

Climate Change Management

Walter Leal Filho

Leonardo Esteves de Freitas *Editors*

Climate Change Adaptation in Latin America

Managing Vulnerability, Fostering
Resilience

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Climate Change Management

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Editors

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Preface

Similar to what is seen in other parts of the world, there are clear signs of the impacts of climate change to Latin American countries. The region, where a substantial portion of the world's biological diversity can be found, hosts a wide range of ecosystems including rainforests (especially, but not only in the Amazon region) and semi-arid zones. The disruption of natural ecosystems is one of the main causes of biodiversity and ecosystem losses in Latin America, a proportion of which is due to human-induced climate change.

According to the Fifth Assessment Report (AR5) produced by the Intergovernmental Panel on Climate Change (IPCC), climate change in Latin America is likely to contribute towards altering coastal and marine ecosystems, with mangrove degradation being observed on the north coast of South America, for instance.

In addition, AR5 mentions the fact that significant trends in precipitation and temperature have been observed in Central America (CA) and South America (SA) and that changes in climate variability and in extreme events have severely affected the region.

The above state of affairs illustrates the need for a better understanding of how climate change affects the Latin American region, and for the identification of processes, methods and tools which may help the countries in the region to adapt. There is also a perceived need to showcase successful examples of how to cope with the social, economic and political problems posed by climate change in Latin America.

This book, which contains a set of papers presented at the Symposium on Climate Change Adaptation in Latin America, held in Rio der Janeiro, Brazil, in November 2016, plus some additional ones, serves the purpose of showcasing experiences from research, field projects and best practice in climate change adaptation in Latin American countries—with examples from Bolivia, Brazil, Colombia, Guatemala, Mexico and Uruguay—which may be useful or implemented in other countries and regions. A further aim of this book is to document and disseminate the wealth of experiences available today.

This book is structured in two main parts. Part I addresses the connections and impacts of climate change to ecosystems. It entails a set of papers which describe current and future impacts of climate change to fauna, flora and landscapes.

Part II is concerned with the socio-economic aspects of climate change adaptation. As one of the most vulnerable regions in the world, Latin America is especially affected by a variety of social problems, as a result of climate change. Part II describes some of these issues and examines some ways they may be overcome.

A short, final chapter presents some perspectives on climate change in Latin America and outlines some of the research needs seen in the region.

We thank the authors for their willingness to share their knowledge, know-how and experiences, as well as the many peer reviewers, which have helped us to ensure the quality of the manuscripts.

Enjoy your reading!

Hamburg, Germany
Rio de Janeiro, Brazil
Winter 2017–2018

Walter Leal Filho
Leonardo Esteves de Freitas

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Chapter 29

Altos de la Estancia: An Applied Project of Risk Governance in Colombia

Duván Hernán López Meneses and Sonia Hita Cañadas

Introduction

Disaster risk governance is considered an important component of risk management and adaptation. Strong collaborative frameworks for disaster risk governance in zones threatened or impacted by risk have been identified as a priority for the effective and sustainable implementation of disaster management measures in the global agenda. They can be easily correlated and extended to the general roadmap of adaptation to climate change.¹

Many authoritative voices argue that risk governance, at least at the local level, is not just desirable but also part of the process of guaranteeing the social conditions required to cope with the threats and challenges of a changing climate.

Fraser (2014), presented a Ph.D. research that questions the capacity of existing approaches to allow us understand the role of urban politics and governance in shaping vulnerabilities to climate-related risks (Fraser 2014, p. 22). She argues for a re-politicization of approaches to understanding urban risk and adaptation, and for transformations in policy to reflect this approach (Fraser 2014, p. 22).

¹According with the recently approved global platform for disaster risk management one of the four global priorities highlighted is the strengthening of disaster risk governance to manage disaster risk (UNISDR 2015).

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In a case study, she analyzes Bogota's program of risk management and in particular the impact of public policy on four study sites, including Altos de la Estancia. She demonstrates how risk assessment and management practices create new inclusions and exclusions, how the understanding and response to risk differs from one community to another depending on the social context and how risk is impacted through the agency of people forged in socio-economic and political networks of power.

Various disciplines have addressed disaster risk in recent years. Since 1971, the General Assembly of the United Nations established a "Disaster Relief Coordination" which released the first manuals and guides that covered the basic conceptual framework an institutional framework around the issued began to be shaped (UNDRO 1979).

Many scholars agree that such conceptualization and analysis of the subject of risk assessment and disaster prevention was initially the domain of specialists in the natural sciences, with an emphasis on the knowledge about "hazards", understood as physical phenomena of natural or technological origin, which may occur at a specific site and at a given time and produce adverse effects on people, goods and/or the environment (Cardona 1993).

The study of "physical vulnerability" was a step forward, initially related specifically to the degree of exposure and the fragility or capacity of the elements exposed to the phenomena. In this way, the disaster's risk field of study extended but still very dependent on the hazard, not to the social conditions beyond physical vulnerability (Cardona 1993).

From the decade of 90s disaster management included a social discourse that promoted new theoretical, academic and institutional developments at the continental level with a global leadership (Maskrey 1993).

The introduction of the social sciences into risk management problematized the issue of disasters as a phenomenon of a social nature (Lavell 1993, p. 111), linked to development (Wijkman and Timberlake 1985, p. 31; Wilches 1993; Cardona 1993; Maskrey 1993, p. 96; Lavell 1993). A complex approach to the social factor of vulnerability was explored as a fundamental aspect, linked to the cultural aspects of the communities at the local level (Maskrey 1989; Medina and Romero 1992). Such conceptualization and management affected work in the field, especially in developing countries (Cardona 1993). From there, the need for a social conceptualization of disasters was proposed and promoted (Lavell 1993, p. 118). This conceptualization which has been formulated essentially around the theory of systems, understand disasters as crisis events in the interaction between the natural system and the Social system (Lavell 1993; Wilches 1993).

In 1988, with the creation of the National System for Prevention and Attention to Disasters, Colombia was considered a Latin America pioneer in terms of public policies for disaster risk management. But today, more than 20 years later, the system has undergone very few adjustments or transformations to adapt it to the changes and challenges of Colombian society and the global context (World Bank 2012).

For the case of Bogota the public policy of risk management has a similar tradition. More than 20 years of experience, a recognized trajectory and huge amounts of resources from municipal's public funds and furthermore from funds disposed by the national government and several cooperation agencies and financial entities at global scale.

Fraser (2014, p. 15) describes how Bogotá counts with a “sophisticated and globally renowned system of risk management” producing “some of the most detailed records of risk and vulnerability in the world, on the basis of which the city government has implemented a host of resettlement programs, structural mitigation works and education campaigns”. In her opinion Bogota “stands out as an appropriate site in which to investigate the politics and governance of risk and expertise in informal urban settlements”.

Is undeniable the valuable experience of Colombia and Bogota in particular, regarding disasters risk management in public policy as an adaptive trend thinking in climate change, but the distance between the conceptual evolution on the matter and the practical application is still so long.

Fraser (2014, p. 15) confirmed that “The risk management paradigm in Bogota reflects an ‘impacts-based’ approach, aiming primarily to protect against the ‘natural’, but has little engaged with the social vulnerability of affected communities.”

In a different theoretical vein, interrogating for urban risk governance considering the case of Bogotá, Zeiderman (2012, 2013), exemplifies how the creation of disaster risk ‘zones’ in informal urban areas reflects a form of ‘biopolitical’ rule, echoing Foucault’s notion of ‘biopower’, as a modern technology of power concerned with the care and growth of populations.

Vanegas (2015) examines for the eastern hills of the city of Bogota, the role played by categories as “environmental preservation zones” and “high risk zones” imposed by the state and the emergent experiences of political creativity for occupy and resistance.

Disconformity with risk management procedures and worsening of social conflicts could be easily found on many territories historically impacted by these public policies across the city of Bogota. According with the World Bank (2012, p. 5), “the conceptual advances about the risk management have not been taken to the level of State policies in Colombia, thus contributing to increase of risk”.

From our perspective, initially as part of the recovery process at Altos de la Estancia between the years 2012 and 2015 and since then, as academic partners and researchers of the process (as part of doctoral studies in sustainability at Universitat Politècnica de Catalunya—UPC,² the UNESCO Chair on Sustainability of UPC and the Recycling the City Network—RECNET),³ the intervention in Altos de la

²UPC is the official acronym used along the present paper to designate the Polytechnic University of Catalonia).

³Recycling the City Network—RECNET, is an initiative originated under the objectives and actions issued by the UNESCO Chair on Sustainability of the UPC, founded with the primary focus on promoting the participatory community development through the transfer of experiences and the collaboration of key stakeholders in re-thinking the transformation of cities for a

Estancia is emblematic because it had an enormous community drive, an innovative strategy of institutional positioning, an enhanced consolidated common vision that aimed to involve stakeholders to transform the 73 ha high risk zone (also known as “the polygon”⁴) into a metropolitan park, and a complex organizational structure that in its operation not only guaranteed the execution of the project but also constituted a specific arrangement, for the exercise of local governance, in the target territory.

Such a structure constitutes an organic fabric installed that explains the positive territorial and cultural transformations that characterized the project, but beyond it constitutes an enduring achievement for the society, capable to continue producing positive transformations in the zone. This aspect reveals one of the project’s most important innovations that concern us: the practical exercise of a governance approach as a risk management mechanism.

The theoretical conceptions that conceive an alternative to present and future climate crisis by intermediate of risk governance, community governance, collaborative creation of the space, social adaptation to climate challenges or cultural resilience, have many lessons learned to review in the recovery project implemented in Altos de la Estancia (between the years 2012 and 2016), probably one of the few cases developing such conceptions in a concrete site. That is what pretends to illustrate the present document.

Therefore, it is understandable the interest awakened around the project and in particular the recognition granted by the Risk Award 2015, as one of the top 20 disaster risk reduction, people—centered, sustainable and innovative initiatives.⁵

Risk governance is illustrated as an appropriate approach to reduce the conditions of risk. That implies one theoretical conception to be highlighted as well, what is the understanding of the risk conditions beyond their physical expression as a social construction (made of degradation, disconnection and dysfunction on socio environmental structures) that affected governance in a broader sense of this concept.⁶

(Footnote 3 continued)

sustainable transition to a more resilient socio-ecological systems. For further information remit to <http://www.recitynet.org/>.

⁴The term “polygon” is used as it was regularly done during the project and among the communities around, to denominate the 73 ha zone directly affected by the landslide and declared as a high-risk zone (with special treatment in the land use dispositions of the city). This polygon is the same zone projected as the area of service of a future metropolitan park (Alcaldía Mayor de Bogotá 2012b).

⁵The Risk Award 2015 was conceded to the proposal postulated with the title “Altos de la estancia, Ciudad Bolívar, Bogotá: a case of community resilience to build up a metropolitan park”. For more information see IDIGER & RECNET (2015).

⁶Governance is conceived in a way that involves a wide range of stakeholders as decision makers at the local level as opposed to that governance that is circumscribed as the response from the political system to social demands. This approach has a brief elaboration based on multiple authors by López et al. (2016b).

In such perspective risk conditions would raise reflecting the existence of deep social failures and inabilities to adequate governance structures in front to the challenging conditions of reality. Global triggers like climate change and many other conflicts, proper from the particular situations at country and local level, exacerbated the challenging complexity and dynamicity.

For the case of Colombia, a political armed conflict spanning over more than 50 years has deeply impacted both, the entire structure of the society and the spatial construction of the territories. The impact of Colombia's political conflicts on the constitution of risk zones, around the main urban centers and their peripheries is undeniable.

The entire cycle of exclusion, poverty, violence and degradation of the social space in urban centers must be considered into the analysis of the territories when is pretended to assist them with territorial interventions. Risk management is demanded to extend his perspective beyond hazards, to contribute in equitable, effective, inclusive, sustainable, resilient and adaptive responses to dignify the nature and the human beings.

Methodology

The data collection that supports the present paper became available for the researchers during their personal experiences. Duván López is geologist graduated in 2004 with emphasis on environmental geosciences, enrolled as technical assistant of the municipal institution for disaster's management of Bogota during the years 2005 and 2007; then became part of activism movements to articulate social demands on high risk zones among community representatives, nongovernmental organizations, academy and decisions makers of the public sector from 2007 to 2012 and occupied a place as former deputy of risk management in Bogota during the years 2012–2015.

Sonia Hita is photographer and social communicator, enrolled as part of RECNET as volunteer on projects of urban transformation in Bogota since the year 2013 up to the present and particularly offered a support and company during the initial stage and evolution of the community communication network of Altos de la Estancia—REDESTANCIA.⁷

Those roles allowed to the authors the easy access to a huge amount of data and information, including technical informs, reports and diagnosis, documents of public policy with their respective technical supports, historical reports, aerial photographs, interviews and testimonies from community representatives, former

⁷REDESTANCIA—Is translated into English in the present paper as The Network of Communications of Altos de la Estancia. Was conceived as a plural initiative of popular communicativeness in response to the institutional support during the development of the Altos de la Estancia recovery project between the years 2013 and 2015. More information regarding this initiative on <http://www.redestancia.blogspot.com.es>.

staff or current officers from institutions; personal stories and relates from people of the zone and community leaderships, among others.

Is important here to mention that Duván López participated as research assistant during the years 2009 and 2010, for the surveying of the research reported by Fraser (2014). In fact many inspiring information and reflections come from such personal and professional experience, as long as the author accompanied to Fraser on implementing a systematic surveying in different sites of study across Bogota, being one of them the zone of Altos de la Estancia.

The methods used by Fraser included participant observation, field visits, oral histories, semi-structured households surveys, semi-structured interviews with community leaders and key informants, Semi-structured interviews with district officials and document analysis (Fraser 2014, pp. 81–85).

At the other hand, some of the contains presented are influenced by the community claims to reconfigure the categories and policies to manage climate risk in Bogota, grouped by the initiative called Arraigo (a platform of people affected by risk and resettlement) and studied by López (2016b) as part of his master degree in contemporaneous philosophy, where was pretended to analyze the philosophical clues of risk's resettlement and their resistance in Bogotá, by using an hermeneutic method, developed through the interpretation of a theoretical system, in order to give reason for the manifestation of such political conflicts.

At the end the lines following are made of travel notes, reflections on the road and correlations among the evidences acquired along the experience and testimony of the evolution of the problematic in Altos de la Estancia since the beginning of 2006 and during the reshaping and implementation of the recovery process between the years 2012 and 2016. In this order of ideas, they constitute an empirical framework arranged to suggest the methodological and theoretical aspects of risk management, what is being developed in a certain way by Lopez, as part of his plan research presented to the program of Doctoral Studies on Sustainability at the Polytechnic University of Catalonia, under the supervision of Jordi Morato Farreras and co-supervision of Arabella Fraser, with the title: "Risk beyond hazard: a theoretical analysis for understand the constitution of climate risk".

The Context of the Study Zone: Social Constitution of the Risk

The city of Bogotá is located at 2600 m above the sea level, on the Colombian Eastern Andean Mountain Range, over the southeast border of an extensive plain that is called the "Cundiboyacence Plateau".

Towards the Eastern and Southern flanks of the city the edges of the plateau are well defined by mountainous strips known as "Eastern Hills of Bogotá" and "Hills of Ciudad Bolívar" (see Fig. 29.1). These hills display a variable topography,

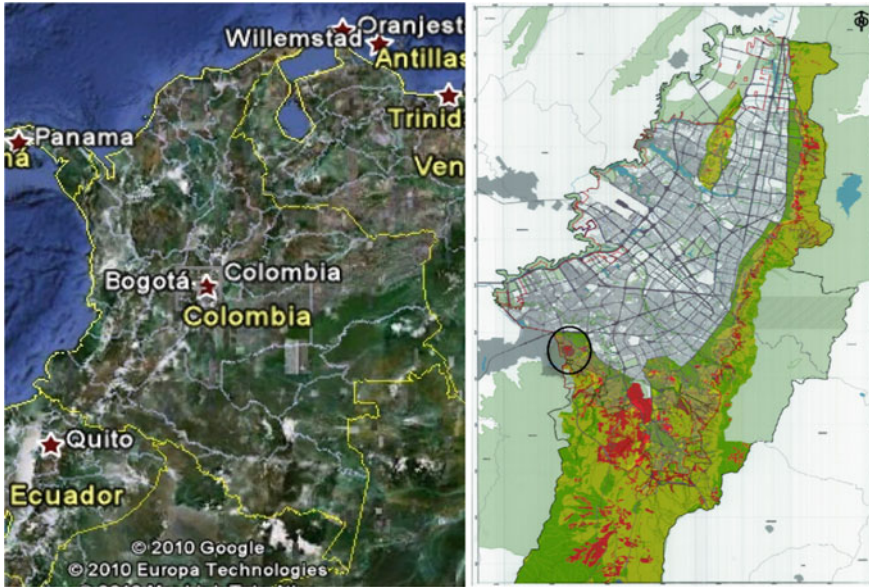


Fig. 29.1 Localization of Colombia and the city of Bogotá (*left*). On the *right* the mapping of landslide hazard for the urban zone of Bogotá (taken and modified from Ingeocim 1998). It is appreciated a peripheral surrounding belt with a three colors scale: *red* the highest hazard level, *yellow* intermediate and *green* a low hazard level. In the inner central flat zones of the city not hazard of this type is recognized, the mesh of street and roads is plot. The zones with a soft *green* are rural areas (not assessed with hazard). The figure reflects how the most of the urban zone of the city is predominantly flat without landslide hazards. The hazard concentrates on the peripheral mountainous zone. The 73 ha, high risk zone or “the polygon”, has been marked with a *circle* in the map of Bogotá

predominantly steeply; product of complex processes of tectonic folding affecting predominantly sandstone rocks with a high competence against erosion.

Over these competent levels of sandstones there are resting indifferently, argillaceous levels and recent deposits of different origin; some of these materials also have undergone through phases of tectonic folding; in other cases they are superposed on the topography product of recent actions of depositional or erosive morphodinamic processes that have modeled the landscape (López 2007).

Surrounding the great buildings and avenues, predominantly settled on the flat Bogotá, vibrates a reality little recognized and understood in its complexity: the informal city, built with the alone effort of its inhabitants, without planning or major presence of the State and in the middle of scarcity of resources and waves of displacement from the rural areas affected by violence. Altos de la Estancia, in Ciudad Bolívar, is a good example of this “another reality in Bogotá”.



Fig. 29.2 The devastating effect of landslides in Altos de la Estancia (*main frame*). At the *left*, historical aerial photographs that reflect the intensive spreading of industrial mining (1995), the top level of occupation by informal settlements (1998) and the state of the polygon on 2007 when the maximum movement of population by resettlements had been reached. Taken and modified from López (2014a, b)

Altos de la Estancia expresses a history of multiple impacts that date back from the colony in the century XV. The place preserves the footprints stamped by industrial mining activities beginning on the 50s and by an intensive occupation by thousands of Colombians who found there a place to settle a house and make a live (Fig. 29.2).

In most of the cases the welcomed families did not found the most acceptable conditions. Usually they were large families with an important proportion of children, fragile familiar structures and low insertion capacities to city markets as they lack of technical elements or basic knowledge to solve the needs imposed by the urban scope. A high percentage of these populations arrived illiterate or they had not surpassed the primary levels of education, therefore this segment of the population were forced to vacancy or enrolled under the lowest rank of the labor market or what is called the informal jobs (Alcaldía Mayor de Bogotá 2004).

Such social and environmental liabilities, combined with the geological complexity of the area and the great abundance of water, characteristic of our equatorial climate, resulted in the configuration of risks manifested in the late 1990s, giving rise in Altos de la Estancia to one of the largest landslides that exists worldwide, with a total of 73 ha of affectation (Fig. 29.2).

Figure 29.3 illustrates for the territory of Altos de la Estancia the chronological constitution of the risk for that specific local context based on variables of urban

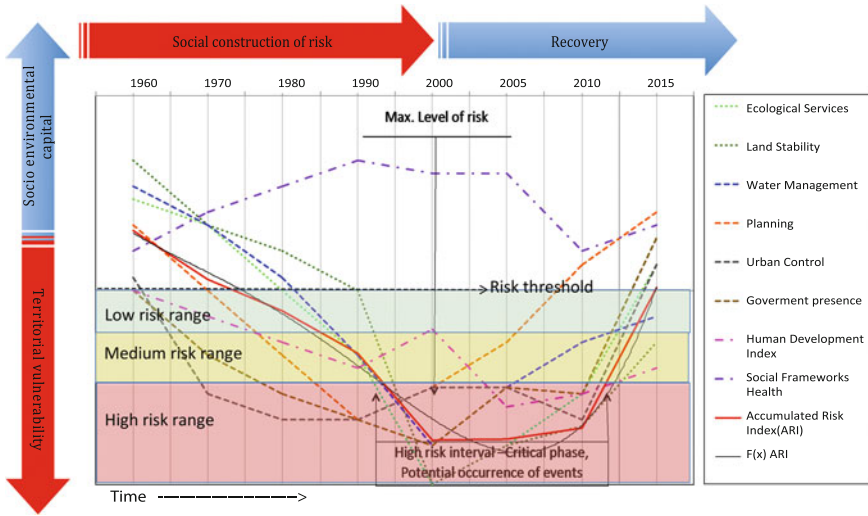


Fig. 29.3 Illustrative scheme for territorial concentration and social construction of risk, for the specific local context of Altos de la Estancia, Bogotá Colombia, in terms of an hypothetical Accumulated Risk Index (ARI)

resilience (Alliance 2007) and several researches, sources of information, practical experiences and reflections about that zone; some of them well documented (López 2007, 2013, 2016a; IDIGER 2014; IDIGER, TdeA and JBB 2014; IDIGER & RECNET 2015; Fraser 2014; López et al. 2016a, b).

Several components of urban resilience became degraded progressively above the territory until configure an increasing condition of risk. When the trend for degradation trespassed certain “risk thresholds” the territory became into an unacceptable level of risk, a critical phase where occurrence of undesirable events became feasible.

The Fig. 29.3 reflects the understanding of “the problem of risk in Altos de la Estancia as a sum of tragedies that were concentrated in this territory throughout its history”.⁸ That diagnosis provides the perspective of the challenge assumed by the recovery process. Such understanding encouraged a tactical crusade, to convene the maximum support into the institutional scheme of the public administration in the city of Bogota and deeply justified the fundraising and involving of stakeholders, as the UNESCO Chair on Sustainability of the UPC; through the Tecnológico de Antioquia—TdeA, an academic partner of departmental order based in the city of Medellín, Colombia.⁹

⁸The phrase inside quotation marks is the introductory verse of the audiovisual documentary titled: Altos de la Estancia—Camino de Vida Digna (IDIGER et al. 2014).

⁹For the year 2012 the city of Medellín in Colombia was leading a very visible experience of urban transformation including a project led by the UNESCO Chair on Sustainability at the UPC to recover the Moravia Hill (former landfill) (Aguirre 2014). In this sense, the project “Altos de la Estancia” constituted a remarkable experience of south-south, city to city exchange of knowledge.

In correspondence with the above, the intervention to manage the risk conditions in Altos de la Estancia between the years 2012 and 2016 was design and implemented not as a physical intervention to control the risk but furthermore, a comprehensive approach to impact each of the several components of the risk in that particular historical, territorial perspective. The risk management approach applied intended to attend the territorial liabilities and deficits at physical/environmental, institutional and communitarian level, by creating or restoring the socio-environmental capital as a framework of resilient risk governance.

The Recovery Project: A Methodology to Promote Risk Governance

Table 29.1 illustrates a strategy operated, that explains the resulting dynamism and intense social activity displayed over the territory of Altos de la Estancia, especially at institutional and communitarian levels. The intervention scheme starts from the recognition of the problem that occurs as a process of consciousness that demanded a committed implication of stakeholders, involving those responsible to take the recovery actions at political, technical, and administrative levels in the central administration, but also those local authorities distributed on decentralized levels of the city.

These last ones use to be directly linked to the territorial problems and usually better informed and conscious on the conflicts, but are also victimized by them, requiring part of the assistance during the process of intervention, because their capacities of response have been exceeded reiteratively. In a context of failed governance, the highest social pressure rests on such several intermediate and low-level agencies or even on individual officers without sufficient resources to provide solutions.

The communities of course are conscious of the territorial conflicts but suffer those in many different ways and invoke the state or not with different approaches and multiple mechanism of agency, with more or less efficiency. In a context of low governance, the requirements and claims from the communities never found a sufficient response.

Dissatisfaction, deception, resentment, distrust or reticence, are some of the common attitudes and drivers of the community actors in the agency of territorial conflicts and in the establishment of relationships with the State (Fraser 2014).

For the case of the Altos de la Estancia recovery project, the political establishment was not certainly aware at all of the dimension and complexity of the territorial conflict in Altos de la Estancia, but on the year 2012, into the inaugural moment of the government period, the political willingness was very receptive to

Table 29.1 Methodology of for institutional and communitarian articulation into the recovery process

Before	Meanwhile	After
Identification and upscaling of the recovery project	Integral intervention	Governability and appropriation
Focus and prioritization Technical diagnosis Technical studies Regional studies Characterization of population Citizen requirements Planning tools (land use plans, development plans)	Design of intervention Plan for immediate actions Thematic tables Control and follow up matrix Normative adjustment Land use prospective and setting up	Follow up and assessment IAP Committees Citizen's review boards
Coordination of stakeholders (institutional, social, political and communitarian) Think tanks Round/solution tables Citizen's assemblies Citizen's hearings Local's authorities	Fund raising Local funding— Inversion's Annual Plans (IAP) Regional/national funding Loans Private funding Cooperation funding	Social and institutional appropriation Lines of action, programs, projects Coadministration Installed capacities Community initiatives Entrepreneurship Cultural networking Community markets Local products and services offer
Up scaling at district level Advisory boards Mayor's cabinet City council Development plan	Organization of operations Agreements of operation Contracting and recruitment Bank of projects Public private partnerships Implementation Civil Works Geotechnical bioengineering Landscape beautification Spaces for people	Governance Local economies Cultural activities Improvement of livelihoods

Taken and modified from López (2013)

targeting key processes where to foster local development and impact the peripheral, informal, segregated territories and communities in the city of Bogota (Alcaldía Mayor de Bogotá 2012a).

That attitude was then well assisted based on the strategy (Table 29.1), to take advantage of the social forces demanding for solutions in Altos de la Estancia and scale up the situation rapidly at the highest political levels.

Regarding this particular issue is fundamental to recognize the role played by the denominated Mesa Técnica de Altos de la Estancia—MTA (technical roundtable advisory board) an organizational initiative, community based, product of a prolonged process of social qualification to confront the risk conditions in the zone.

Burgos (2015, p. 44) describes MTA as “an alternative participatory channel, which aimed to gather community, institutional and political leaders to discuss and implement disaster risk management strategies in the aftermath of the landslide”. That “allowed new forms of interaction between actors as well as facilitating new leaderships” (Burgos 2015, p. 41).

The preexistence of MTA signified the availability on an unified body of pressure, that uses to maintain tense and confrontational relationships with the institutional framework, but once the channels were opened to release that social force and capital, in front to the decision makers at a high level, was possible the identification of competencies and possibilities at the institutional level, the constitution of a regulatory framework and formal disposition of goals, responsibilities, funding and chronological deadlines to develop the project.

As was planned, projected and required by the innovative strategy displayed, a political mandate was established formalizing a common agenda for the local development of the zone, under the figure of an action plan for the integral recovery of the sector Altos de la Estancia and its area of influence, with the “purpose of concretize the integral recovery of the zone declared as high risk and revitalize it to integrate it as a functional area into the urban context” (Alcaldía Mayor de Bogotá 2012b, 2013).

Thanks to the project Altos de la Estancia, a process of institutional qualification for risk governance resulted in Bogotá in a variety of ways, among the many agencies of the city’s public administration. The strengthening of institutional capacities included organizational aspects (like the setting of formal spaces, channels, roles, schedules and times for goals reaching, coordination and operation of the actions) and other pedagogic, formative and technological aspects, for example the learning of new techniques or the innovation and experimentation, everything was accompanied by a disposal of physical and economical resources and not least important, by the improvement of legal, administrative and logistic mechanisms for operation and the establishment of channels for interaction of institutions with each other and with communities and representatives.

Culture and Territory: Fields for Expression and Enhancement of the Risk Governance

The measures of risk management for mass movements or landslides are commonly evaluated according to the physical stabilization of the landscapes or the geotechnical properties of the soil. But in our case in Altos de la Estancia, between the years 2012 and 2015, the interesting component of the recovery process was the inducement of organizational arrangements at institutional and communitarian level. The social systems constituted the target of the project, where the adaptive and resilient structures were promoted and emerged capable to operate the governance of risk. Such effort was the fertile soil for progressive growing of cultural and territorial transformations.

But culture and territory are much more than the mere fields for expression of the recovery processes; they are also the entrance to the inducement of the social changes in a cycling recovery process (López 2013). The personal, family and communitarian human dimensions of the inhabitants on Altos de la Estancia were the domains for a cultural incidence to the appropriation of a collective imaginary and to the resolution of it, over the geographical space (as a planned metropolitan park taking shape).

The above is valid as well for the case of public officers and delegates. The collective projection encouraged the reconstitution of the social fabric in function or under the excuse of the recovery process. The possibility of a common expectation played a role in activates the commitment required to dispose the willingness and generate the context to intervene the space and its surroundings. Then came the whole process of capacity building, on institutions and community organizations, in terms of techniques and skills for recovery, as well as the implementation of initiatives.

Appropriation intercedes and moves from culture to the territory as a spontaneous driver to concretize the social creation of the space. Jiménez (2016) based on the thinking of Henri Lefebvre (1901–1991), proposes the right to the appropriation in the construction of a human radical space to guarantee the right to the city. Lefebvre in fact, provides in his extensive work a theoretical approach to the concept of appropriation, very susceptible to be linked at all with what has been mentioned here as governance, adaptation and social creation of the space (Lefebvre 1947, 1967, 1970; López 2016b).

Testimonies from neighbors of the zone give reason about different manners for the cultural process of appropriation mentioned. On Fig. 29.4, Libardo Rodriguez illustrates the emotive sense of ownership and commitment with the Altos de la Estancia recovery project, but even more, with the collective imaginary of the pretended transformation of the high-risk zone into a metropolitan park.

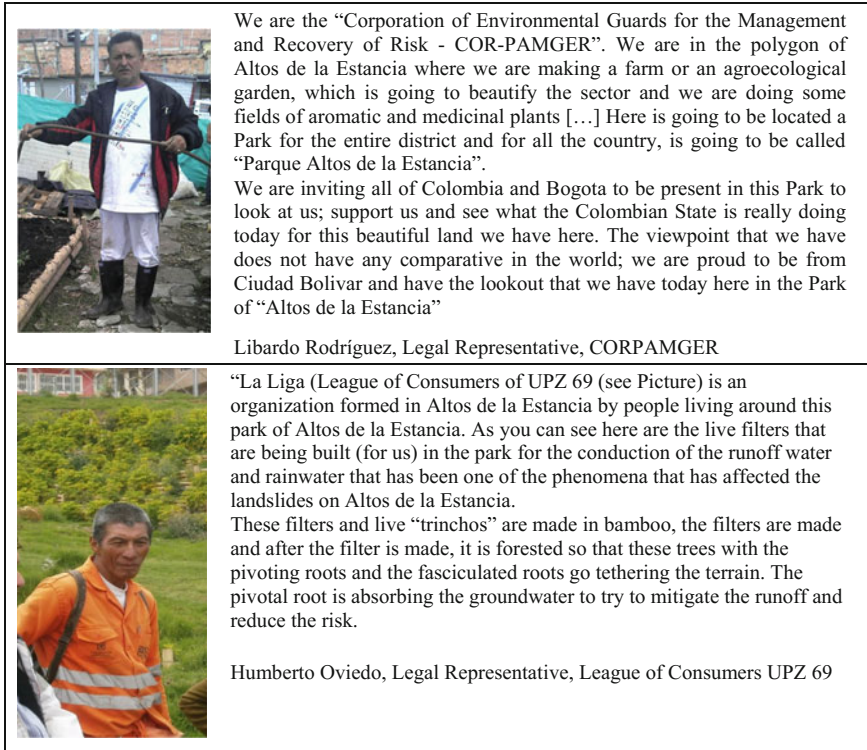


Fig. 29.4 Testimonies from community representatives in Altos de la Estancia. Libardo Rodríguez (*above*) demonstrates his emotive sense of ownership and commitment with the Altos de la Estancia recovery project but furthermore, with the collective imaginary of the pretended transformation of the high-risk zone into a metropolitan park. Humberto Oviedo (*below*) illustrates how the information and knowledge were deep installed and projected to the serve of the social creation of the space and the recovery process. For this particular case, Humberto refers to the function provided by the using of “geotechnical bioengineering measures” (The geotechnical bioengineering makes reference to an innovative technique to stabilize mass movements and

Many expressions from a variety of stakeholders started to reflect how the conviction of the possibility of a park was taking place. That generates a social context adequate to implement the recovery project but furthermore it started feeding a social vindication for such park, that pushes an accelerates the rhythm of recovery at all.

Humberto Oviedo gives account for another perspective of appropriation highly qualified, in terms of what could be designated as risk governance in a very detailed level. This citizen, regarding the conditions of risk, provides very detailed

explanations. He internalized many technical elements to understand and manage such conditions. But the most extraordinary result, that illustrates this case, is the fact of having community representatives, not just as passive observers or indirect supporters of risk management, but taking part as entrepreneurship initiatives, capable to offer a public service to implement innovative physical measures to control risk. Some of these aspects are analyzed for the case of Altos de la Estancia and revealed as strategies of population's empowerment for disaster risk management and climate change adaptation (Burgos 2015).

Into the many aspects of culture, social communication is considered fundamental to explain the development of the project. Social communication was conceived to induce, expand and consolidate the territorial transformations, by creation and transmission of information and knowledge, from the bottom of the local context, out to the entire society across the surroundings, the city of Bogota and beyond; linking and extending the project globally to gain support on the long term.

From the very beginning was formulated a strategy conferring to the members of the community their own place as potential nodes into a network. The slogan appropriated was "Network of Communications Altos de la Estancia, a collective construction".

Not only the local cultural expressions were involved into the project. The facilities disposed by institutions and community to celebrate cultural acts were frequently used to celebrate special journeys, like the district week of Altos de la Estancia, the festival called "ojo al sancocho", the Wind Festival of Altos de la Estancia and many others. On such instances were welcomed cultural expressions from different territories and backgrounds. Part of this process is portrayed in many documents. Merely to be mentioned the documentary "Altos de la Estancia—routes of a dignified life", produced with the assistance of the work team of the project as a closure testimony, that describes precisely the role of culture in that route, that circulates from risk to the recovery and appropriation of the territory (IDIGER 2014).

Many efforts were centered in the technical formation in means of communication and communicative tools, but the proposals of each communicative act, in a project with such expectations, were not just the mere use of communications with entertainment function. Each communicative act was addressing the achievement for one or more of the several goals marked into the common agenda.

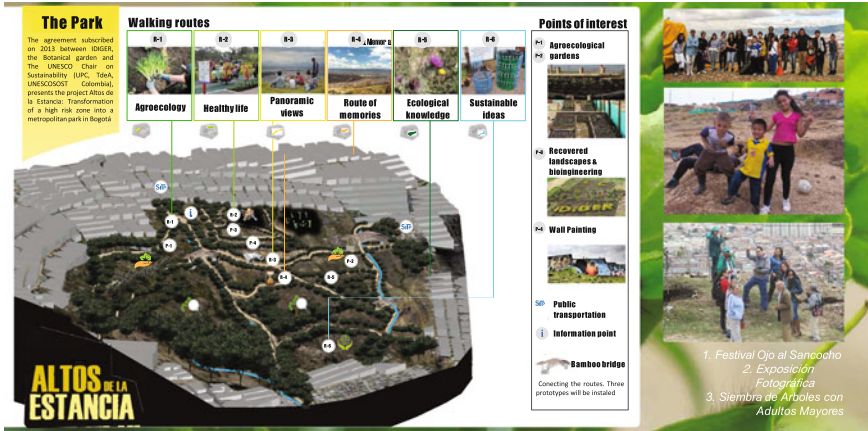
The use of communicational campaigns may explain for example, how were indirectly convened and enrolled neighbors qualified or proud to execute physical interventions, like vegetable gardens or facilities for routes and walk accessibility to the park using bamboo, wood and available local materials (Fig. 29.5).

From oral histories in interviews were taken back to memory the "left behind" capacities acquired by inhabitants on their own origins from the rural zones.



Fig. 29.5 In the *upper left corner* Humberto Oviedo (original from the country side at one of the territories more affected by the violence in Colombia). Humberto has been showed as one of the most involved leaders to serve the recovery process. He accepted as many others the challenge to participate with his constituted association (Liga de Consumidores de la UPZ 69—league of consumers of the UPZ 69) into a entrepreneurship initiative to take advantage of their “installed attitudes”, as former peasants, to develop for this case some exceptional measures of “geotechnical bioengineering”. In the *right intermediate case* is shown a vegetable garden, designed, grew and operated by CORPAMGER, another non profit association led by Libardo Rodríguez, involved to the project in a similar way as Liga de Consumidores. The *upper and lower right corners* are institutional locations operated by Jardín Botánico de Bogotá (Botanical Garden of Bogota), where some inhabitants of the surroundings used to assist to pedagogical workshops on urban agriculture and to have practice and contribute to the recovery process. The *lower left corner* shows a gardening arrangement done by Liga de Consumidores with the name of a governmental institution, that constituted a very sympathetic wink that gratifies the governmental presence and proof trust and cordiality (images courtesy of REDESTANCIA)

Identity attachments and reminiscences, invoked from that past, pushed in many cases the commitment to recognize, valorate and contribute, disposing such disused skills and practices to the works required.



- R-1 Vegetable gardens, plant of composting, Agroecological Market and environmental openroom. Furthermore the route will transit along a vegetal arrangement with native species propitiated by the project.
- R-2 Round circuit for running with biohealthy points, children playgrounds and a fresh water station. Furthermore, the route will transit along a vegetal arrangement with species propitiated by the project.
- R-3 A walk along contemplative viewpoints with furnishing to have rest, picnic stations and a particular vegetal arrangement with native species propitiated by the project.
- R-4 Open space for theater or convention, remainders of last inhabitants and geological illustrative points. Furnishing and vegetal arrangements propitiated by the project.
- R-5 Oriented to visitants with academic interest and researchers. Included experimental modules and vegetal arrangements.
- R-6 Locations with experimental initiatives of soil bioingeniering, risk mitigation, community alternative productions. Furnishing and particular vegetal arrangement with native species propitiated by the project.

Fig. 29.6 Part of some published material pretended to be an illustrative map revealing the utilities and services offered or expected for visitors and tourist, as the result of the projected park of Altos de la Estancia. It would include the location and description of the main thematic routes traced, the existing points of interest and brief instructions to access to the polygon using the public transportation. Image taken and modified from López (2014b, November)

The proper reflections of inhabitants resulted turning the perspective of the polygon from a risky dangerous and isolated zone to a source of opportunities, as source for food self-production, healthy consume on their homes and extra incomes. Also by touch and work they memory their past, reencounter identity traces and satisfy their time (Fig. 29.5).

The territorial expressions of the recovery project, outlined in Fig. 29.5, are considered the probably more palpable manifestation of the approach proposed by the Altos de la Estancia recovery project, between the years 2012 and 2015. They manifest spatial transformations addressed by organizational arrangements, on social structures dynamized by cultural drivers as identity, collective imagines, trust and appropriation.

Finally, to continue illustrating the role played by the cultural drivers to stimulate and orientate the social creation of the space, particularly for the case of the “shared vision” as one of them, is useful to caricature an anecdotic story of the project: the designing and releasing of a guiding map for visitors to the projected park (Fig. 29.6).

The requirement to produce such a map arose from the beginning of the project, as an idealistic initiative to display a marketing campaign of the recovery process, inspired on similar cartographic products available for urban public spaces relatively comparable, because of their extensive and mountainous landscape, like Park Guell on Barcelona (Spain) or Golden Gate Park on San Francisco, California.

Is not usual to encounter in Colombia such cartographic products for guiding visitors into public spaces, like parks or other points of interest. But the difficulties to obtain that map for Altos de la Estancia were more than just operative. Even being required since the very beginning of the project, the product was only delivered as one of the final outcomes released.

The fact was that many items to be plot into the map were certainly conceived from the beginning, but only as fragmented intentions, expectations, claims or simply ideas inside each of the stakeholders. The questions about what to plot or where to do it only were having responses in parallel with the evolution from conflict to agreement, by intensive trades that took place among the stakeholders, at political but even at personal levels. For example the steering committee of the project once realized that, for the case of the location of thematic routes, almost every governmental institution involved and furthermore, almost every officer and community representative wanted to trace their proper, particular thematic route, without consensus with the others, neither about the initial or the final points.

The map on Fig. 29.6, that pretended, at the beginning, just to illustrate an attractive offer for visitors, finally resulted reflecting deep inside the entire process of dispute and cultural creation of a shared vision of the space.

Conclusions

Altos de la Estancia is an urban territory that comprises an extended area of 73 ha, directly affected by landslide risks, that is planned to become a public park. One the most interesting components of the recovery project implemented, between the years 2012 and 2015, was the inducement of an organizational arrangement at institutional and communitarian level. Such effort was the fertile soil for quick growing of cultural and territorial transformations in the zone. Those concrete and visible transformations are shown and explained in the present paper as mere expressions of a recovery focused on social and cultural domains.

The Altos de la estancia recovery project illustrated in the present paper addressed not only the visible improvement of the landscape, but also the non-visible qualification of the connectivity and functionality on social structures and relationships. Those strengthened social arrangements, with renovated channels of linkage, are shown with many advantages as long-term risk governance mechanisms, beyond the limited political and institutional periods and beyond the functionality and temporality of solely physical interventions.

An effective strategy was applied to aim the insertion of the project as a driver to create risk governance, influencing the programmatic structure of the city

government, to configure an inter-institutional scheme of responsibilities on the multiple agencies of the public administration, under a figure that was called an action plan for the integral recovery of the sector Altos de la Estancia and its area of influence.

The whole intervention of the institutions, the injection of public investments, the reconstitution of the social fabric and the crystallization of cultural and territorial transformations, could be seen as responses to the strategy applied, that constitutes a valuable methodological contribution of the project.

The implementation of measures for risk management, adaptation and resilience, occurred in Altos de la Estancia, not only at physical level but also at the cultural level, with organizational implications for the society on institutional and community domains. In this sense the present empirical research offers a valuable framework, with conceptual contributions in notions like risk governance, social adaptation and cultural resilience.

Culture is seen as a unique social mechanism capable of bring together the multiple and unpaired interests into a common resolution and provide the conditions for the recovery project with the approach proposed. Cultural mechanisms are presented as essential drivers of the recovery process for cultural resilience and risk governance. Collective imagines or shared visions, common agendas, social communication, identity, social creation of the space and appropriation; those were some of the cultural mechanisms playing this role according to the present research.

Social creation of the space is presented as a very convenient approach to implement processes of recovery like that on Altos de la Estancia, with a perspective of risk governance. The concept of appropriation plays a fundamental role, because it bridges the culture and the territory to concretize such social creation of the space. More conceptual fundaments on these aspects are required to develop a risk governance model or methodology.

The Altos de la Estancia recovery project developed between the years 2012 and 2015 constitutes an exceptional experience with lessons learned and methodological and conceptual outcomes, for addressing similar territorial conflicts from and in the Global South. This is worth to be emphasizing, because it implies a need for dialogue between this initiative and others implemented on similar contexts, which is one motivation for the present publication.

Risk governance, as an appropriate approach to reduce risk, underlies a theoretical conception that promises the understanding of the risk conditions, beyond their physical expressions, as a social construction constituted by failures of governance. The question for the governance mechanisms that can deconstruct the problematic of the risk has an equivalent question for the failures of governance capable to constitute the problematic of risk. This interrogation has a capital importance for processes confronting the traditional perspectives to analyze and manage risk, for example the mentioned platform called Arraigo, for people affected by risk and resettlement.

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