Disaster Risk Reduction in a Peri-Urban Informal Settlement: the importance of links across scales

Julianne Baker Gallegos[*]
Yale University, School of Forestry and Environmental Studies

Abstract: This paper examines the results of a participatory risk assessment in Altos de Cazucá, a peri-urban informal settlement located in the outskirts of Bogotá, Colombia. Altos de Cazucá is located in a geologically unstable area, exposing over 60,000 inhabitants to periodic landslides. The community risk assessment was obtained through the implementation of a tool based on the 5 Priorities for Action established by the Hyogo Framework for Action. This case study shows that effective governance and strong community-based initiatives are not mutually exclusive, and that they are in fact, mutually dependent on each other in order to sustainably accomplish disaster risk reduction on the ground. I suggest there is a risk that emerging tendencies which encourage community based disaster risk reduction can actually become an escape route for government accountability and that linking community-based initiatives with strong institutional support is as important as CBDRR initiatives in and of themselves.

Keywords: internally-displaced people, conflict, property rights, mining, relocation

Introduction

During the last 40 years, economic losses from natural catastrophes have increased almost 10-fold and have led to an increase in the number of casualties and damages to human settlements and to socio-economic structures around the globe (Stanganelli 2008: 94). A disaster is an event that overwhelms a community's capacity to cope, and it is determined by the impact that a given hazard has on said community (Twigg 2001: 2). Although physical phenomena are a component of natural hazards, Pelling argues that the potential for a disaster actually depends on human exposure and the *lack of capacity to cope with the negative impacts that exposure might bring* (Pelling 2003: 4). Some of the factors that influence people's vulnerability include social, economic, cultural, institutional, political and even psychological conditions (Twigg 2001:2).

According to the United Nations International Strategy for Disaster Reduction (UNISDR), *vulnerability to disasters is a function of human action and behaviour. It is determined by a combination of several factors, including awareness of hazard, the condition of human settlements and infrastructure, public policy and administration, the wealth of a given society and organized abilities in all fields of disaster and risk management* (UNISDR official website). Consequently, disasters have been characterized as the "unsolved problems of development" (Twigg 2001: 3). Historically, development practice has sought to overcome problems of deprivation such as poverty, unfulfilled elementary needs and threats to global socio-economic and environmental sustainability, among others (Sen 1999: *xi*). By exposing a population's vulnerabilities, a disaster puts in evidence the gaps that development practice has left behind. Oliver-Smith (2003: 304) argues that a society's inability to withstand major disruption from a predictable feature in its environment is clear proof that it has not developed sustainably. In order to efficiently prepare for disasters, a society cannot assume that it will be able to control the

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[*] Corresponding e-mail: jbakerg@gmail.com

occurrence of a disaster. What a society can do is acknowledge the inevitable occurrence of disasters and prepare accordingly (Klein *et al* 2003: 39).

Disaster policy: the Hyogo Framework for Action

Disaster mitigation has become an international priority due to the reduced casualty rates and the economic benefits that disaster preparedness brings when compared to emergency relief expenditures. For example, the World Bank and United States Geologic Survey determined that a ratio of $7 in emergency relief operations are saved for every $1 spent in disaster mitigation and preparedness (Twigg 2001: 3). Accordingly, in January of 2005, the UNISDR organized the World Conference on Disaster Reduction in Kobe, Hyogo, Japan, where the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (hereafter referred to as HFA) was adopted. The HFA is considered to be a global blueprint for disaster risk reduction (DRR) policy and practice. The policy document was adopted by 168 governments, which consequently, committed to systematically integrate disaster risk into policies, plans and programs for sustainable development (UNISDR 2005: 1). In it, governments recognize that sustainable development, poverty reduction, good governance and DRR are mutually supportive objectives, essential to meeting the challenges of global disaster risk and development worldwide (UNISDR 2005: 2).

In order to define the HFA's priorities, the Yokohama Strategy was reviewed, identifying the most significant challenges for building resilience to disasters: local community involvement and scarce resources allocated within development budgets for the purpose of risk reduction. Five specific areas were identified as key gaps within the Yokohama Strategy: a) governance, organizational, legal and policy frameworks; b) risk identification, assessment, monitoring and early warning systems; c) knowledge management and education; d) reducing underlying risk factors; and e) preparedness for effective response and recovery. Subsequently, these became the key priorities for action for the HFA for the decade 2005 -2015 (UNISDR 2005: 2).

Disaster practice: Community Based Disaster Risk Reduction

One of the challenges identified by the Yokohama Strategy was a lack of community involvement. Thus, community-based approaches have emerged in response to a) failed past approaches, b) evidence that bottom-up educational approaches are most successful in bringing about behavioral changes and powerful social policies and, c) the consideration that by not involving communities, oppression prolongs and vulnerability increases.

The HFA is structured in such a way that the first step to developing appropriate DRR strategies is an assessment, followed by implementation of prevention and mitigation measures and concluding with disaster preparedness and response strategies. Accordingly, the initial risk assessment plays an important role in the way that DRR practice will be carried out. Risk reduction is an ongoing process that responds to a community's constantly evolving needs. Thus, monitoring has a two-fold role: 1) surveying changing risk conditions in order to design adequate DRR initiatives and, 2) evaluating progress made by DRR strategies that have been implemented on the ground.

Performance benchmarks are considered to provide a baseline for decision-making processes that involve the identification and proposal of effective DRR policy and practice (Cardona 2005: 1). Thus, different government and non-government organizations have developed monitoring systems that allow them to obtain indicators for a community's risk situation in a way that enables them to take action for disaster prevention. Although limited in depth, these tools provide an opportunity to develop a systematic, quantitative analysis that allows comparisons to be made across time and space. These frameworks are meant to be flexible enough that they can adapt to the local context while, at the same time, providing a structure that allows for standardization across scales. Most of

these assessments follow a common structure, which includes identifying local capacities that can be strengthened and gaps that need to be addressed to reduce future risk to disasters. This study is based on one such tool.

Site Description

The Municipality of Soacha is located in the Department of Cundinamarca, Colombia. Soacha has a total population of approximately half a million people, making it the most densely populated municipality within its department. Accelerated demographic growth is due to: urban sprawl from neighboring Bogotá and internal displacement due to the armed conflict and socio-economic conditions (AINCA 2008: 4). The District of Altos de Cazucá is located towards the North of the Municipality of Soacha. Altos de Cazucá is divided into 6 sectors known as Comunas (Communes). The Comuna IV is located in the outskirts of Bogotá, the Capital of Colombia and has a total of 68,643 inhabitants (51.3% female and 47.8% male). According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 83.4% of the population of the Comuna IV is internally displaced (OCHA 2006). The majority of the properties in the Comuna IV are not titled or legally registered and only 20% of the population has access to basic services such as drinking water, sewers, streets or health services. The displaced population does not have access to basic infrastructure or any of these services (OCHA 2006).

Displacement rates in Colombia are growing quickly. Between 2007 and 2008, the displaced population grew by a rate of almost 25%. Today, Colombia has one of the largest displaced populations in the entire world, second only to Sudan. The actual magnitude of displacement in Colombia is not yet agreed upon. Estimates range from 2 to almost 4 million people (Easterday 2008). The United States Committee for Refugees (2010) estimates that by the year 2005, 2.9 million people, representing 7% of the entire country's population and almost 30% of its rural population, had been displaced by the conflict. The paramilitary (AUC) and the *guerrilla* (FARC), two of the main actors of Colombia's armed conflict are responsible for over 60% of population displacement in Colombia (Engels and Ibáñez 2007). Forced displacement has made large cities, such as Bogotá, a refuge for thousands of internally displaced people. The Municipality of Soacha offers easy access to the benefits of Bogotá through the Autopista del Sur (Southern Highway) while offering public services, property prices, rent and taxes that are substantially lower than those in Bogotá. This, combined with its close location to the capital have made Soacha an attractive site for displaced people seeking a) refuge from the conflict and, b) better socio-economic opportunities.

The main source of income in the municipality comes from industrial activities. Industries came to Soacha due to the low public service, rent and tax prices and the close proximity to the capital and have played an important role developing the area and providing services to encourage human settlements and secure labor for their companies. However, since their main motivation has been economic, the industry is said to have *turned their back on the community* by producing high levels of pollution, uncontrolled urban development and being socially irresponsible. This has produced conflict over urban space and irresponsible attitudes towards the environment, neglecting urban and land-use planning and producing a convoluted and conflictive settlement pattern as displaced populations come to Soacha seeking work. Additionally, as more people come into the area, industries are starting to leave due to the lack of space to expand their operations, creating a vicious cycle in which population growth feeds into unemployment (AINCA 2008: 24).

One of the biggest industries in Soacha is the mining industry. The mountains where Altos de Cazucá is located are composed of karst bedrock and are an important source of material for construction for the development of Bogotá. These mountains had been exploited in an unregulated manner for decades before they became populated, loosening the rock beneath the surface and making the ground extremely unstable. In 2008, for instance, there were 103 mining concessions,

excluding other illegal mining initiatives (AINCA 2008: 22). According to several risk assessments, the 39 neighborhoods located in the Comuna IV can not be legalized due to potential geologic risk. Two different geologic risk assessments performed by the Ministerio de Planeación de Colombia (Urban Planning Ministry of Colombia) and the Japanese International Cooperation Agency have already declared uninhabitable some areas within the Comuna IV (JICA 2005). Nonetheless, it continues to expand. Altos de Cazucá has some of the highest rates of internally displaced people in the region. Families generally arrive with limited resources and decide to invest in properties that are illegally sold to them (Deysi Ávila, personal comm., November 24th, 2009). Many claim that at the time they bought their property, they were unaware it was an illegal property located in a geologically unstable site (Rocío Acero, personal comm., November 25th, 2009). Government officials argue that they are illegal invaders and that they have chosen to expose themselves to this risk. Community leaders, on the other hand, argue that the government has the responsibility to inform the local population what the conditions of the territory are. A community leader explained: *We never stopped to think… We didn't know that this mountain could fall one day. People kept coming and none of the responsible entities, the mayor's office or other government institutions did anything to stop people from settling into this area* (Rocío Acero, personal comm., November 25th, 2009).

On March 7th, 2009 a massive landslide took place in a hillside of the Comuna IV, bringing with it 3 neighborhoods and burying a third one. The March 7th landslide and the subsequent ground movements affected approximately 1890 people and destroyed over 50 houses. Families whose houses were completely destroyed by the landslide or exposed to risk of an additional landslide were promised relocation and approximately 300 additional houses are still considered to be highly at risk (Mercy Corps 2009: 3). The landslide had no casualties because it took place at noon, while people were at work. However, the mountain continues to recede and the people that remain are concerned that a potential landslide could not only leave them homeless, but if it takes place during the night, it poses a threat to their lives (Miguel Ángel Forero, personal comm., November 28th, 2009). Members of this community have gotten together to request government support to prevent further disasters. The Governor of the Department of Cundinamarca promised to relocate the population at risk by December, 2009 (Uno 2009). Nonetheless, the majority of the population remains in a site that is considered to be highly at risk of further landslides.

The socio-political context and the dense population numbers accumulated on the steep and highly eroded slopes make the Comuna IV an especially vulnerable community to natural disasters. Community leaders from 3 neighborhoods located in the hazardous area have lobbied the local Municipality to seek relocation for those whose homes were destroyed in the landslide. Nonetheless, more than one year after the event, none of the victims of the landslide had been relocated. Furthermore, other community members living in close proximity to the landslide met with officials from the Municipality of Soacha, Ministerio de Planeación (Urban Planning Ministry), Comité Local para la Prevención y Atención de Desastres (unit in charge of disaster management at the municipal level) and Comité Regional de Prevención y Atención de Desastres (unit in charge of disaster management at the regional level) and had not received any support to develop risk assessments, get disaster reduction training or even potential relocation (Miguel Ángel Forero, personal comm., November 28th, 2009). This not only exposes them to the risk of loosing their home, it also puts their lives at risk.

After the landslide took place, Mercy Corps began facilitating dialogue between the local community leaders of the Comuna IV and the government agencies responsible for risk reduction. As a result of this process, Mercy Corps contacted the *Comité Local de Prevención y Atención para Desastres* (Local Committee for Disaster Prevention and Attention), the Department of Cundinamarca's office responsible for disaster risk reduction. Their response was "*there is no capacity to respond to disasters at all scales, we will respond to disasters according to their impact and a disaster of this scale is not a priority to us*" (Jaime

Matiz, personal comm., August 13th, 2010). Consequently, Mercy Corps decided to commission a disaster risk assessment in the community to determine risk perception among the inhabitants of the Comuna IV. This study presents the results of the risk assessment.

Methods

Mercy Corps developed a DRR tool to help field practitioners to better understand DRR activities, how to integrate these activities into field projects, and *ultimately help create communities that are more resilient to natural disasters* (White and Romanski 2008: Guidelines). This tool is based on the HFA's 5 Priorities for Action (UNISDR 2005): governance, risk assessments, knowledge, underlying risk factors and preparedness. Each of these sections is subdivided into several statements which are to be evaluated on a scale of 0-4. Each of these 0-4 evaluations are added up and normalized in the end to provide a quantitative diagnosis (percentage) for each of the 5 Priorities for Action. The final score obtained for each Priority for Action will provide an estimate of how succesful (or unsuccessful) DRR has been in that specific community on a scale of one to a hundred.

The DRR Tool is a guideline for DR assessments and is meant to be contextualized on site. In Soacha, the tool was discussed in great detail with focus groups comprised of community leaders (9 women and 5 men) that belong to two local organizations: ASOGAB (Association for Neighborhood Coordination) and CIDESCOC (a women's group that runs a subsidized pharmacy for the community). As a result, the tool was adjusted to the local context of the Comuna IV. Community leaders identified lack of social cohesion as one of the biggest risks the Comuna IV is exposed to. Appropriately, a 6th section was added by request of the community: communication, illustrating the importance of social networks for DRR.

A survey consisting of 45 questions was developed based on the tool and implemented in 14 different sections of the Comuna IV through focal groups (approximately 13-40 people per group and 421 people in total). Their responses were analyzed and normalized (following the 0-4 score system) to provide a quantitative, participatory diagnosis of disaster risk in the Comuna IV. An additional version of the survey was developed and implemented with institutional officials working on DRR in the Comuna IV. This consisted of individual responses to the survey by 6 government and non-government officials representing the Red Cross/Red Crescent, Mercy Corps, UNDP and the Department of Cundinamarca's Disaster Risk office. The goal was to assess the differences in risk perception between officials well-informed of the issues of risk reduction and the risk perception of the local community. All of these results were averaged in two separate groups, one for the community (n=421) and a second one for the different government and non-government officials (n=6). The two groups were purposely kept separate to determine whether there were differences in access to information, knowledge and risk perception between the community and DRR experts.

Results

The results obtained from the surveys indicated they are exposed to high risk. The aggregated results of the 6 different categories evaluated indicated the community considers itself to be 18.35% "risk prepared". Governance scored the lowest (4.17%), followed closely by risk assessments (6.25%). Alternatively, the community ranked knowledge and education highest (33.00%) (see Annex 1). Considering all of the categories were below a 33.00% ranking, the evaluation clearly indicates that the community of Altos de Cazucá perceives itself as being highly at risk.

The results obtained from the surveys implemented with government and non-government officials (hereafter referred to as "entities" or DRR experts) indicate their perception of risk for the community in Altos de Cazucá is not as high as the perception of risk the community has of itself. According to the different entities, the community is 49.17% "risk prepared". Experts ranked risk

assessments highest at 75.00%, followed by governance with a score of 62.5%. Generally speaking, risk perception is significantly lower among officials and experts working in DRR in Soacha than within the community. But the most striking differences obtained for both groups were in the governance and risk assessments sections. Not only are these two categories substantially different in the relative scores that the community and DRR experts gave them, but they are also the most contrasting ones. While the community considers governance and risk assessments the two weakest elements in DRR in Altos de Cazucá, DRR experts consider them the strongest points. Each priority for action can be analyzed in detail but in the interest of synthesis, this paper will focus specifically on two of the six categories that were evaluated in Altos de Cazucá: governance and risk assessments.

Governance
The governance section aimed to determine whether there are institutions or institutional iniatives on the ground to enhance risk reduction and support the community in DRR practice. The difference in perception for governance is attributed to the fact that the community considers the government to be essentially absent and non-responsive, while DRR experts consider it to be actively involved.

The first goal the HFA proposes as part of an integrated DRR strategy, is to *ensure that DRR is a national and a local priority with a strong institutional basis for implementation* (UNISDR 2005: 6). Accordingly, DRR experts believe there are concrete initiatives that take place constantly (initiated by insitutions such as CLOPAD, CREPAD, Red Cross/Red Crescent and Doctors Without Borders, amon others) on the ground in the Comuna IV. However, members of the community that responded to the survey were not aware of any of these initiatives, rather they believe there are no DRR activities taking place on the ground. DRR experts also suggested that trainings had taken place in the past in the Comuna IV to prepare people to deal with risk. Yet the community did not have any recollection of such trainings. Institutional representatives indicated they have constant access to government funds to reduce risk, but the community is not aware of the existence of these funds. Finally, when asked about the type of relationship between the community and local and national governments, both DRR experts and community members responded the relationship is one of mistrust.

In an interview held with a local community leader, he indicated: *Neither the Mayor's office nor CLOPAD (Local Committee for Disaster Prevention and Attention) have ever offered trainings for the community to prepare... not even for those of us who would want to learn these things. We never knew why it was considered a high-risk area. With time, we've realized that we are vulnerable to landslides and flooding* (Rocío Acero, personal comm., November 25th, 2009). A member of the community whose house is located at the edge of the cliff where the March 7th landslide took place has repeatedly requested government support to assess his home's risk situation. According to him, *they should not wait for this thing to fall. They should prevent this situation from happening… When one goes to request assessment of our living conditions it's precisely to prevent such a situation from happening. But if one goes to prevent, no one listens. CLOPAD will walk around here and say "yes, you are located in a high-risk area". The Urban Planning Department will say the same thing. But no one does anything. I wonder: why do you have to wait for me and my family to fall to then say "Oh no! Poor family, look what happened"?* (Miguel Ángel Forero, personal comm., November 28th, 2009). Alternately, goverment officials explained they don't have the resources to respond to all of the emergencies a vulnerable community such as Soacha is exposed to. However, according to community leaders, if the government and non-government officials are not able to respond to all hazard events, it is important for the community to be aware of this so they can play a leading role in reducing their own state of risk.

Risk assessments

The section on risk assessments in the survey sought to determine whether any risk assessments had taken place in the Comuna IV and, if so, whether the community was aware of their results or not. This stems from the HFA's consideration that effective DRR must *identify, assess and monitor disaster risk and enhance early warning* (UNISDR 2005: 6) in order to inform vulnerable communities of their own state of geologic and socio-economic risk (Ocharan 2008). According to DRR experts, several risk assessments have been performed in the past in Soacha. However, survey results indicate people are not aware of their current risk situation so these results appear not to have trickled down into the community. Some community members remembered a geologic risk assessment that had been commissioned by the Japan International Coperation Agency (JICA), yet none were aware of what the conclusions were.

Community leaders in Cazucá believe there is a need to communicate the results of these assessments to the people living in Altos de Cazucá so they can beware of their risk situation and prepare accordingly. DRR experts consider the community much better prepared to confront disasters than the community considers itself to be, mostly because they are aware of different assessments and early warning systems that are in place that the community does not know of. For instance,the DRR experts claim that the March 7th landslide was announced by the early warning system set up by JICA in the firemen's department in the Comuna IV. However, none of the community members that participated in the survey or those affected by the landslide were aware there was an early warning system in place.

Through their work, Mercy Corps sought to strengthen local social and communal organizations so they would identify local capabilities instead of depending on external sources of support (such as the government, non-governmental organizations, etc.). This assessment provided an opportunity for the community to work towards a common goal under the guidance of two local organizations: ASOGAB and CIDESCOC. They concluded that, in order to reduce risk in Altos de Cazucá, DRR experts should work with the community to develop a disaster reduction strategy that includes collective and participatory community action for disaster preparedness and response. In doing so, it is especially important to recognize local capacity and build resilience in the community. By informing the community of efforts done to reduce risk and existing early warning systems, community leaders argue, the different government and non-government entities present in the area can begin to build trust within the Comuna. At the same time, community leaders believe that if the people of the Comuna IV are aware of which sectors in their area are risk-prone and what their vulnerablities are to natural disasters, they can take an active role in reducing their state of risk.

Discussion

One of the main obstacles the Municipality of Soacha faces is the lack of resilient institutions to support it. Even though there is institutional presence in the area (approximately 50% governmental and 50% non-governmental), the complexity of the problems in Altos de Cazucá overwhelms local capacity. Additionally, there is very limited cooperation among the different institutions due to issues such as mistrust, competitiveness and difficulties with the community in general. The disarticulation between local entities leads to inefficiency, whereby one household may receive aid from 3 different institutions, while over 70% of households remain unattended to (AINCA 2008: 26). Institutional weakness is also evident in the municipality, which has failed to revise and approve the Plan de Ordenamiento Territorial (Urban Planning Project), subjecting the area to increased unplanned settlements, which in turn augments conflict in different sectors of the municipality. Even though geologic risk is considered in Soacha's Política Pública para el Desarrollo Económico Incluyente (Inclusive Economic Development Public Policy or IEDPP), there is no consideration for disaster management in it (AINCA 2008).

International law declares that governments *bear the ultimate responsibility for the safety of their citizens* (Christopolos 2003: 103, United Nations 1966). For instance, the 1999 earthquake in Turkey had 17,000 casualties that have been closely associated with a weak government. Risk-prone areas had been clearly mapped out in Turkey and building codes were in place at the time of the earthquake. Notwithstanding, government regulation was lax, allowing people to live in insecure buildings located in unsafe areas (Twigg 2001: 2). Just like in the case of Altos de Cazucá, there were probably measures the community could have taken to reduce risk. Nonetheless, in both cases, it is evident that governance (or lack of it) played an important role in each community's vulnerability. In order to address the issues that compromise political will, it's necessary to understand the complexity that lies behind dealing with disaster prevention.

There is ample evidence that disasters are the result of multiple processes that extend far beyond geologic risk. However, few aspects of vulnerability are actually considered within disaster management policy or practice- that is, if disaster management is in the agenda at all. The complexity underlying disasters demands equally complex approaches and concerted efforts across organizations (multilateral, bilateral, national and local agencies, non-governmental organizations, scientists, technical specialists and communities) (Twigg 2001: 3) and across scales (both spatially and temporally). As Fairhead and Leach appropriately point out: *natural resource management… depends less on community-level authorities and socio-cultural organizations than on the sum of a much more diffuse set of relations*" (1996: 235).

There are still clear weaknesses in linkages across the phases and stages of risk management (Stanganelli 2008: 106). One of the challenges that DRR faces at an institutional level is the nature and politics of response whereby expenditures are associated to external pressures (Twigg 2001: 3). For instance, media coverage generates a lot of attention on large-scale disasters, so these tend to absorb funding for disaster response that could otherwise be invested in DRR. This has been repeatedly shown during the last few decades, with media attention focusing on large-scale disasters such as the 1991 cyclone in Bangladesh (Dove and Khan 1995), the 1997-1998 El Niño event in Perú (Broad and Orlove 2007) or the recent Haiti earthquakes, instead of unheard of small-scale disasters such as the one Soacha. A second factor that limits DRR is political opportunism. Many government and non-government leaders choose to respond to high-profile events that will give them visibility (Twigg 2001: 4). One of the most evident cases of this was portrayed in Broad and Orlove's piece on the 1997-1998 El Niño event in Perú, whereby the Peruvian government and media failed to effectively "channel globality", generating distrust because of the *intimate nature of the relations between the state and private industry* (Broad and Orlove 2007: 293).

There is wide spread consensus that disaster management needs to be done context and location-specific. Given the urgent nature of DRM, experts urge for policies that involve less bureaucracy across agencies and regions (Stanganelli 2008: 109). For instance, in Italy, every region structures its own risk assessment and prevention strategy according to specific local needs and local hazards (Stanganelli 2008: 107). Although context specificity is essential for effective DRR, decentralization can actually lead to fragmentation, whereby multiple agencies repeat their efforts instead of collaborating (Twigg 2001: 6), embedding vulnerabilities at an institutional level (Stanganelli 2008: 109). Not unlike the case in Altos de Cazucá.

A common national framework is a potential way to address fragmentation. A multi-hazard, integrated strategy generally provides: 1) a common vision for DRM, 2) a clear description of roles and links among the different actors and agencies, 3) technical guidelines to inform risk assessments and monitoring, 4) indicators or baselines that can provide a point of comparison across space and time at the national level (Stanganelli 2008: 107). However, in order for this strategy to be effective on the ground, it must take into consideration underlying vulnerabilities that are not usually taken into consideration in DRM. For instance, almost all capital cities in Latin America exhibit a pattern

whereby poverty and ignorance leads to precarious human settlements (Stanganelli 2008: 108). Thus, an effective DRR strategy needs to make these links between poverty and vulnerability and integrate socio-economic considerations in DRM.

A third problem that has been identified in DRR practice is competitiveness within the disaster community. As mentioned, vulnerabilities associated with disasters tend to be very diverse, requiring a wide array of experts to deal with the multiple factors that influence vulnerability. Although inter-disciplinarity is increasingly accepted as an appropriate DRR approach, people still encounter difficulties understanding each other across disciplines and defining how to prioritize DRM strategies (Stanganelli 2008: 108). Foucault analyzes hierarchies, suggesting *disciplines characterize, classify, specialize: they distribute along a scale, around a norm, hierarchize individuals in relation to one another and, if necessary, disqualify and invalidate* (1975: chapter 3). Ergo, there is a high degree of competitiveness and even a lack of respect and support between disciplines within the disaster community (Twigg 2001: 6).

Another challenge that has been identified in DRM is related to participation and accountability. It's become increasingly common to acknowledge the weakening of states and their respective institutions as alternate private and non-government agencies emerge. For instance, at the 15th Conference of the Parties in Copenhagen, United Nation's Under-Secretary General for Humanitarian Affairs declared that, given the lack of commitment and weak institutional support demonstrated by governments with respect to climate change, CBDRR is the most effective way to confront disaster vulnerability (John Holmes, personal comm., December 15th, 2009). At the same time, roles become diffuse, making it increasingly difficult to hold institutions accountable for effective DRR. Based on John Holmes's comment, an analogy can be drawn between community-based initiatives and the role that privatization has taken in modern societies. Gilmore and Jensen point out that privatization has become *for many, the contemporary response to inefficient government administration* (1998: 194). However, this leads to more repercussions than a simple shift in duties or responsibilities at an organizational level. Private initiatives (or community-led initiatives, in this case) can not be expected to replace the role that the government has in DRR because the interests, responsibilities, access to resources and information and overall power that they have are completely different. Moreover, an increase in inefficiency as a result of this shift may enable government officials to escape a legal responsibility they have assumed as a state and for which they are accountable.

According to Cannon (2008: 3), vulnerability should be understood in the context of five interacting components: 1) livelihood, 2) base-line status, 3) self-protection, 4) social protection and, 5) governance. If these five elements are not taken into consideration equally, this produces an imbalance that will eventually embed vulnerability within the community. This is especially relevant when we consider the role that governance plays in DRR at the community level. As CBDRR initiatives expand as the new, popular way to address vulnerability, it becomes increasingly important to analyze the relations between disaster preparedness and governance and the power dynamics present in a community. Even if the community can shed light on appropriate ways to address disaster reduction, it must have adequate institutional support to play a significant role in DRR (Cannon 2008: 3).

International regulation and institutions have promoted adequate governance as a key component of reducing vulnerability to natural disasters (UNISDR 2005: 6). The World Bank, for instance, defines governance as *the manner in which power is exercised in the management of a country's economic and social resources for development.* Accordingly, good or bad governance is directly related to power dynamics. The World Disasters Report defines governance as *the arena in which everyone… negotiates for their share of space, resources, and entitlement to fulfill their needs and develop their interests. It is about who gets to make or influence decisions, how those decision are made, and for the benefit of whom* (Klynman *et al* 2007: 7). While it is

true that governance is more than government involvement, this breakdown of governance helps us understand the role that power plays in a community's vulnerability. One of the most challenging insights of this definition of governance lies in understanding that a shift in power may be a key component of DRR. As Foucault indicates, disciplines and their corresponding institutions are considered a *respectable face… hence the affirmation that they are the very foundation of society, and an element in its equilibrium, whereas they are a series of mechanisms for unbalancing power relations definitively and everywhere* (1975: chapter 3). In the words of Robert Chambers: *to put the first last is hard… for it means that those who are powerful have to step down, sit, listen and learn from and empower those who are weak and last* (Chambers 1997: 2).

The needed shift in governance for effective DRR implementation can take place in many ways. Perhaps it means that powerful organizations and institutions need to change their behavior in such a way that they do not enhance vulnerability (Cannon 2008: 8). Furthermore, governance also refers to the access that community members have to information and trainings that will enable them to take precautionary measures for effective DRR. As Dove and Kammen point out *ignorance is not simply a function of the non-production of knowledge, but indeed is actively constructed in its own right* ([unpublished]: 7). Understanding that illegibility is not, in fact, *an accidental product of governance* (Dove and Kammen 2001), may lead to a very different way of dealing with DRR.

In "Development as Freedom", Amartya Sen proposes that *the freedom of agency that we individually have is inescapably qualified and constrained by the social, political and economic opportunities that are available to us… it is important to give simultaneous recognition to the centrality of individual freedom and to the force of social influences on the extent and reach of individual freedom* (1999: xii). Thus, even if we do consider that community-based action is important in Altos de Cazucá as in other risk-prone areas around the world, there comes a point where, without adequate institutional support, community-based initiatives begin to wane.

Conclusion

The case of the community of Altos de Cazucá in Colombia represents one of many examples of small-scale disasters that take place continually, producing human, social, political and economic loss. Although an important development challenge, small-scale disasters are dismissed easily, remaining fairly unnoticed by the popular media and receiving limited funding for prevention purposes. High-ranking officials and DRR experts claim the only way disasters can be addressed effectively is through community-based initiatives that focus on local context and needs. However, the complex nature of disasters poses challenges both at the policy level and on the ground which are not confronted by a single approach- whether it is government-led or community-based. Altos de Cazucá is an example of why links need to be made across scales so that communities have access to the institutional support they need in order to implement effective DRR. Although community-based initiatives are an important component of DRR, we must be watchful of institutions using this type of initiative as an escape-route for accountability.
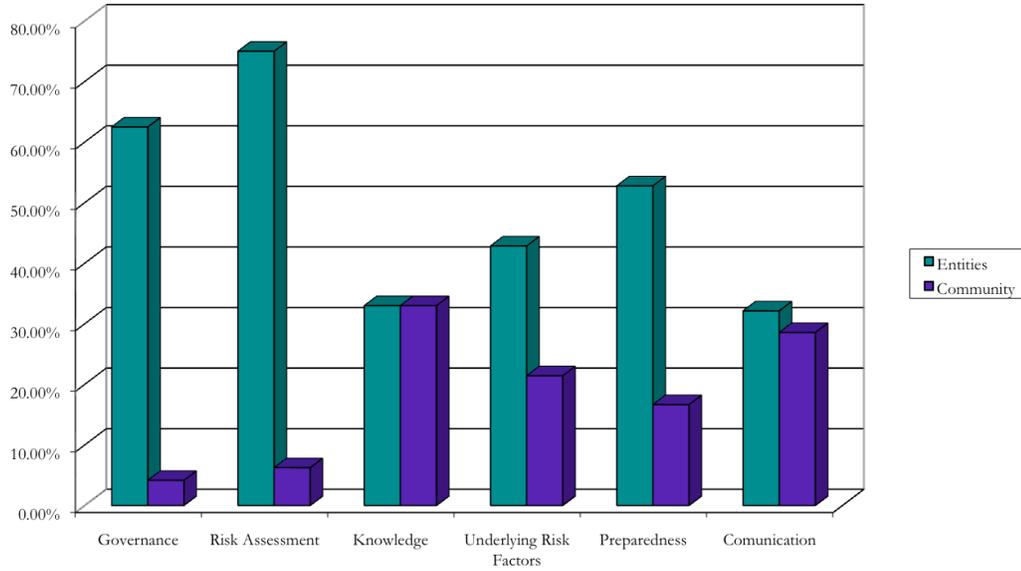
Acknowledgements

References

16 casas destruídas por derrumbe en Soacha. Noticiero Uno. Bogotá, Colombia. May 8, 2009.

Acción Social. *La Entidad. Quiénes somos.* Accessed on February 3rd, 2010. Found in: http://www.accionsocial.gov.co/contenido/contenido.aspx?catID=3&conID=544&pagID=820

Adger, Neil. 1999. *Social Vulnerability to Climate Change and Extremes in Coastal Vietnam.* World Development 2: 249-269.

AINCA. 2008. Consejo Territorial de Planeación de Soacha. *Política Pública: Desarrollo Económico Incluyente del Municipio de Soacha.* Departament of Cundinamarca, Colombia, 2008. Print.

Alexander, David C. 1993. *Natural Disasters.* London: Routledge, 632 pp.

Bollin, Christina. 2003. *Community-based disaster risk management approach.* Gesellschaft für Technische Zusammenarbeit (GTZ), Eschborn, 60 pp.

Broad, Kenneth and Ben Orlove. 2007. *Channeling globality: the 1997-1998 El Niño Climate Event in Perú.* American Ethnologist 34 (2): 285-302.

Cannon, Terry. 2008. *Reducing People's Vulnerability to Natural Hazards: Communities and Resilience.* United Nations University: World Institute for Development Economics Research (UNU-WIDER), research paper No. 2008/34, 17 pp.

Cardona, Omar D. 2005. *A System of Indicators for Disaster Risk Management in the Americas.* Presented in: Globalization, Diversity, and Inequality in Latin America: The Challenges, Opportunities, and Dangers, University of Pittsburgh, March 23-24, 2007, 15 pp.

Chambers, Robert. 1997. *Whose Reality Counts? Putting the First Last.* ITDG Publishing, Schumacher Center for Technology and Development, Warwickshire, UK, 297 pp.

Christopolos, Ian. 2003. *Actors in Risk.* In <u>Natural Disasters and Development in a Globalizing World</u>, ed.

Mark Pelling, 95-109. London: Routledge, 250 pp.

Dove, Michael R. and Daniel M. Kammen [unpublished]. *Chapter 1: Introduction.* In <u>The Anthropology and Physics of Conservation and Development</u>, Manuscript in progress, 17 pp.

Dove, Michael R. and Daniel M. Kammen. 2001. *Vernacular Models of Development: An Analysis of Indonesia Under the 'New Order'.* World Development 29 (4): 619-639.

Dove, Michael R., and M. H. Khan. 1995. *Competing Constructions of Calamity: The Case of the May 1991 Bangladesh Cyclone.* Population and Environment 16(5): 445-471.

Easterday, Jennifer. 2008. *Litigation or Legislation: Protecting the Rights of Internally Displaced Persons in Colombia.* Diss. University of California Berkeley, School of Law.

Engel, Stefanie and Ana María Ibález. 2007. *Displacement Due to Violence in Colombia: A Household-Level Analysis.* Economic Development and Cutural Change 55 (2): 335-365.

Fairhead, James and M. Leach. 1996. *Misreading the African Landscape: Society and Ecology in a Forest-Savanna Mosaic.* Cambridge University Press.

Foucault, M. 1995. *Discipline and Punish: The Birth of the Prison.* Part III.3: Panopticon, pp.195-209. New York: Vintage.

Gilmour, Robert S. and L.S. Jensen. 1998. *Reinventing Government Accountability: Public Functions, Privatization, and the Meaning of "State Action".* Public Administration Review 58 (3): 247-258.

Giroux, Henry A. 2006. *Reading hurricane Katrina: Race, class, and the biopolitics of disposability.* College Literature 33(3): 171-196.

Japan International Cooperation Agency. 2005. *The Study on Monitoring and Early Warnig Systems for Landslides and Floods.* Cooperation Project. Municipality of Soacha, Colombia.

Kalin, Walter and Jorg Kunzli. 2009. *The Law of International Human Rights Protection.* New York: Oxford University Press, 539 pp.

Klein, R.J.T., R.J. Nicholls & F. Thomall. 2003. *Resilience to natural hazards: How useful is this concept?* Environmental Hazards 5: 35-45.

Klynman, Y., M. Mukhier and N. Kouppari. 2007 *World Disasters Report 2007: Focus on Discrimination.* International Federation for Red Cross/Red Crescent Socties.

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Lynam, T., W. de Jong, D. Sheil, T. Kusumanto and K. Evans. 2007. *A Review of Tools for Incorporating Community Knowledge, Preferences and Values into Decision Making in Natural Resources Management.* Ecology and Society 12 (1): 1-15.
Mercy Corps. [unpublished] *Respuesta de emergencia y transición con familias vulnerables y en riesgo por deslizamientos en la Comuna IV, Soacha.* Fondo del Canada para Iniciativas Locales en Colombia (FCIL), grant report by Brian Atkinson, 2009, 20 pp.

OCHA(United Nations Office for the Coordination of Humanitarian Affairs). *Guiding Principles on Internal Displacement.* June, 2006. Accessed on February 3rd, 2010. Found in: http://www.idpguidingprinciples.org/

OCHA (United Nations Office for the Coordination of Humanitarian Affairs). *Need Assessment Altos de Cazucá, Municipia de Soacha.* June, 2001. Accessed on February 3rd, 2010. Found in: http://reliefweb.int/rw/RWFiles2006.nsf/fb9a3459e0 c5a152c1257205004f1c3e/c125723c004042d7c12573aa 004a2869/$FILE/ocha-col-soacha-30jun.pdf

Ocharan, Jacobo. 2008. *Guía práctica de reducción del riesgo de desastres para organizaciones humanitarias y de desarrollo.* Obra Social Fundación "la Caixa", Barcelona, 123 pp.

Oliver-Smith, A. 2003. *Anthropological Research on Hazards and Disasters.* Annual Review of Anthropology 25: 303-328.

Pelling, Mark. 2003. *Paradigms of Risk.* In <u>Natural Disasters and Development in a Globalizing World</u>, ed. Mark Pelling, 3-16. London: Routledge, 250 pp.

Petal, M., R. Green, I. Kelman, R. Shaw and A. Dixit. 2006. *Community-based construction for disaster risk reduction.* In <u>Hazards and the built environment: attaining built-in resilience</u>, ed. Lee Boshner, 191-217. London: Routledge, 382 pp.

Sen, Amartya. 1999. *Development as Freedom.* Anchor Books, New York, 366 pp.

Smit, B. & J. Wandel. 2006. *Adaptation, adaptive capacity and vulnerability.* Global Environmental Change 16: 282-

292.

Srinivas, H. & Y. Nakagawa. 2008. *Environmental implications for disaster preparedness: Lessons learnt from the Indian Ocean Tsunami.* Journal of Environmental Management 89: 4-13.

Stanganelli, Marialuce. 2008. *A new pattern of risk management: The Hyogo Framework for Action and Italian practise.* Socio-Economic Planning Sciences 42: 92-111.

Tompkins, E.L., M.C. Lemos & E. Boyd. 2008. *A less disastrous disaster: Managing response to climate-driven hazards in the Cayman Islands and NE Brazil.* Global Environmental Change, doi:10.1016/j.gloenvcha.2008.07.010

Twigg, John. 2001. *Physician Heal Thyself? The politics of disaster mitigation.* Benfield Greig Hazard Research Center, University College London, Disaster Management Working Paper 1/2001, 7 pp.

United Nations. Treaty Collection. *International Covenant on Civil and Political Rights.* New York: United Nations, 1966. Print.

UNISDR. 2005. *Hyogo Framework for Action for 2005-2015: Building the Resilience of Nations and Communities to Disasters.* World Conference on Disaster Reduction. Kobe, Hyogo, Japan.

van Aalst, M.K., T. Cannon and I. Burton. 2008. *Community level adaptation to climate change: The potential role of participatory community risk assessment.* Global Environmental Change 18: 165-179.

Vogel, C., S.C. Moser, R.E. Kasperson, and G.D. Dabelko. 2007. *Linking vulnerability, adaptation, and resilience science to practice: Pathways, players and partnerships.* Global Environmental Change 17: 349-364.
White, Bo and Susan Romanski. 2008. *Mercy Corps Disaster Risk Reduction (DRR) Tool.* New York City, NYC, Mercy Corps.

Zebrowski, Ernest Jr. 1997. Perils of a Restless Planet: Scientific Perspectives on Natural Disasters. Cambridge University Press, UK. 306 pp.

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Annex 1. Disaster risk assessment results. This graph presents the quantitative, normalized results of the disaster risk assessment conducted in Altos de Cazucá, Soacha between June and August 2009. The x axis shows the 6 Priorities for Action (as defined by the Hyogo Framework for Action and the community itself), and the y axis shows the percentage obtained by each category according to the Mercy Corps' DRR Tool evaluation. The green columns represent the results of the survey implemented with the DRR experts from the Red Cross/Red Crescent, Mercy Corps, UNDP and the Department of Cundinamarca's Disaster Risk office (n=6). The purple columns represent the results obtained from the surveys implemented with focus groups in the neighborhoods affected by the landslide and at risk of other landslides (n=421).