bodies in response to disasters like SINAPROC; the National Police and the Red Cross and health response community brigades were formed for emergency situations and disasters. The scientific element was approached through the hydrometeorological bodies that have evaluated the impact of climate change impacts in the Chucunaque River Basin.

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### Pre-Disaster Preparation of Persons with Disabilities and Other Special Needs

#### *Preparación de las Personas con Discapacidad y otras Necesidades Especiales, ante los Desastres (68)*

##### Profile

**Hazards:** Earthquakes and Tsunamis

**CDM Elements:** Preparedness

**Territorial level:** Regional, public sector and private sector

**Geographical:** Peru, Lima region

**Sector(s) targeted:** Education

**Institutional level:** Political and technical

##### Achievement of Results

- Exposure of the problem of a lack of pre-disaster preparation of persons with disabilities and seniors, to themselves, their families and associations
- Awareness of the population directly related to both population groups who participated in the capacity building workshops
- Training of family, city, neighbourhood and labor networks
- Gained knowledge of safe evacuation techniques for 500 persons with disabilities, seniors, and family members.

##### Lessons learned

- Persons with disabilities and seniors are stigmatized to be a burden who does not make any contributions to the community
- Persons with disabilities and their families do not understand or know the extent of their pre-disaster vulnerability
- Persons with disabilities can participate and provide support actively in tasks prior, during and after a disaster, as they make a positive contribution to the community
- Society and authorities are not sensitized to the problems of these vulnerable groups and this impedes the inclusion of risk reduction or mitigation in current guidelines regarding these vulnerable groups

##### Summary

Persons with disabilities in Peru make up about 13% of the population, and are doubly vulnerable and directly affected by poverty, which forces them to establish their residences in places with little accessibility, places which are also highly vulnerable to natural events like earthquakes, tsunamis, landslides, and floods. The principal objective of this preparation program is to sensitize and achieve inclusive public policies for vulnerable groups, in the broader framework of disaster reduction; an educated population in disasters is a population with more survival opportunities during disasters, and above all, when comparing with vulnerable groups. Currently, the focus is at the regional level in the Callao Region and the Lima Region, through local governments, local offices of civil defence, and associations for persons with disabilities and seniors. Vulnerable persons have discovered, as a result of the project, the double vulnerability which they face before a disaster and consequently, they can and do participate actively. Numerous challenges remain, i.e. the lack of appropriate organization of disability organizations; lack of leadership; lack of sensitization of populations, families, authorities and NGOs, etc.

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### Crisis and Emergency Risk Communication (or Risk Communication Strategies: The Michigan Experience; Risk Communication and the News Media Roles, Experiences in the United States) (72)

### Profile

**Hazards:** Various hazards

**CDM Elements:** Response

**Territorial level:** Sub-regional and public sector

**Geographical:** State of Michigan, United States of America

**Sector(s) targeted:** Health

**Institutional level:** Operational

### Achievement of Results

In early fall 2009, the Michigan Department of Community Health (MDCH) was faced with tight timelines for a planning and public education campaign.

The results achieved under the campaign include, amongst others:

- In only 30 days MDCH developed educational materials, such as, posters, flyers, letters, and toolkits that were designed for schools, colleges, healthcare personnel, pregnant women, and persons with chronic health conditions. Education materials were distributed to over a million citizens.
- Outreach activities for older adults were planned explaining why they were being asked to wait to be vaccinated. Postcards to physicians throughout Michigan were mailed inviting them to participate in the pandemic campaign by providing the 2009 H1N1 Influenza vaccine to their patients, with the goal of supporting local health departments who were doing the same.
- This effort was multiplied as the community partners opened up their avenues of communication using their websites, newsletters, church bulletins, and other outreach channels. A flyer and letter from the MDCH Director was sent to key business associations who used their websites and list serves to encourage thousands of businesses to develop pandemic plans.

### Lessons learned

- To work to supply educational materials designed for first responders and healthcare workers, which effectively increase the number of employees who are willing to be vaccinated and those who implement effective infection control procedures.
- To plan to increase the frequency of contact with local health department public information officers in order to ensure consistent messaging with local partners.

### Summary

As identified in greater depth in section 3.5 of the Catalogue and the creation of Sustainable Communication and Knowledge-sharing Channels Before, During and After Disasters, the Crisis and Emergency Risk Communication Strategy of the State of Michigan confirms that health communications figure prominently among the tools used to contain emergencies and guide the public, the media, response partners and vulnerable populations in the appropriate response to health and safety measures. A notable focus of this initiative is the broader public, which is included in the preparedness planning, which, again, is a key area of building community resilience through empowerment and accessibility to information (HFA PRIORITIES FOR ACTION : Build Understanding and Awareness). A notable success then of the initiative is the very existence of a Risk Communication team, and that Communication Team's ability to disseminate information (through websites, newsletter inserts, PSAs, e-mail lists, databases, call centers and hotlines, ethnic media organizations) to the public, media, partners, and stakeholders more rapidly, and collaborate with key organizations and trusted community leaders, who help push information out to hard-to-reach audiences. In effect then, the information disseminated through this channels is amplified and if effect, acts like a type of early warning system.

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### EDURISK.ORG, A Tool for Risk Management and Disaster Reduction in the Education Sector

#### EDURIESGO.ORG, Una Herramienta para la Gestión de Riesgos y Reducción de Desastres en el Sector Educativo (75)

##### Profile

**Hazards:** Various hazards

**CDM Elements:** Preparedness, Mitigation, Response, Recovery

**Territorial level:** Local, public sector and private sector

**Geographical:** Venezuela, Mérida State

**Sector(s) targeted:** Education

**Institutional level:** Technical

##### Achievement of Results

- Creation of the web portal, [www.eduriesgo.org](http://www.eduriesgo.org), that houses documentation about risk management, adapted to the geographic scope and context of the Mérida State
- The educators of pre-school, basic, middle and diversified educational institutions of Mérida have a web space where they can consult and share material about risk management in order to use them in their pedagogical projects

##### Lessons learned

- The information about risks that is submitted to educators, should be related to its geographical surroundings to be more pertinent with the pedagogical actions that are being taught
- The results of the technical studies and scientific research which are found on the portal need to be written in a comprehensive language for easy access by all users

##### Summary

Eduriesgo is a web portal which came about as a result of the initiative of the Research Centre for Integrated Risk Management (CIGIR), with the primary objective of delivering to educators of primary, middle, diversified and technical education, basic notions in the area of management of socio-natural and technological risks in the school and its surroundings, through six modules created in diverse thematic areas and adapted to the reality of the Mérida State of Venezuela. The initiative is conceived as a first experience in the country that integrates, in the local education context, information related to risk management in Venezuela; this is meant to provide the educators of Mérida with pertinent information that is also appropriate, certain, and contextually regionalized, which would permit them to incorporate risk management in the distinct levels and modalities of the educational system, and not as a parallel program but as a part of its strategies and daily teaching activities. The portal is run under the CIGIR and with the support from the Foundation for the Development of Science and Technology FUNDACITE Mérida and the company Total Oil, and is available to educational actors of Mérida through the Regional Commission of Preventative Education (CREPE). The portal went live on the 3<sup>rd</sup> of February 2010, when it was officially presented to the public. At that moment the promotion and dissemination of the space through the educational sector of the Mérida State began, as did the validation of the portal with local specialists. The hope is to create a multi-media CD with the same information that is contained on the web page, so as to be able to reach the schools built in geographical zones of Mérida where internet technology is not available.

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