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RISK REDUCTION AND EMERGENCY PREPAREDNESS

Caracas - Venezuela

COMISION EUROPEA
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PROYECTO REGIONAL DE REDUCCIÓN DE RIESGOS EN CAPITALES ANDINAS

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Regional Strengthening and Risk Reduction in Major Cities of the Andean Community

Catalogue of Municipal Management Tools in Risk Reduction and Emergency Preparedness in Andean Capital Cities

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Presentation

The Metropolitan District of Caracas includes five municipalities: Libertador, Chacao, Sucre, Baruta and El Hatillo. It is located in one of the valleys, between mountains, of the Costa Mountain range, in the northern part of Venezuela.

Caracas is a city founded over four hundred years ago, but it is only during the last fifty years that its growth has become evident. The city's complex risk scenario is a result of occupation patterns that have neglected cohabitation with nature rules, because of the demand for land necessary to develop urban activities.

To take on the current risk situation requires prevention and mitigation measures, as well as preparedness and response actions to deal with any natural event that may generate a disaster. For this purpose, an important effort has been made aimed in particular to institutions in charge of coordinating response tasks. There are still plenty of actions to be performed affecting in particular those measures that contribute to reducing the consolidation of risk scenarios and it requires the necessary coordination between the different municipalities part of the District.

The following document includes the actions currently being performed in favor of risk management by each municipality. We are determined to continue this work necessary to guarantee a safer society.

1 Introduction

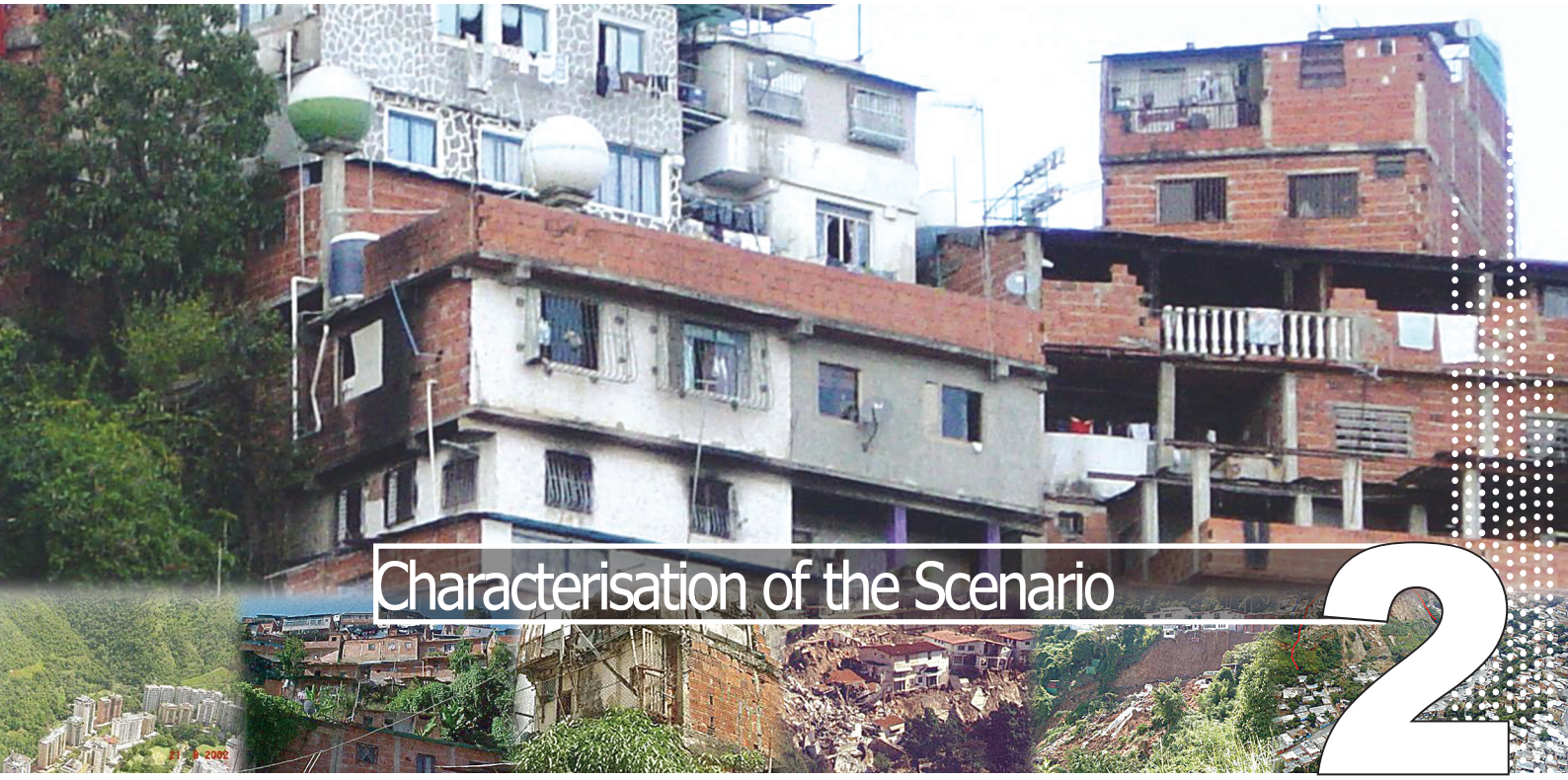
The city of Caracas is part of the Capital District and the State of Miranda. It consists of five municipalities: Libertador, Chacao, Sucre, Baruta, and El Hatillo. It is located in a valley that covers approximately 30 Km from east to west and 5Km from north to south. Jurisdictionally, the so-called Distrito Metropolitano de Caracas - DMC (Caracas Metropolitan District) has an area of 78,500 hectares (785 Km2).

Although Caracas was founded more than four hundred years ago, its growth has been evident only in the last 50 years. The configuration of the valley in which the city lies has played an important role in that process: the flat areas have made the process of urbanisation towards the east easy; while the rough slopes in the south and northwest, known mostly as vacant land, have become the only land available for low income groups.

Despite sharing a relatively small territory, coordination between the different administrative units on most town-planning issues is not easy. This is even more palpable between the different bodies that try to manage risks in the city, actually catalogued as a high-risk city. This categorisation is because Caracas is subject, on the one hand to hazards of natural origin such as earthquakes, landslides, floods, torrential avalanches, tropical storms, and

technological hazards. On the other hand, it is a vulnerable city from the physical, social and institutional point of view.

Regarding the actions taken for risk management, there have been many attempts to coordinate activities on the topic. Nevertheles, due to the complexity of knowing what Risk Management means at different stages, from discourse to practise, added to the legislation of the issue and to institutional dynamics in terms of resources, actors, high rotation of employees and even political changes, it has not been possible to sustain these efforts. The daily life in the city varies from the actions of the so called development by the different management levels that favour risk scenarios, and the isolated actions by efforts of the municipal authorities trying to insert measures that would enable a change in urban dynamics.



Characterisation of the Scenario 2

2.1. THE ENVIRONMENT

2.1.1. GEOGRPHICAL FRAMEWORK

Caracas Metropolitan District occupies one of the intramountain valleys of the Costa Mountain Range. Cross-cut by the Guaire River, the main valley is located from east to west at a height of 920 meters above sea level.

In Caracas there are three significant topographical areas: the valley floor; the deposits and low foothills, and mountainous hillsides. Today, most of the hillsides are occupied by houses built on landslides-prone areas, particularly hazardous during rainy season.

As the Capital, Caracas is the seat of the political powers and of the most important educative, cultural, scientific, financial, and health-care centres and banks. These functions, reinforced by State policies and the economic development model implemented for decades, have brought about the concentration of population and goods in the capital, transforming the natural physical medium into a complex risk scenario, where today more than 4,000,000 inhabitants live.

2.1.2. HISTORICAL-CULTURAL FRAMEWORK

History of the occupation

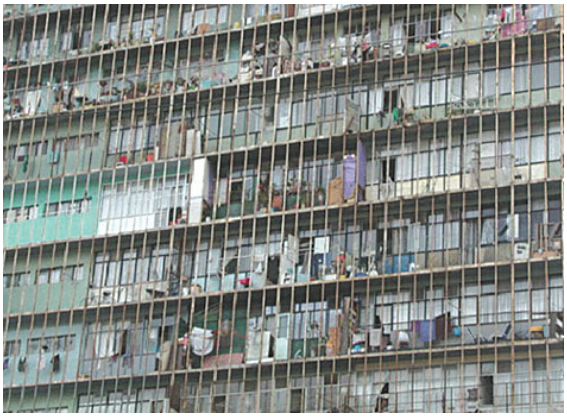
Caracas was founded in 1567. After centuries of slow growth and natural disasters, such as the earthquakes in 1641, 1812 and 1900; its growth increased just in the 20th Century as a result of the national-wide oil activity. This oil-based economy, and the accentuated capital city pattern, where the concentration of public expenditure and the level of preferential subsidies of services prevailed, has made it more and more appealing for people from the countryside who expected to improve their quality of life.

In 1917, the first "barrios" or informal settlements on the hillsides appeared. These were initially built with discarded materials but progressively they became consolidated houses. By 1926 the area already had 118,000 inhabitants and 760 hectares had been built on.

Two factors favoured the growth of the city. On the one hand, the construction of roads to connect it with the rest of the country; and on the other, the change in the use of land, from agricultural to urban. The latter displaced the bourgeoisie towards the east of the city, in "urbanisations" that were also favoured by the construction of roads and infrastructure by the State. The valley consisted of small towns linked to the city. In the west, the population started to settle around the motorways.

In 1941 the city had a population of 269,030 inhabitants and an urban area of 2,900 hectares. The Second World War triggered an oil boom, and new urbanisations were built. According to Perna[1] (1981: p.120) informal settlements covered an area five times bigger than in the previous decade.

In 1950, a Decree defined Caracas Metropolitan Area but its limits have been progresively changed as it has continued to grow. This Decree was later modified in 1969, 1972, 1975 and 1980. Regarding informal areas, in the 1950s the government practiced a policy of relocation in tall buildings called "super-



1. Perna, C. Evolución de la Geografía Urbana de Caracas. Ediciones de la Facultad de Humanidades y Educación. Universidad Central de Venezuela. Caracas 1981.

bloques" in an attempt to modify the profile of the city and to replace those neighbourhoods. An example of this is the so-called 23 de Enero (23rd of January) with 100.000 people in 38 buildings of 15 floors, each with a total of 150 flats/apartments.

In 1958 a change in the regime modified the configuration and dynamics of the city again. Areas "controlled" by the previous dictatorship were again invaded by the low-income population, and the plans of the government to counteract the dissatisfaction of the population became an Emergency Plan administered by many governmental bodies. This plan aimed to provide some neighbourhoods with infrastructure such as roads, steps, drainage, schools, and in some cases the construction and/or improvement of houses. The city grew vertiginously; it went from an area of 4,000 hectares in 1950 to 11,500 hectares, in 1966. Informal neighbourhoods and settlements occupied approximately 1000 hectares.

By 1971, the "barrios" occupied 2,973 hectares. Subsequentgovernments promoted programmes of "consolidación de barrios"(neighbourhoods consolidation) and modules. The electoral promise of a piece of land and improvements in these areas, in exchange for votes, was a very important factor that may explain this rapid growth of the city. This urban growth put more pressure on the spaces and on the hillsides, thus, landslides increased in frequency._

Over the last few decades the problem has got worse. The services in the "barrios" were inadequate, and occasionally they did not cover the whole area due to its constant expansion. The problems caused by landslides became more frequent. Today these areas occupy more than 5,000 hectares of the city and shelter about 75% of the population of the capital. The policies of the current government have turned towards these sectors: health, education and services, amongst others are continue consolidating risk scenarios in the capital city. Most initiatives do not take into account the unsafe condition facing the poor neighbourhoods.

Popular perception of hillside occupation

In general, the population has rarely stopped the invasion of the hillsides in Caracas because housing needs have been a more urgent priority. Only some urbanisations and neighbourhoods have stopped land invasions within their limits as this could cause greater problems in the future.

Inhabitants and neighbourhood makers have started an historic fight and have played a fundamental role in keeping the land occupied. As for the State, it has maintained its opinion of keeping them and to improve their environmental conditions, particularly by helping their direct makers to build pedestrian roads, aqueduct networks, sewers, drains, and certain facilities.

In the north, the El Ávila massif, physically protected from the pressure of Caracas by a main arterial route the Avenida Boyacá or Cota 1000, has served as a recreation area and as the "lungs" of the city. This is perhaps one of the very few respected spaces by the urbanisation process, although its west side has been occupied by informal housing since its creation as a National Park in 1958.

2.1.3 POLITICAL, REGULATORY AND INSTITUTIONAL FRAMEWORK

Town-planning regulation and hillside occupation

Caracas Metropolitan District does not have an updated town-planning plan. The different municipalities that compose it work with old regulations that were formulated by the Oficina de Planeamiento Urbano-OMPU (Urban-Planning Office) based on plans from the 1970s. Only some of them have been partially modified and updated by municipal legislative chambers. These legislations indicate the limitations for the occupation of hillside areas; these limitations are determined by the use or by determining factors proper of the area.

In the different "cities" of Caracas the limit of urban or developable land on the hillsides is included in the different urban-planning modalities defined in the Ley de Ordenación Urbanística LOU (Town-Planning Law). This law governs urban development and all the plans related to it (Plan de Ordenación Urbanística –POU (Town-Planning Plan); Plan de Desarrollo Urbano Local-PDUL (Urban Development Plan), and respective regulations). These limits can also be expressed in land use planning or construction regulations by the relevant municipality. It is important to highlight that some municipalities have land use regulations and special plans.

The legal regulations governing town-planning processes in Venezuela[2] clearly establish that any building or urbanisation before its construction requires a definition of the fundamental urban variables, protecting the environment (environmental variable) being one of them. It also states that these variables should be included in the territorial urban plans. The Ley Orgánica de Ordenación Urbanística- LOOU (Organic Town-Planning Law) uses the expression "Fundamental Urban Variables", as a generic denomination that can be applied to development conditions or characteristics typical of urban buildings. These conditions or characteristics refer to both the possible activities of localisation in the buildings, and the adaptation needed for these buildings to carry out such activities".

The Fundamental Urban Variables are clearly stated in Sections 86 and 87 of the LOOU, and its scope defined in Sections 60 and 61 of the Regulation of this Law. The aforementioned section 86 lists all variables that must be applied when building urbanisations: corresponding use, the space required for feeder, arterial and collector roads, incorporation to feeder, arterial and collector roads, safety restrictions or restrictions to protect the environment, raw population density, expected in the plan; resources, localisation and accessibility to equipment according to the relevant norms, and volumetric restrictions.

In fact, a specific legal framework covering all the hillsides in the whole city does not exist. The tendencies for the occupation of slope areas are guided by national laws and regulations, such as the Ley de Ordenacion del Territorio[3] LOPOT; Town-Planning Law - LOU and its Regulation; Ley Forestal de Suelos y Aguas and its Regulation; Ley de Regimen Municipal and Ley Penal del Ambiente. All these are town-planning and environmental laws.

It is also important to mention that a national regulation establishes the conditions under which deforestation, land movements, stabilisation of

2. La variable ambiental urbana. Nociones y ámbitos de aplicación. Alberto Pérez Maldonado.

3. These laws are still in force while the one that will substitute it is still in Vacatios Legis.

slopes, tree-planting, green areas and everything that is related to land protection will be carried out, even in urban areas; indicating values, limits and criteria of the application of these norms. The Decree No. 2.212 Normas sobre Movimientos de Tierra y Conservación Ambiental (Norms on Land Movements and Environment Conservation), Oficial Gazette Nº 4.418 of 27-04-92. On the other hand, the Ley Forestal de Suelos y de Aguas and its regulation, indicate protected areas on the sides of rivers and gullies.

For the municipalities, the special plans and regulations of each locality show the areas that can be used for town-planning development. In the case of constructions on the hillsides, some regulations establish that usable areas are those that have a slope of less than 60%.

Each City Hall must ensure these norms are applied through engineering and urban planning offices, in some cases, and the offices of urban control in others. In addition, national bodies are responsible for or linked to town-planning development at a subsequent level (MINFRA and Ministry of Environment). Since the law controls urban development (Town -Planning - LOU), it eliminates preventative control for construction but leaves subsequent control in place.

Administrative autonomy of the city

Risk management in the city must be operated by the responsible body of its administration at Local Level; that is the relevant Town Hall, following the national regulations and coordinating with other bodies responsible for or linked to town-planning development. In reality this management is limited by the action of the metropolitan and national levels.

Currently the national level takes priority over metropolitan interests. It is in fact a matter of national policies; especially at this time when the priority is to build houses. The local level may intervene in local urban management, prepare and assist in emergencies, but this task is difficult on hillside constructions that sometimes are under the control of national bodies.

Administrative decentralisation of the city

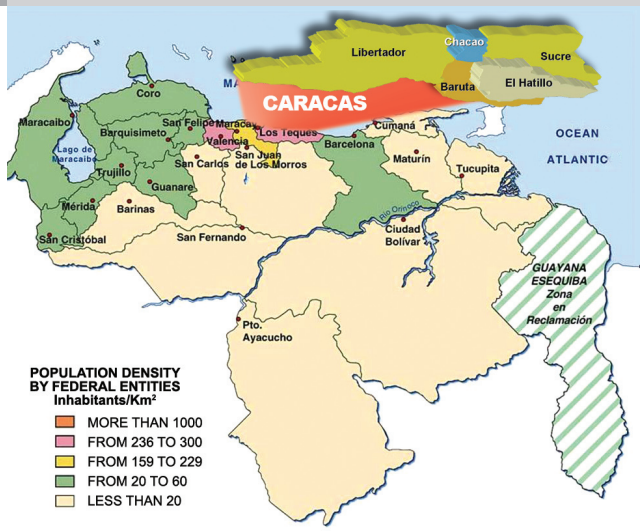
By law, City Halls are autonomous decentralised bodies. They have total responsibility for their actions as indicated in the Town-Planning Law (LOU), its regulation and other laws that rule urban development. However, since the creation of the metropolitan level, there have been many difficulties due to the inexactness of its attributions and capability conflicts with municipal levels.

Metropolitan administration

In the year 2000, the National Constitutional Assembly by mandate of the Constitution of the Bolivarian Republic of Venezuela in its Section No. 18 decreed the Ley Especial sobre el Régimen del DMC (Law on the Caracas Metropolitan District Regime), published in the Official Gazette No. 36,906. This law aims to regulate the creation of Caracas Metropolitan District as a political-territorial unit of the city of Caracas. According to Section 18 of the Constitution of the Bolivarian Republic of Venezuela, the Metropolitan District defined its scope and established the basis of its government regime, organisation, operation, administration, competence and resources.

GRAPHIC 01

GRAPHIC 01 MUNICIPALITIES OF CARACAS METROPLITAN AREA



In this law, the territorial extension of the Caracas Metropolitan District was determined; comprising the Libertador Municipality from the Capital District that substitutes the Federal District; and the Municipalities of Chacao, Sucre, Baruta, and El Hatillo from the State of Miranda.

Caracas Metropolitan District is organised in a municipal government system at two levels: 1) Metropolitan level, comprising an Executive body and a Legislative body whose jurisdiction encompasses the whole territory of Metropolitan Caracas, and 2) Municipal Level, comprising an Executive body and a Legislative body in each municipality part of Caracas Metropolitan District.

The Metropolitan Mayor is in charge of the management and administration of Caracas Metropolitan District, and the Municipal Council, made up of town councillors, is in charge of the legislative function. Amongst the responsibilities of the Metropolitan District, specified in Section 19 of the aforementioned law are urban highways, circulation and traffic planning in the Metropolitan area, and urban public transport services, in coordination with the municipalities that are part of the Metropolitan District. It is established that those metropolitan actions must be carried out within a framework of local participation and taking into account the opinions and initiatives of the authorities of municipal bodies in the metropolitan area.

The Law on the DMC Regime in its Article 7, Section 19 specifies the competences Caracas Metropolitan Level has, according to Section 178 of the Constitution of the Republic and in the Ley Orgánica de Régimen Municipal (Organic Law of the Municipal Regime). The law is competent in the following areas: planning and urban-zoning, civil architecture and social housing (numeral 3); civil protection, fire-fighting and fire prevention services, fire brigade, and public disasters prevention and mitigation measures (numeral 6). These competences allow for the creation of coordination between the municipalities located within the area in order to develop actions and risk management programmes. This can also be done with neighbouring municipalities. In other words, it is responsible for carrying out the planning and town-zoning of Caracas and incorporating the risk variable in its formulation.

The limiting physical-natural variables and occupation characteristics that have occurred in Cara-cas – limited supply of developable space and lack of or deficient town-planning control – have determined that occupation, by informal housing settlements and sectors of regulated urban development, is located on hillside areas with many restrictions. This makes the incorporation of the risk factor on the hillsides in the formulation of management instruments fundamental, with the aim of generating urban reorganisation actions, in order to regularise these chaotic settlements where risk analyses guarantee their permanence and make easier their incorporation into the formal city. Controlling hillside occupation is possible through the formulation and approval of plans and regulations; although currently a great part of the occupations is not regulated, causing chaotic occupation.

Public property

The majority of the hillsides surrounding Caracas – mainly lands that are property of the State – were considered non developable, thus, they were allocated to be used as metropolitan recreation parks and protected areas. Since these areas were not developed as parks they have been invaded and

informal use exceeds 60% in many of them. Some of the protected hillsides under auspices of metropolitan parks are mentioned in the following chart:

CHART 01 METROPOLITAN PARKS IN CARACAS

PARK	LEGAL STATUS
La Pereza Park (Los Mariches). Decree on 13/05/75 published in the Official Gazette No 30.693 on 15th of May, 1975.	Protection Zone of the Reservoir La Pereza, and another section suitable for urban developments. Currently it is under the management of INPARQUES (National Institute of Parks).
María Concepción Palacios y Blanco Park (Caiza). Decree on 21st of April, 1988.	There is a legal problem due to conflicts about the use. Under the management of INPARQUES, it was being developed as a park but the work was stopped.
Vicente Emilio Sojo Park Decree on 13th of May, 1975.	It has problems of ownership, invasions and consolidated neighbourhoods. Managed by INPARQUES. It is not developed as a park.
Parque Leonardo Ruiz Pineda. Decree on 11th of December, 1985.	Presents great number of invasions and consolidated neighbourhoods. Managed by INPARQUES, it is not developed as a park.
Universal de la Paz Park. Decree on 6th of September, 1990.	Managed by INPARQUES.

Institutional presence

The situation of institutional presence can be understood from the following text:

"The institutional context where the tasks of urban planning and control take place in Venezuela is characterised by the weakness of technical and human resources, which is usually associated with budgetary resource problems and management discontinuity by national and municipal public employees. Urban planning and control are usually carried out through passive mechanisms, such as drawing up land use legislations the enforcement of which is reduced to urban control. There is limited use of active mechanisms that would allow a more determined and rapid intervention in the urban scenario, in order to achieve the desired changes by planning, either through urban renovation actions, negotiations with land owners or even community organisations to start joint recovery or relocation of informal settlements"[4].

4. Martínez, R. Consideraciones preliminares respecto a incluir los estudios de microzonificación sísmica en la planificación y control urbano en Venezuela. Simón Bolívar University.

There is little efficiency, comprehensiveness, and coordination in the area of risk management. The tendency of the actors (this includes international actors) to focus on disaster assistance or reconstruction after a disaster, relegates prevention and mitigation to a secondary role. The existence of various institutions in charge of this area but whose role and competences are not clear, and moreover, the limited coordination between national authorities responsible for planning the development of the environment and the rest of the public sector, limits the inclusion of the issue of risk management in development planning. There are not enough measures that would have an effect on preventing the construction of risk scenarios in the new development projects, and the corrective measures are not enough in risk scenarios already built. It is necessary to correct deficiencies in national services or systems for disaster prevention and assistance, and make an effort to make the decision-making process in the hands of political leaders internalise a binding relationship between risk and sustainable development.

2.2. THE NUCLEUS OF THE SCENARIO

2.2.1. THE AREAS AND THEIR CHARACTERISTICS

The phenomenon of neighbourhood growth has expanded beyond the municipal limits of Caracas Metropolitan District towards the regions of Mirada and Vargas. From the creation of the first informal settlements in 1917 to the complexity observed on the hillsides today, the growth of informal sectors is becoming denser – in buildings up to 6 floors high – due to the unfeasibility of horizontal expansion in many of these sectors.

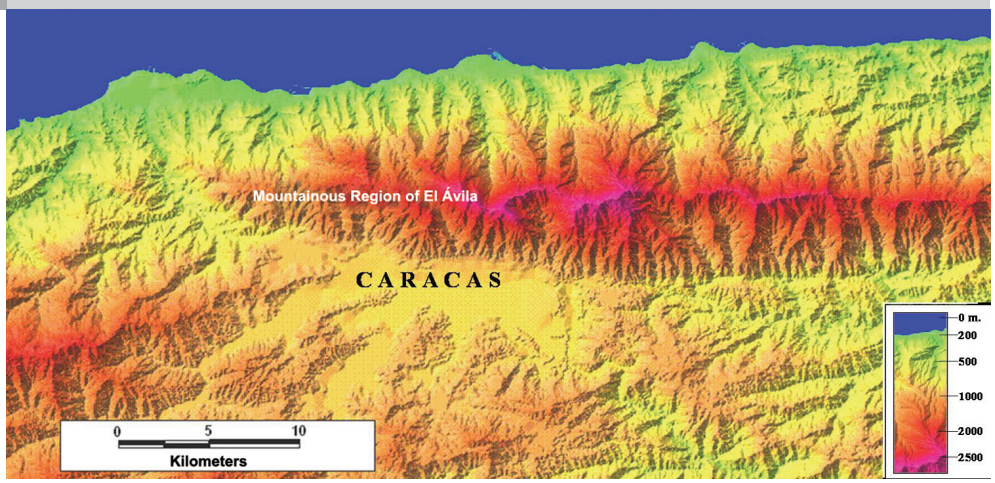
2.2.2. THE PHYSICAL MILIEU

Caracas Metropolitan District occupies one of the intramountain valleys of the Costa Mountain Range, a tectonic belt parallel to the coast belonging to the Caribe Mountain Range.

The main valley, cross-cut by the River Guaire, is located from east to west at a height of 920 meters above sea level, as a rift (tectonic pit) defined by the Ávila Fault System. The sediments of the valley are the result of river or lake deposits, and side contributions of both colluvial accumulations and debris cones coming from the northern side of the El Ávila massif, where the maximum altitude is 2,760 meters above sea level.

The thickness of the sediments may vary depending on the underlying topography, but they are usually around 100 m, with up to 300 m of sediments in the depression of Palos Grandes, in the Municipality of Chacao.

GRAPHIC 02 CARACAS METROPOLITAN AREA AND EL AVILA MASSIF



The El Ávila Massif is the northern border of the valley, a horst (a ridge of the earth's crust that has been forced upward between two tectonic pits and bordered by faults), with its highest point at Naiguatá Peak (2,760 m). As a result, the drainage system in this part of the area consists of torrents that have left torrential accumulations, the so-called debris cones, in Vargas and Caracas, where the population has expanded. The rest of Caracas is dominated by a dendritic drainage pattern especially in schist areas (schists are metamorphic rocks that come from clay) on the hills in the south of the valley. Vegetation has been highly modified due to man-made intervention. There are savannahs, deciduous forests (deciduous leaves) and trophophilous scrubland, the latter particularly on the hills surrounding the valley and as secondary vegetation. The area is influenced by trade winds from the northwest and the behaviour of the intertropical convergence zone; marking a well defined pattern of cold-dry and warm-rainy periods. The annual average temperature is 21.8ºC.

The main structural aspects from the geological point of view, besides the tectonic influence, are the presence of anticlines and synclines (folds sloped downwards to the interior of the globe). These influence the foliation patterns: the most important structural discontinuity in the control of massifs made of schistose and gneissoid rocks in Caracas Metropolitan District. Landslides are common because the steep slopes follow the foliation planes. Moreover, foliation constitutes a path for underground waters, and therefore the meteorization process.

From the lithological point of view, the area is dominated mainly by a discordant sequence of metamorphic rocks on an igneous-metamorphic complex. Two of them are particularly important: the micaceous quartz-schists of Las Brisas, and calcareous schists of Las Mercedes.

The geomorphology let analyse, throughout the identification of the shapes and processes in the area, all the agents which have contributed to the creation and evolution of the landscape . Thus, in Caracas there are three significant topographical areas, each with their morphodynamic characteristics: One, the valley floor made up of lateral and longitudinal heterometric material. Two, the deposits and low foothills eroded by the action of surface runoffs and movement of particles towards the bottom of the valleys particularly favoured by the degree of alteration of the schists. Currently these hillsides are occupied by houses located in landslides and flooding prone areas. Third, the hillsides that surround the valley and have a beam morphology and hillsides from structural hills separated by colluvio-alluvial valley floors. Current and old landslides show morphodynamics activity, and a surface, or sometimes deep, instability on the hillsides. Runoffs that drag particles and in general landslides are important shaping actors on the hillsides. Watershed processes are therefore evident in Caracas Metropolitan District.

2.2.3. PROCESSES AND ACTORS IN RISK CONSTRUCTION

A varied group of actors have contributed to the development of the hillsides in the city. First, the community itself looking for housing solutions, and the State that promotes consolidation. Varied as well are the methods used to create settlements. Some methods worth mentioning are:

- Invasions, neighbourhoods on invaded lands without any purchase operation or conditioning of the land.
- Invasion neighbourhoods with some conditioning of the land.
- Neighbourhoods formed through the purchase of plots from informal promoters or "pirates". They sold plots that did not fulfil the requirements demanded by law on plot sale and they were conditioned in their main layout.
- Neighbourhoods, or parts of them, on rented plots.
- Neighbourhoods invading communal lands, property of the State or green areas, in some cases only with town planning, and in most cases without any kind of services or road networks.

- Neighbourhoods with housing, from single-family to multi-family housing, result of the densification process that neighbourhoods in Caracas have been undergoing recently.

The most common practices in the construction and consolidation process are cuts and backfills of slopes, house construction using blocks and cement, zinc for the roof, in a progressive construction that is regularly substituting waste material used to start constructions in the past. Regarding road networks, first a pedestrian road is built and then a vehicular road – usually by the government in office, which later is connected to the main road. In the case of services, illegal connections are made for public services. Mitigations work, such as retaining walls, is usually built by the national or municipal government. On the other hand the embankment of ravines, channelling pluvial water and sewage are built by local governments and City Halls during the consolidation stage.

2.3 UNSAFE CONDITIONS: HAZARDS AND VULNERABILITIES

Caracas is exposed to natural hazards such as earthquakes, mass movements, floods, torrential avalanches and tropical storms. In addition, exposition to fires and other technological risks in industrial sectors is also important. However, the events that are most frequent on the hillsides are landslides.

In Caracas Metropolitan District, 86% of landslides are associated with the rainy season (Jimenez, 1994[5]). Considering the impact, 60% of them affect informal areas, or areas in "barrios"; about 20% occur in areas connected to road network, and only 15% occur in residential areas other than neighbourhoods and artificial cuts made for service infrastructure work.

5. Jiménez, V, The incidence and causes of slope failures in the barrios of Caracas, Venezuela. Main and Williams (editors), Environment and Housing in Third World Cities, Wiley & Sons, Chichester, 1994.

Risk conditions in sub-integrated habitat sectors are given mainly by modifications in the original topography, which implies cuts and fillings for housing construction, on unstable plots, with modification of drainage patterns and without public services that would ensure adequate water channelling outside the slopes, all this together with rain water contribute to overpressure of pores, creating favourable conditions for landslides. However, the conditions are not only physical or technical, but also educational, social, environmental, political and institutional.

2.4. MANIFESTATION OF RISK

Each year during the rainy season, between May and November, the city witnesses several landslides that affect the life and property of the settlements located in both formal sectors and "barrios" in the city.

Together with the damage caused to the communities in the areas directly linked to the effects of the landslides, there are collateral effects for the rest of the city such as interruption of the road networks that stops people getting to work and goods being distributed, among other things. This affects normal functioning of the activities. The different bodies in charge of emergency assistance have a record of the cases they anually deal with in the city, reporting up to 500 landslide[6] events in the different areas of the city.

6. Caracas Metropolitan Fire Brigade. Planning Area for Disasters (Área de Planificación para casos de Desastres).

Compilation of instruments 3

The compilations of instruments carried out by the City Halls that are part of Caracas Metropolitan District are presented below. Methodologically, these instruments have been grouped according to the impact they have on the different aspects of the risk configuration process: environment, nucleus, state and effects.

The first element to be highlighted is that in Caracas there is a total absence of instruments oriented to have and effect over Environment. As the environment is understood all those structural aspects that determine risk conditions, contemplates the elements related to the regulatory framework and public policies, institutional framework and political and cultural surroundings that favour the construction of risk scenarios. Despite the efforts made by the actors who at certain points in time have taken part at the different national, metropolitan and local management levels, there is not, beyond plans, a joint vision of the city that would guide the complex dynamics of the capital. In practice each City Hall has its own vision for its municipality.

The nucleus management is the task of the actors and their processes in the determined areas in order to affect, with a future vision, risk generation.

This can involve a varied set og methods such as information systems or special local urban development plans. Although the majority of instruments are grouped under this category, their implementation considers incipiently the aspects related to the creation of risk scenarios. Instruments such as local urban development plans, regulations, and special plans of specific sectors on the hillsides and in areas influenced by gullies should link and make discourse and practice coherent in most municipalities to counteract, to some extent, the growth of high-risk areas in the city. Information systems should be the platform for the decision-making process in the issues of urban development and vulnerability reduction in this arduous task.

Managing unsafe conditions implies measures directed to correct the pre-existing risk conditions on the hillsides neighbourhoods. In this sense, physical adaptation programmes of informal settlements, plot regularisation processes, regulations that in their formulation and applications promote mitigation of risk conditions, are all initiatives that are shared by almost all municipalities with their local variants in terms of application. Nevertheless, in most cases there are no controls that can stop new occupation of the spaces previously vacated.

Finally, effect management that aims to strengthen local capacities in terms of emergency preparedness falls directly to the organisations in charge of the response. Early-warning systems and training processes are some of the instruments presented by the municipalities directed in great part by the corresponding local authorities: Civil Protection and Fire Brigade.

In conclusion, making efforts to consolidate policies from the surroundings or environment with joint vision of the city can no longer be delayed. Making measures with a future vision, part of the instruments of the nucleus, more evident; multiply corrective actions in built risks scenarios; and expand response preparedness with the aim of reaching, or in some way reverse, through these four management components, the construction of risk scenarios in Caracas.

3.1 MANAGING THE ENVIRONMENT

Environment management considers aspects related to structural conditions of the construction of risk scenarios in terms of the regulatory framework and public policies, of the institutional framework, and of the political and cultural surroundings that favour risk scenario construction. These are background causes that by putting pressure on the nucleus become evident in the city.

The characterisation reflects some of the botlenecks related to the environment conditions: continuous growth of the capital city and its increasingly worrying degree of consolidation particularly on the hillsides; the weakness of the legal framework both in its formulation and application to stop constructions on areas considered to be of high risk; the division of the political actors who should promote a unified vision of the city; and in general the lack of coordination which exists between all the actors that live together in the city. The latter, in spite of the great efforts made at different times to promote encounters between actors: national entities such as the Ministry of Environment, academic entities, metropolitan planning entities, which no longer exist, initiatives of different organisation sponsored by the different local and metropolitan governments amongst others. Moreover, there have been many initiatives to consolidate a vision of the city, unfortunately however, these have not been sustainable, and have disappeared after each change of government, leaving only a trail of studies on how the city should be.

In this opportunity, for the city of Caracas there are no instruments that could, somehow, show a joint effort of policies towards local risk management. On the contrary, the surrounding has been characterised by favouring the consolidation of settlements on the hillsides as a result of the absence of public policies. Except for the Parque Nacional de Ávila, located in the north of the city and protected by a main arterial route (Av. Boyacá o Cota mil), the pressure to obtain space for housing is occupying the very few hillsides left in the city.

Due to the absence of instruments that would help to improve these background conditions, translated into national polices that definitively deconcentrate and decentralise the centre conditions of the capital, the task

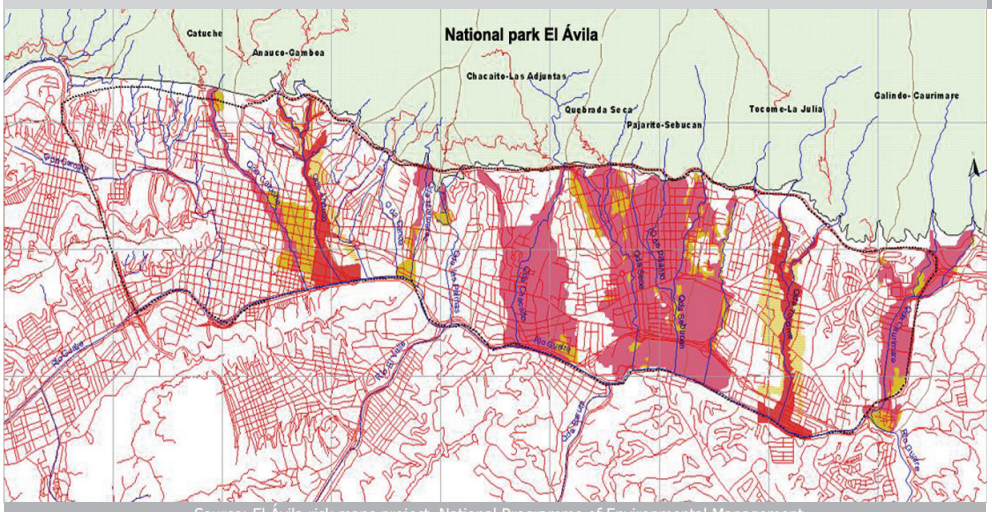
of starting actions towards the management of this dynamic risk-generating variable cannot be delayed.

3.2. MANAGING THE NUCLEUS OF THE SCENARIO

Managing the nucleus refers to future measures that through actions and actors directly affect risk- generating processes.

Knowing the context and managing risk conditions implies having an adequate knowledge of that risk. Caracas does not have a unified information system that would allow each one of the actors that participate in the decision-making process to share the same data. Each City Hall has, in an isolated way, its own database, in most cases limited to the area of its municipality only; with little knowledge of neighbouring contexts and situations. In this regard, two of the six municipalities present instruments related to the generation of basic information to make decisions related to risk management. Although there are studies that take into account the whole city, their practical application is still difficult in local decision-making processes.

MAP OF HAZARDS BY TORRENTIAL AVALANCHES GRAPHIC 03



Source: El Ávila risk maps project, National Programme of Environmental Management.

A significant effort in terms of actors and institutional strengthening is that instruments that formulate the creation of bodies which can have a positive effect on the risk issue at local level have been included. Two of the local experiences helped in the creation of an office of Protección Civil (Civil Protection) within the municipal structure.

As for the proposed prospective measures, the complex institutional operation in six different areas of administration (five City Halls and one metropolitan

municipal authority) and the pressure of the demand for housing and services exceeds the speed of the plans that somehow consider the risk issue in their formulation. The presence of special local plans for specific sectors that favour the non-generation of risk areas, is often exceeded by the institutions themselves, since they, whether by omission or ignorance, allow construction on risk areas.

The application of the regulations in formal areas of the city is difficult. The municipalities do not have the necessary mechanisms to be able to supervise and control the application of the regulations in the formal city. In the case of hillside areas, this control is even more complex. Usually, in a city where almost a third corresponds to invasions of illegal construction and property, the necessary attention is only given to these areas in case of an emergency.

In general, all the municipalities have regulating and planning instruments that could affect prospective management. An improvement is that they also have an environmental normative framework, valid in the whole city of Caracas. This regulation prioritises environmental conservation, protects reserve areas, and prevents occupation of hazard areas. However, only the coordinated implementation of these instruments and the adequate supervision and institutional and community control can guarantee their applicability.

INSTRUMENT 1 PROJECT FOR THE INTEGRATION OF ENDOGENOUS DEVELOPMENT [PIDE] – LOCALITY OF OJO DE AGUA, CARRETERA VIEJA CARACAS- LA GUAIRA

Objective:	**Institution or organisation that implements it:**
To incorporate into the community the necessary tools to develop skills and capacities that would allow the sustainable achievement, in the medium term, of the co-management of the project of physical transformation in its sectors.	The community organised through civil associations together with CONAVI (National Housing Council), INSURBECA (Town-Planning Institute from the University of Venezuela), Ministry of Environment, HIDROCAPITAL (Hydrological Company), the MHV (Housing Ministry), FUNVISIS (Foundation for Earthquake Research) and the City Hall of the Municipality of Libertador.

Implementation	**When:** From the year 2000, after the disaster of December 1999, that affected the coasts of the State Vargas and some localities of Caracas.
	Where: Around the Carretera Vieja Caracas-La Guaira, within the jurisdiction of the Municipality Libertador
	With Whom: INSURBECA was hired in 2000 to elaborate the Master Plan and the ordinance of the sector. Additionally different companies were hired to accompany and strengthen the Unidad de Planificación Física 1 - Ojo de Agua; UPF1 (Physical Planning Unit) in the Carretera Vieja Caracas-La Guaira.

Background:

After the torrential avalanche in December 1999, a state of emergency was declared in the area of the Libertador Municipality. The Civil Defence and the Fire Brigade started the evacuation. The municipality promulgated the Decree No. 132 (on the prohibition of construction on that area). In 2000 the residents organised themselves and asked CONAVI for help; this institution then responded by hiring INSURBECA to carry out a master plan and to formulate the regulation of the area. Moreover, different companies were also hired to accompany and strengthen the UPF1 - Ojo de Agua and a tender was put out for urban development programmes.

In 2001 the contracts with CONAVI finished, but local associations from each development unit continued to monitor the projects through technical committees. In 2003 civil associations set up the coordination council of the UPF1-Ojo de Agua, talks with CONAVI restarted and with the City Hall of El Libertador in order to get approval for the resources and then start the work and integral development through the Proyecto de Comunidad Productiva (Productive Community Project). The coordination council organised technical committees in the City Hall of El Libertador attended by CONAVI, Ministry of Environment, INSURBECA, INPARQUES, and HIDROCAPITAL amongst others.

The decree No. 132 stopped the project from continuing. The coordination council continued with the technical committees, with the participation of the different bodies of the national and municipal State. New invasions took place in an old dumpsite in Ojo de Agua, and a court order was made for evacuation, but this was not carried out. The Fundación para el Equipamiento de Barrios -FUNDABARRIOS (Foundation for Neighbourhood Equipment) offered institutional support in seeking resources; then in February 2004 the Decree No. 132 was revoked through the Decree No.120. In October of the same year the MVH was created, and then talks between the ministry and the coordination council began'.

In February 2005 there was a "vaguada" (mud downpour or avalanche after a few days of intense rain) that seriously affected the area of the Carretera Vieja Caracas-La Guaira; for this reason the municipality promulgated the Decree No.141, that again stopped the project, while different organisations and directorates of the City Hall carried out technical evaluations in the buildings of the different neighbourhoods along the Carretera Vieja, to determine the possible changes in the master plan.

Once the evaluations were done, in order to carry out mitigation work and reduce risk in the area, the Decree No.142 is repealed with the Decree No. 144-1, which is still in force today.

INSTRUMENT 1 PROJECT FOR THE INTEGRATION OF ENDOGENOUS DEVELOPMENT [PIDE] – LOCALITY OF OJO DE AGUA, CARRETERA VIEJA CARACAS- LA GUAIRA Continuation...

Results:

The master plan for the sector is updated, the statutes are adapted to the plan of delegated administration, the regulations for operation are elaborated, agreements are formulated, the process for consultation, approval and election is organised, the Framework Agreement between financial organisations and the MVH is signed.

Activities:

- Strengthening Workshops.
- Preparatory Seminars.
- Sectoral Assemblies.
- General Assemblies.
- Approval of new statues in the master plan and the agreement.
- Election of representatives.

Financing source:

- Help from the community
- Permission to use City Hall facilities for technical committees.
- Allocation of funds by the Presidential Office through organisation from the MVH/ BANAVIH (National Bank of Housing and Habitat).

Approximate budget:

- Carrying out the project Bs. 57,000,000,000. (US$ 26,511,627).

Potential:
The participation, disposition and encouragement of the community itself, in defence of the master plan to improve the social environment and the different governmental organizations at national, district and municipal levels.

Limitations:

- Delay in obtaining resources to carry out and implement the master plan.
- Natural events that limit the execution and increase the number of civil work for mitigation, needed to safeguard material goods and lives.
- Demolition of the viaduct Nº 1 of the motorway Caracas-La Guaira.
- Delay of the partial abolition of the Decree on the affectation of the National Park El Ávila, amongst others.
- Constant invasions of the different "barrios" or areas along the Carretera Vieja.

Proposals for improvement:

- Partial abolition of the Decree on the affectation of the National Park El Ávila.
- Stop moving and invasion processes in the different areas along the motorway.
- Make communication campaigns to attract investment from the private sector and accelerate the start of the master plan.
- Accelerate the implementation process of mitigation work, in order to avoid new delays during the next rainy season in the country.
- Accelerate the approval process for a regulation that would regulate the area, amongst other measures.

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INSTRUMENT 2 TOWN-PLANNING GEOGRAPHICAL INFORMATION SYSTEM AND RISK AND ENVIRONMENT INFORMATION SYSTEM OF THE MUNICIPALITY OF BARUTA

Objective: To systematise available information in the municipality, in digital format, linking it to dynamic databases that would allow its processing to make decisions about issues of urban development, hazards and vulnerabilities.	**Institution or organisation that implements it:** Dirección de Planificación Urbana y Catastro (Urban-Planning and Cadastre Directorate); Unidad de Sistemas de Información Urbanísticos y Geográficos (Town-planning and Geographical Information Systems Unit); also all the Management Offices of the institution must contribute to the information unit to be published under the auspices of SIG. MUNICIPIO BARUTA.
Implementation	**When:** From the year 2000 at the beginning of each term of office.
	Where: Exclusive for the Municipality of Baruta.
	With Whom: Together with all the management offices of the institutions.

Background:
The City Hall of Baruta used to have the traditional reception and processing of the cases and events in paper archives which required having enough space to accommodate them. This method usually delays the search for the different files- which get damaged with time- and as a result responses are never given on time.

Results:
Since 2006 the City Hall of Baruta has a system of comprehensive geographical information that manages land, regulatory, environmental and road variables, and geological-geotechnical determinants that are available to all of the offices of the municipality on digital format.

In the particular case of the risk variable, the systemisation of the information about events registered and dealt with by the municipality was achieved. Also the generation of associated thematic plans, such as geomorphologic processes, land stabilisation, hydrology, historical, etc. It is hoped that by 2007 the corresponding vulnerability plans of the municipality will be ready.

Activities:
Continuous updating of the databases of the events registered and dealt with, generation of new thematic plans for the decision-making process around new municipal regulations, urban plans, environmental regulations, sanctioning procedures, etc.

Financing source:
Ordinary income of the City Hall of Baruta.Ordinary income of the City Hall of Baruta.

Potential:
Having reliable, up-to-date, in real time information that allows permanent monitoring of urban development and control of the precise interventions and of future solutions.

Limitations:
Budget availability to acquire equipment and hire personnel.

Proposals for improvement:

Increase the processing capacity of the system or platform; having a larger team to generate new processing criteria and variables, and not only process past or present events.

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INSTRUMENT 3 MICROZONIFICATION OF SOCIO-NATURAL RISKS IN THE MUNICIPALITY OF CHACAO

Objective: Generate scenarios from the analysis of variables using MICROZON (information system) to estimate where damage will occur, what kind of associated damage there will be and what measures will be taken by the community and the authorities.	**Institution or organisation that implements it:** Instituto Autónomo Municipal de Protección Civil y Ambiente - IPCA (Institute for Civil Protection and Environment) of the Municipality Chacao, Universidad Central de Venezuela - UCV (University of Venezuela), Centro de Estudios Integrales del Ambiente CENAMB (Centre for Environmental Studies).
Implementation	**When:** August 2000.
	Where: Municipality of Chacao.
	With Whom: CENAMB, UCV, IPCA and Urban Management.

Background:
The team of the CENAMB-UCV has been working, for many years, in the identification and valuation of variables for the evaluation of urban vulnerability and mitigation of environmental hazards of natural origin. It was decided to validate the evaluation criteria of MICROZON, based on the Municipality of Chacao, because this is a high-risk area for earthquakes according to the affectation levels of the earthquake in 1967.

Results:
Evaluation and generation of maps on earthquake, hydro-meteorological and geological risk.

Activities:

A diagnosis, based on environmental zoning of natural hazards and urban vulnerability, on the situation of socio-natural risks, was carried out, using a computer programme that compares, in unit of spatial analysis, the respective urban blocks, threat conditions and urban vulnerability.

Financing source:

City Hall of the Municipality of Chacao, transfer of resources to IPCA.

Potential:

It is a model that can be applied to any municipality either within Venezuela or outside the country.

Limitations:

- Training the personnel of the Municipality of Chacao to use the programme was not finished.
- It requires constant updating of the urban information and improvement of the information on the variables of the physical-natural medium that determine environmental hazards of natural origin.

Proposals for improvement:

Finish updating the data and have access to the programme, and train personnel, so it can be applied and validated.

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INSTRUMENT 4 REFORM OF THE REGULATION ON THE CREATION OF THE INSTITUTO MUNICIPAL DE PROTECCION CIVIL Y AMBIENTE (IPCA)

Objective:

Create IPCA as an entity for civil protection, as an autonomous municipal organisation. This organisation will have a legal character and its own assets, independent from those of the municipality. Its objective is to plan, create, regulate, coordinate, develop, and organise civil protection, disaster management, conservation, defence, and improvement of the environment in the jurisdiction of the municipality of Chacao, part of the State of Miranda.

Institution or organisation that implements it:

IPCA of the Municipality of Chacao.

Implementation

When: 1998 year of creation); 2004 (year of reformation).

Where: Municipality of Chacao.

With Whom: All the management organisations from the Municipality of Chacao (Security, Urban, Social, Domestic), and other municipal authorities from the executive and legislative powers, and the community.

Background:
It was merged with the section of Social Protection from the Municipality of Sucre until 2000. It was created because of the need to coordinate resources for disaster assistance and training the community. Today it has broadened its scope towards the environmental field and comprehensive risk management.

Results: The operation of an autonomous organisation, responsible for creating and encouraging the system of civil protection.

Activities:

- The creation and promotion of civic awareness on the importance of civil protection, disaster management, conservation, defence and improvement of the environment. Also, with the aim of encouraging the participation of the population in programmes destined to prevention in situations where their lives and property are at risk.
- Preparedness, prevention, reduction and control of damages caused to the population in the Municipality of Chacao and its property, in case of disasters.
- Coordinating and carrying out the necessary actions to guarantee protection for the population and its property in case of adverse events.
- Coordinating, carrying out actions, and imposing corresponding sanctioning measures for the conservation, defence and improvement of the environment in the jurisdiction of the Municipality of Chacao, through the inspector designated to do so.

Presupuesto aproximado. (Financing source):

Transfer of resources from the City Hall of the municipality of Chacao to IPCA, and own income.

The approximate budget required for the installation of an institute similar to IPCA is Bs. 7,000,000.000 that is approximately US$. 3,111,111.

In 2006 the approximately budget of operation of the Institute was Bs. 4,000,000,000 that is approximately US$. 1,777,778.

Potential:
It is a model that can be applied in any municipality either within Venezuela or outside the country.

Limitations:
It may be, at a determined moment, subject to modifications due to changes in the regulatory framework that may affect the autonomy of the municipality and its decentralised organisations.

Proposals for improvement:
Increase capacities, such as coordination, for risk management.

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INSTRUMENT 5 ORDINANCE FOR THE CREATION OF THE MUNICIPAL CIVIL PROTECTION SYSTEM OF THE CITY HALL OF BARUTA

Objective: To integrate the risk variable in the activities of the municipality.	**Institution or organisation that implements it:** The City Hall of the municipality of Baruta.
Implementation	**When:** Since January 2006.
	Where: In the whole municipality
	With Whom: Primary and secondary attention organisations and voluntary groups.

Background:

Regulation that creates the system in 2002. It has not been implemented as of 2007.

Results:

- Better response from the Fire Brigade.
- Integration between Fire Brigade and Municipal Police.
- Joint training.
- Solution of cases in Municipal Engineering.
- Ordinances that include risk management.
- Supervision and inspection of safety condition in the different neighbourhoods.
- Supervision of construction work and/or refurbishments from the point of view of the risk variable.
- Agreements with Justices of the Peace to solve community problems regarding risky constructions or refurbishments in areas where urban variables are not established.
- Integration of voluntary groups into the system.

Activities:

- Coordination between primary response organisations: establishing joint performance plans.
- Coordination between the different Institutes of Civil Protection (municipal, state and national)
- Coordination between the different management offices of the City Hall of Baruta.
- Discussing regulation in the Municipal Chamber.
- Implementation of joint training plans to capacitate human resources.

Financing source: Own funds.

Approximate budget: Own.

Potential:

- Support from National Civil Protection.
- Possibilities of expansion.
- Acceptance by the community in general.
- Resource management through support programmes.

Limitations:

- Low in-house budget.
- Lack of own Head Office.

Proposals for improvement:

- Preparation of resources through financing programmes.
- Attracting resources through training activities.
- Coordinated management of resources allocated to other institutions.

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INSTRUMENT 6 CATALOGUE OF MUNICIPAL RISK MANAGEMENT

Objective: To diagnose and value the condition of the city Hall around short-term risk management, within the framework of technical process that ensures appropriateness and efficiency.	**Institution or organisation that implements it:** IPCA of the Municipality of Chacao.
Implementation	**When:** It is revised once a year before the elaboration of the budget for the next fiscal year (September-October each year).
	Where: Municipality of Chacao
	Con quienes: All safety organisations in Chacao and Urban Management.

Background:

Understanding from the authorities that the problem of risk management and the reduction of disasters is not only an area of exclusive competence of response operating bodies, but that also of the different organisations that plan urban development affect the construction of risks.

Results:

Having a useful tool within municipal system to establish strategies and make decisions that reduce vulnerabilities and weaknesses regarding response, with a preventive approach. As a result, in the occurrence of an adverse event, the vulnerable population can present the minimum effects and fast recovery.

Activities:

To formulate the Municipal Risk Management Indicators, the methodology known as "The Classic Model" was used. The work was done with the aim of reaching "rational consensus" amongst a group of experts on Risk Management at municipal level.
On the subject, the first task, considering the opinion of a small group of experts, was to select the elements that can be evaluated to "measure" management; these elements were also given preliminary weights. Subsequently, this information was presented in a workshop attended by a larger group of experts. In this workshop three rotary work-groups were formed, in which each sub-sector was analysed and each line qualified by a percentage. The sub-sectors addressed were: (a) Aspects associated with emergency management; (b) Disaster management; and (c) Risk management.

Finally, using averages and standard deviation, the average weights and their dispersion were given according to the individuals who formulated it. Also the relative information of the expert was calculated in relation to the average allocation and to the allocations established by consensus. This amount was defined indicating as pi the weights given to each line by an individual; and as qi the average weight calculated using the answers of all the participants, by

$$I(\text{relative}) = o'5fo5fpi \text{ Log } (pi/\ qi)$$

If the relative information of the majority of the experts in a group was small, this indicated little dispersion with regard to the average and would allow taking the average allocation as the final allocation. If this, however, did not happen, other sources of information, inside the records, should be used. Standard deviation was also calculated, in each allocation, which gave another idea of dispersion. As the final result a final list of lines to be evaluated with their respective weight was obtained.

The rate was validated in two municipalities in the country, one of them the Municipality of Chacao.

INSTRUMENT 6 CATALOGUE OF MUNICIPAL RISK MANAGEMENT

Continuation...

Approximate budget (Financing Source):

City Hall of the Municipality of Chacao, transfer of resources to IPCA.

Potential:

This model can be applied in any municipality either within Venezuela or outside the country. Under cost of application.

Limitations:

Lack of coordination between the Emergency Management and Urban Management Units to work together.

Proposals for improvement:

Apply to municipalities with different characteristics to the ones in Chacao, and verify their applicability and usefulness.

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INSTRUMENT 7 PLANNING AND MANAGEMENT FOR ENVIRIONMENTAL RISK REDUCTION IN URBAN MUNICIPALITIES

Objective:	**Institution or organisation that implements it:**
To implement the process of risk reduction connecting risk scenarios, comprehensive evaluation of urban vulnerability and strategic negotiation with different institutional and community actors, through training and awareness based on the evaluation of urban vulnerability and subsequent proposal of urban design.	IPCA of the Municipality of Chacao, UCV, CENAMB.

Implementation	**When:** When the study finishes (estimated year 2007).
	Where: Municipality of Chacao.
	With Whom: All safety organisations in Chacao and the community.

Background:

Venezuela did not have any comprehensive background on this proposal. The Municipality of Chacao was the organisation that had worked the most in this area. However, there were isolated projects such as the study of the Earthquake in Caracas, the most complete study about the consequences of the earthquake in Caracas in 1967, as well as a project previous to this one, a Microzonification of Natural Risks in the Municipality of Chacao. These projects are not up-to-date and are disconnected from municipal urban planning.

After this project started, two others begun, the Proyecto Ávila (encouraged by the Ministry of Environment and the Geographical Institute Simón Bolivar, in 2002) and the Basic Plan for Disaster Management in Caracas, encouraged by the Japanese Government in 2003 and 2004. These initiatives fulfilled many objectives of this proposal, because in risk management it is not enough to identify the natural problems that affect the cities (floods, earthquakes, landslides), it is also essential to generate connection mechanisms between education, dissemination, planning, research, organisations, based on up-to-date information and with the parameters of integral vulnerability. With this information it is possible then to elaborate guidelines of urban design upon which to introduce public policies of environmental risk reduction: community, university and municipality as the dynamic axis of the permanent process of researching-updating information, which would result in a municipal system of strategies management of the environment that includes the community, schools, municipal institutions and the university. This last one is the oldest institution in Venezuela.

Results Stage 1 (finished):

- Nine thematic maps.
- An evaluation of vulnerability.
- A Vulnerability Audit Model based on the connection University-Municipality.
- A database.
- An undergraduate course on Urban Vulnerability Audit.

Results Stage 2:

- A postgraduate course.
- A proposal for an urban design that is environmentally sustainable.
- Workshops with the communities of the municipality.
- A proposal for a Municipal System of Environment Strategic Management (optional).

Activities:

Structured in modules:

- Zoning urban vulnerability.
- Design and implementation of an Urban Vulnerability Audit.
- Evaluation of urban dynamics.
- Education-dissemination.
- Design of the risk management system.
- Urban design that is environmentally sustainable in the field of study.

INSTRUMENT 7

PLANNING AND MANAGEMENT FOR ENVIRIONMENTAL RISK REDUCTION IN URBAN MUNICIPALITIES

Continuation...

Potential:

The reduction of environmental risks in Latin American cities, and particularly in Caracas, should be the axis of urban planning in the framework of sustainable development. To do that it is fundamental to define the criteria and vulnerability factors that can be tackled by local authorities, controlled by the communities and that would have national impact. For this reason the existence of mechanisms to connect the different organisations that produce knowledge, planning and executing bodies and the community must be guaranteed.

We believe the city is a social product, as urban development has shown, which is following a different path to the one proposed by theoretical urban plans, with a well defined objective by experts but still isolated from a dynamic and political complexity. For this reason, the achievement of a strategy should be based on a confident urban design, environmentally sustainable, and determined by the variable that has been recognised by the different social actors, so it can generate an autonomous mechanism that would go beyond governments and political tendencies, dynamised by new interests, at least in Venezuela: those who seek to reduce their own vulnerability through the improvement of the environmental quality in the community.

Limitations:

The cost of the project was estimated in 2001, approved in 2004, and the first report was approved in 2005. However, for many reasons only very recently the rest of the remaining amount of the project was approved, and currently there are financial delays, which makes even harder to achieve the set objectives in the expected time.

Proposals for improvement:
Apply it in municipalities that have different characteristics to those of Chacao and verify its applicability and usefulness.

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INSTRUMENT 8 ORDINANCE FOR THE ELABORATION AND APPROVAL OF THE SPECIAL PLANS IN THE MUNICIPALITY OF SUCRE

Objective: To establish the legal normative that will regulate everything that is related to elaboration, approval and implementation of the special plans.	**Institution or organisation that implements it:** City Hall of the Municipality of Sucre.
Implementation	**When:** Published in the Municipal Gazette, Extraordinary Number 362, on the 4th of July, 2006.
	Where: Municipality of Sucre in the State of Miranda.
	With Whom: It is carried out mainly through the Directorate of Engineering and local urban planning, with specific interventions by the Cadastre Directorate.

Background:

- The Municipality of Sucre lacks a Local Urban Development Plan that regulates town-planning development. This plan would also require approval from the Ministry of Infrastructure (MINFRA).
- Municipal regulations only tackle the areas of uncontrolled housing development very generally, framing them as areas to be improved, or developing areas, but that do not have any mechanism of regulation.
- The image of the special plans, capacity of the municipal town-planning authority is used, but since there is not an instrument to regulate the elaboration and execution of these plans the procedure established by MINFRA becomes complex due to the long deadlines.

Results:

Despite being at the stage of public discussions, there are early results thanks to the participation of the community in the processes of compilation of information (socio-economic surveys, needs, threat specification), as it has become the monitor of land use and new invasions.

Activities:

- First public consultation: it is submitted to the approval of the communities in a session of the Municipal Chamber.
- Second consultation: the municipal organisations carry out the evaluation and technical observation.
- Approval.

Financing source: Own resources (Town-Planning Commission; Legislative Chamber).

Potential:

- The ordinance stipulates that for the development of each plan it is compulsory to carry out a diagnosis that includes the analysis of the variable risk of disasters, identifying the different existing hazards in the sector and the vulnerabilities. Also, a prevention and risk mitigation plan should be created.
- A land use regulation, which regulates the use of the different areas, considering the risk level presented in the diagnosis, should also be created.
- The capacity of each of the municipal bodies should be clearly defined.
- Allows investment of private capital.

Limitations:
At the moment no limitations have been found.

Proposals for improvement:
This instrument was validated very recently; therefore it is subject to modifications in the event of the creation of a new law in the areas of town-planning or land use zoning.

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INSTRUMENT 9 ORDINANCE THAT REGULATES THE AREAS SUBJECT TO SPECIAL STUDIES [18/11/1992]

Objective: To regulate fundamental urban variables for the development of urbanisations and properties located in Areas Sujetas a Estudios Especiales-AE, (Areas Subject to Special Studies).	**Institution or organisation that implements it:** Urban Planning and Cadastre Directorate, Planning Division, City Hall of the Municipality of Baruta.
Implementation	**When:** Since it was approved on the 18th of November, 1992.
	Where: In the municipality having as limits: in the north the Rio Guaire, municipalities of Libertador and Chacao; in the south the municipalities Paz Castillo and Guaicaipuro; in the east the municipalities of Sucre and el Hatillo; in the west with the municipalities Libertador and Los Salías.
	With Whom: It is carried out through the Planning Division of the Dirección de Planificación Urbana y Catastro.

Background:

Based on the fundamental urban variable related to Restrictions for Environmental Safety and Protection, on the Technical Norms elaborated by the Ministry of Environment and Natural Resources, and on the other dispositions on the subject included in laws and ordinances, the environmental impact of the projects on new town-planning developments is evaluated. These projects take into account the variables of geological, geotechnical, hydraulic, stability among others, with the aim of preserving the topography, vegetation, fauna, and other elements in the natural environment. At the same time, they avoid the destruction of this environment by intensive practice and/or extensive procedures such as, terracing, backfills, formation of artificial slopes, and intervention in riverbeds and floodable areas near the water.

Results:

By applying this instrument, risk, in the new town-planning developments, has been minimised, since the aforementioned norm determines and restricts intervention on lands with a slope steeper than 40%, and establishes explicit prohibitions for those lands that have slopes steeper than 60%, which constitutes a preventive measure for the city in the short, medium and long term.

Activities:

In view of the process of consultation that every owner starts for a better use of their land in urban development and incorporation into the city, the municipality requests all payments: legal, cadastral, geotechnical, environmental, and services, in order to evaluate if it has the possibility and the condition to be incorporated in new activities within urban dynamics. Special emphasis is put on the evaluation of topographical, geological and geotechnical studies, which will determine the implementation measures, stabilising the land, channelling and drainage systems, and other work considered appropriate and necessary so the respective construction permit can be processed and future movement, cracks or fractures do not occur in the future.

Financing source: Ordinary resources.
Own funding: Municipals.
External management: Public consultations to the community and organisations involved.
Type of financing: Public.

Potential:

Foresee the impacts by urban interventions in areas that have an irregular slope, a characteristic of the municipality, assigning the most appropriate urban variables.

INSTRUMENT 9

ORDINANCE THAT REGULATES THE AREAS SUBJECT TO SPECIAL STUDIES [18/11/1992]

Continuation...

Limitations:

- From the date of publication of this ordinance, it can only be applied to new town-planning developments.
- It has not been updated because the regulation establishes that it should be reviewed by the local planning organisation, with support from the Direction of Municipal Engineering, at least every five years
- The pressure of socio-economic activities and illegal occupation due to the expansion of urban areas increases the gap between the norm and land demand.
- Until now the City of Caracas does not have an Environment Surveillance and Control System, that is coordinated and inter-institutional, and that includes all institutions.

Proposals for improvement:

It is necessary to update and simplify the norm with actual urban dynamics, where the environmental determinant and risk is a structuring variable.

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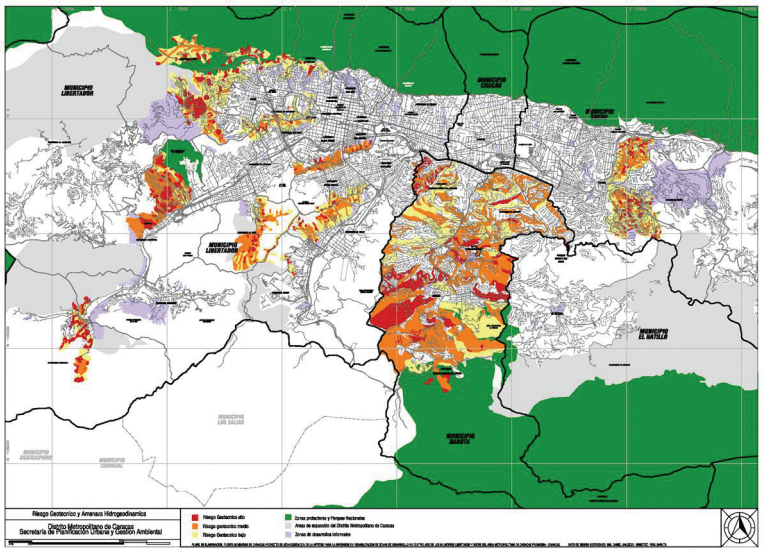

INSTRUMENT 10 PLANS FOR URBAN DEVELOPMENT [AT MUNICPAL OR SECTORIAL LEVEL]

Objective: Establishes, defines and regulates fundamental urban variables for the development of the properties that make up, totally or partially, the territory.	**Institution or organisation that implements it:** Urban-Planning and Cadastre Directorate, Planning Division, Town Hall of the Municipality of Baruta.
Implementation	**When:** When a sector requires updating its urban conditions, either because of damage or a gap between what there is and what it is allowed.
	Where: In the whole municipality or sectors of it.
	With Whom: It is carried out through the Planning Division of the Dirección de Planificación Urbana y Catastro. The participation of the population is included in the processes of formulation and public consultation.

Background:

Land Use Planning Ordinance of Sucre District (Municipal Gazette Extraordinary number 9-II on 01/09/82.); Land Use Planning Ordinance of Southeast of Caracas (Municipal Gazette of Sucre District extraordinary number 1-5 on 23/01/1984.); Partial Regulation of the Land Use Planning Ordinance of the Sucre District on the Development of areas with Special Regulations (Municipal Gazette139-08/99 on 04/08/99); Special Plan and Land Use Planning Ordinance of the Sector La Naya - Las Minitas (Municipal Gazette extraordinary number 110-07/97 on 09/07/97); Land Use Planning Ordinance of Las Mercedes (Municipal Gazette Nº 189-12/98 on 16/12/98.); Land Use Planning Ordinance of Hoyo de la Puerta (Municipal Gazette extraordinary number 239-09/2005 on 05/09/2005.).

Results:

Throughout the urban development plans and their respective Land Use Planning ordinances, the urban development of the city is organised. This includes the growing and expansion areas, the estimation of population growth, the protected areas and non-usable areas - either for environmental reasons or risk - and the corresponding provision of its services. Each one of these components generates a number of priority works (town-planning actions) programmed in time, and that entail a strong intervention of infrastructure, services and viability, and where the geotechnical and environmental components are determining factors for land management.

In the development process of big urbanisms, private promoters are usually obliged to contribute to the municipality with some kind of work. The most often requested are: stabilising slopes, improving drainage systems (trigger factor for landslides in case they do not exist or are badly implemented), creating new roads, amongst others. All this, undoubtedly represents a risk prevention measure.

Activities:

Carrying out diagnoses, forecasts, and urban development and growth proposals, based on the collected data (from bibliography or from consultations to the population or field visits). The technical results analyses factors such as permitted use, conditions of occupation, environmental and geotechnical restrictions for the approval of new urbanisms and definition of protected areas. These results are then included in a land use planning ordinance, which is the legal instrument for urban regulation and control sanctioned by majority in the Municipal Chamber.

Financing source: Ordinary Resources.
Own Funds: Municipal.
External Management: External Management: Public consultation to the community and organisations involved.
Type of financing: Public.

Potential:

It aims to foresee future impacts caused by urban interventions in sectors with an irregular slope, a characteristic of the municipality, by giving the most appropriate urban variables.

INSTRUMENT 10 PLANS FOR URBAN DEVELOPMENT [AT MUNICPAL OR SECTORIAL LEVEL]

Continuation...

Limitations:

Insufficient budget available, limited availability of human resources, and normal resistance to change by the communities involved.

Proposals for improvement:

Promotes the approval of strategic guidelines as references legally approved by the municipality, and on the basis of which all the projects and interventions in the municipality should be guided, independently of the changes of municipal government, every four years. This would guarantee the continuity of the projects though some changes would be proposed.

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INSTRUMENT 11 REGULATING DECREES OF PROTECTED AREAS

Objective: To assign development uses and conditions of the sector, under the criteria of a rational use of natural resources, identification of environmentally-sensitive areas, non-occupation of threat areas and the creation of areas for leisure and recreation for the inhabitants, all these under a principle of sustainable development.	**Institution or organisation that implements it:** Ministry of Environment and the City Hall of Baruta, after it obtains the credentials given by this Ministry, through the Urban-Planning and Cadastre Directorate and the Municipal Engineering Directorate; Municipality of Baruta.
Implementation	**When:** Whenever a vacant sector may require updating its development conditions, due to growth and expansion of the city, identification of sensitive areas and/or sectors with environmental value, by damage or gaps between what there is and what it is allowed.
	Where: In the whole municipality and its sectors.
	With Whom: With the Personnel of the Ministry of Environment who will have to submit any proposal for consideration or consultation before the municipality and the community; and revise the proposals presented by the municipality and the community.

Background:
Plan de Ordenamiento y Reglamento de Uso de la Zona Protectora del Área Metropolitana de Caracas (Land use Plan and Regulation for the use of the Protected Metropolitan Area of Caracas); Decree Nº 2299 on 05/06/1992, Nº 1046 on 19 of June, 1972, published in the Official Gazette Nº 29856 on 20 of July, 1972; and Regulations for the Protected Zone Cerro El Volcán (Official Gazette Nº 584 on 24 of April, 1980, Official Gazette extraordinary Nº 2754 on 17/03/1981.).

Results:

There is a regulatory environmental framework valid in the whole city of Caracas that gives priority to environmental conservation, the control of protected areas and the no-occupation of hazard-prone zones. Within this normative, conservation of natural resources are considered at a higher level than urban occupation and expansion. More precisely, this proposes the clasification of the protected areas in units according to the environmental, geological and geotectonical features. Different occupation conditions are enclosed in every unit: low density, minimum intervention, protection of natural reserves and adequate uses concerning sustainable development. All these aspects may contribute to a more efficient relation between the environment, the society and the human being as a whole.

Activities:

For the elaboration of this type of Decrees the respective diagnoses, forecasts, and development proposals are carried out, based on the information collected (from bibliography or from consultations with the population or field visits), once that information is evaluated, integrated, and has reached consensus it becomes a regulation to be sanctioned by the President of the Republic.

Once the Decree is in force, it is an instrument of the municipality for urban property control, that has the authority to channel specific evaluation of any new development, from the cadastral, development conditions, environmental, geotechnical, and geological determinants point of view; thus establishing preventive recommendations. In case these recommendations are infringed the respective sanctions will take place.

Financing source: Ordinary resources
Own funding/funds: National, regional, municipal.
External management: Public consultation with the regions, municipalities, communities and organisations involved.
Type of financing: Public.

INSTRUMENT 11 REGULATING DECREES OF PROTECTED AREAS

Continuation...

Potential:

Aims to preserve environmental potential and value in the city, to control occupation in fragile areas and risk sectors, to protect water resources from any type of intervention, whilst recognising the needs of urban expansion

Limitations:

- The protected area normally is a vast territory very difficult to monitor from the point of view of informal occupation, and it requires coordinated support from local, regional and national security organisations, a condition that is not always possible.
- This regulation needs to be updated and validated with its actual condition of occupation, within a future vision of Caracas. Also, there should be digital cartography available to avoid inaccuracies in limits and boundaries.

Proposals for improvement:

Promote the approval of strategic guidelines as references legally approved by the municipality, and on the basis of which all the projects and interventions in the municipality should be guided, independently of the changes of municipal government, every four years. This would guarantee the continuity of the projects, although with obvious changes. Equally, community awareness of environmental issues and the decentralisation of the capacities of these protected areas are essential.

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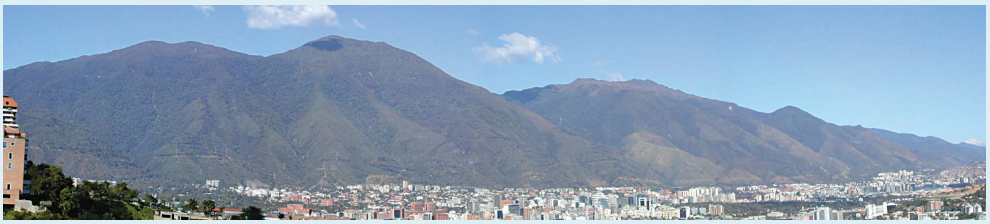
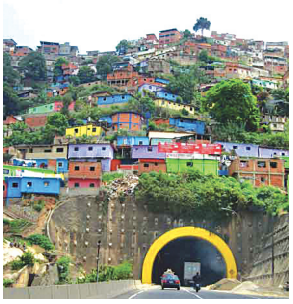


3.3. MANAGING OF UNSAFE CONDITIONS

Managing unsafe conditions implies the efforts destined to correct hazard conditions and existing vulnerabilities.

In this sense, as the population grows and its physical expansion settles on the hillsides of Caracas, the programmes of physical adaptation of "barrios", comprehensive improvement programmes, and the special plans have been including more and more often elements that try to correct created risk situations. It must be said that these are not instruments expressly destined to repair or correct these type of situations (these are only aspects or considerations within the instruments). Nevertheless, this may be the added value of the measures that can remain over time and that traditionally have been adopted by local administration.

This effort, as the instruments for comprehensive adaptation of "barrios" show, is particularly evident in two municipalities of the capital that have special plans and land use planning ordinances for popular sectors in densely populated areas on the hillsides in Baruta and Sucre, as well as the construction of replacement housing for families occupying high-risk areas.



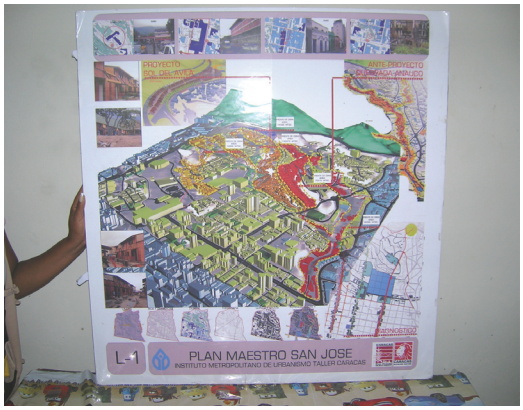
In the case of programmes of physical and comprehensive adaptation of "barrios", these include work for risk mitigation, structures to stabilise the land, channelling for drinking water and sewage corrective measures for leaks, amongst others; all these as a repeated request by the community.

With regard to the instruments presented on regulation of occupation and land ownership, the achievement of ownership security for the community implies a change of attitude towards the necessary implementation of improvements in their homes and neighbourhoods in general. The proposals suggested by adaptation plans and land use planning ordinances in popular sectors mean stabilisation work, channelling waters, security of protected areas, relocation proposals, etc; these are the result of a collective vision. The realisation of these proposals contributes to the minimisation of environmental risks is these sectors.

A special effort is made towards the improvement and conservation of green areas and the cleaning of lands and parcels with or without abandoned

buildings, in Sucre and Chacao. These initiatives contribute to mitigating erosive processes and recovering green areas.

Both corrective actions on built risk scenarios as well as strategies to control new occupations in areas that have already been vacated and reorganised, are crucial to be increased. In addition, special emphasis should be placed in tackling the underlying causes that favour the construction of high-risk zones.



INSTRUMENT 12 ORDINANCE FOR POPULAR SECTORS IN THE MUNICIPALITY OF BARUTA

Objective:
To establish, define, and regulate urban variables, which are fundamental to the development of the properties that are part of the popular sector.

To regulate public and private interventions made in areas still vacant, and in those that still need to be defined, according to the legislation in force, to free occupation, densification, and consolidation of these type of non-controlled developments, to the present risk levels (hillsides), etc.

Institution or organisation that implements it:

Urban-Planning and Cadastre Directorate Planning Division, Environmental Management Division, Special Projects Unit and the City Hall of Baruta.

Implementation

When:
When identifying a popular sector in process of consolidation and that has its own physical adaptation plan, which would allow channelling urban control mechanisms for its integration and inclusion into the city.

Where: In the popular sectors of the municipality.

With Whom: It is developed through the planning section of the Urban-Planning and Cadastre Directorate and the Special Projects Unit; also including the participation of the population in the process of formulation and public consultation.

Background:

Land Use Planning Ordinance of the Sector Santa Cruz del Este (Municipal Gazette on 13th of December, 2005), and the recently passed Land Use Planning Ordinance of the Sector La Minas of Baruta (2007).

Results:
It generates an instrument of regulation and control of the area, through which mixed, commercial and services areas are identified. This ordinance facilitates the control of housing use as well as of protected areas, since these territories have restrictions due to geotechnical and hydrological hazards. Equally, green areas for conservation are established, as well as the urban equipment to be included, and other programmes of town-planning interventions.

It is important to highlight that the majority of our "barrios" are on the hillsides, a condition that gives a structuring character to the recommendations established in the areas of water channelling (drinking water and sewage), evacuation and relocation of structures, and geotechnical control as a preventive measure for future events.

Activities:

Carrying out diagnoses, forecasts, and urban development and growth proposals, based on the collected data (from bibliography or from consultations with the population or field visits). From all these, urban control mechanisms are channelled, establishing programmes of town-planning interventions to carry out work where the community together with the local authorities establish the degree of importance of priority work that needs to be carried out in their areas. Special attention is given to land stabilisation, protection and non-occupation of watercourses, identification of high-risk areas that may require housing relocation, etc.

These considerations are explained in a Land Use Ordinance, a legal instrument of urban regulation and control that must be sanctioned by the majority in the Municipal Chamber.

Financing source: Ordinary resources
Own funding/funds: National, regional, municipal.
External management: Public consultation to the communities and organisations involved.
Type of financing: Public.

INSTRUMENT 12 ORDINANCE FOR POPULAR SECTORS IN THE MUNICIPALITY OF BARUTA

Continuation...

Potential:

Inclusion of sectors that are normally excluded and marginalised from the "formal" city, improving their quality of life, through the implementation of improvements in the provision of services and carrying out stabilisation and risk prevention work. Also identifying and recognising both the rights and duties of the citizens.

Limitations:

- Insufficient economic resources to carry out the proposed actions.
- Resistance to change by some members of the communities involved.

Proposals for improvement:
Promote the approval of strategic guidelines as references legally approved by the municipality, and on the basis of which all the projects and interventions in the municipality should be guided, independently of the changes of municipal government, every four years. This would guarantee the continuity of the projects, although with obvious changes.

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INSTRUMENT 13 PROGRAMME OF PHYSICAL AND INTEGRAL NEIGHBOURHOODS HABILITATION

Objective:	**Institution or organisation that implements it:**
To improve the life conditions of the inhabitants through the rehabilitation of the basic services, structures, and the environment; and through the consideration of natural and socio-natural hazards.	Urban-Planning and Cadastre Directorate, Directorate of Socio-Economic Development, City Hall of the Municipality of Baruta

Implementation	**When:** Since 2001.
	Where: It can be applied in all the areas of the municipality. Until now programmes have been formulated for the following "barrios": La Palomera, San Pedrito, Ojo de Agua, Las Minas, Polifibra and Santa Cruz del Este.
	With Whom: It is carried out through the Dirección de Planificación Urbana y Catastro (Special Projects Unit), and Social Development.

Background:

A line of intervention, within the national housing policy, and through CONAVI, was started to foresee the allocation of resources for the most popular sectors. For this reason, the Municipality of Baruta decided to take these resources and invest in the intervention of its "barrios", as a strategy for social and territorial inclusion of these sectors into the formal city, improving their living conditions and security to face hazards presented by these settlements (on the hillsides, unstable hills, near watercourses, etc).

Results:

- The design of projects and estimation of costs was partially achieved. However, the implementation was cancelled due to insufficient funds. In other cases the initial contribution was not received.
- In the case of the "barrios" that have an habilitation project, efforts to obtain external financing were made. This permitted the implementation - previously evaluation of their geological-geotechnical and urban feasibility - of: the School Bárbaro Rivas and Vertical Gym (Santa Cruz del Este), the new Outpatient Department Jesús Regetti (Las Minas), aqueduct network (La Palomera), project of aqueducts and sewers network (El Placer de María), cadastral survey (Santa Cruz del Este, El Placer de María, La Palomera and Las Minas); Project of Terminal (Las Minas), project for housing enlargement and improvement (Las Minas).
- Each one of the plans include work for risk mitigation, given the conditions of the hillsides in our "barrios", as constant requests are received for land-stabilising structures, water (drinking water and sanitation) channelling, corrective measures for existing leaks, etc.
- After waiting five years and with the respective help of the Management of Municipal Engineering and the municipal Geologist, this year financial aid has been given to some owners in Las Minas to refurbish their houses, with funding from the CONAVI.
- Permanent participation of the community during the development of the proposal of development for their "barrio".

Activities:

- Coordination meetings between the management offices of Planning and Cadastre and Socio-Economic Development.
- Coordination meetings with external organisations involved.
- Meetings with representatives from the community.
- Analysis of the physical and social environment through field visits and contact with the population.
- Urban preliminary plan: carrying out work.
- Prioritise the construction of infrastructure together with the communities.
- Project.
- Construction.

INSTRUMENT 13 PROGRAMME OF PHYSICAL AND INTEGRAL NEIGHBOURHOODS HABILITATION

Continuation...

Financing source: Own funds (ordinary) and governmental funds (extraordinary).

Type of financing: Municipal budget funds, agreements with CONAVI, other external financing.

Approximate budget: Variable, depending on the extension and condition of the neighbourhoods, but an approximate average could reach US$.670,000.

Potential:

- Citizens participate actively in the decision-making process through their community organisations, which strengthens their relationship with the municipal government.
- The programme is aimed at improve the physical conditions of the houses and services, as well as the social conditions that would guarantee an improvement in the quality of life of the population.
- Considering that the majority of the non-controlled settlements are located mainly on the hillsides, the projects include the risk variable in their analysis of the place and the subsequent development of the proposal, making them sustainable.
- The programme can be an excellent example of inter-institutional cooperation and coordination if its advantages are strengthened and the necessary political willingness is achieved.

Limitations:

- The mentioned settlements are located on the hillsides that present natural geological movements, a condition that requires an adaptation proposal, which is not always understood by the residents who have to be evacuated or relocated due to the risk.
- The City Hall of Baruta has little resources of its own, and those coming from external governmental organisations mean endless bureaucratic processes that do not end in the award of these resources.
- The expected results have been negatively affected, in most cases, by the insufficiency and the suspension of governmental contributions.

Proposals for improvement:

- The resources for these types of programmes have to be approved in their totality, and given to the City Hall for their execution, so there is continuity.
- This programme should be accompanied by a community training programme in the area of risk prevention and mitigation, and disaster preparedness.
- It should also be accompanied by a plan of housing substitution.

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INSTRUMENT 14 REGULATION OF LAND OCCUPATION AND OWNERSHIP

Objective: To guarantee the transference of ownership to the occupiers, generating added value, safety of the property and minimising speculation; under a criteria of inclusion into the urban development of the city.	**Institution or organisation that implements it:** Urban-Planning and Cadastre Directorate, Directorate of Socio-Economic Development, Legal Consultancy Directorate, City Hall of the Municipality of Baruta.
Implementation	**When:** Since 2002.
	Where: It can be applied in all the areas of the municipality. To date programmes have been formulated for the following "barrios": La Palomera, San Pedrito, Las Minas, Santa Cruz del Este, El Placer de María and Casco Central of Baruta.
	With Whom: It is carried out through the Direcciones de Planificación y Catastro (Unidad de Proyectos Especiales) with the support of Legal Consultancy and Social Development; also with commissions of the Municipal Council.

Background:

Before these experiences, giving ownership to occupiers of an area, in case these were municipal property, was done as a decision and willingness of the local authority to deliver communal lands, but not from an integral point of view, or accompanied by a programme of comprehensive adaptation of "barrios".

Results:

- The inhabitants of these sectors have democratic access to the land, services and housing.
- Achievement of security in land ownership for the community, which means a change of attitude towards the necessary execution of improvements in their houses and neighbourhood in general. Therefore, the proposals presented in the adaptation plans and land use ordinances in popular sectors, that mean stabilisation work, water channelling, monitoring protected areas, relocation proposals, etc, are the result of a collective vision. The concretion of these ordinances contributed to minimising geotechnical, geological, and environmental risks in the sector.
- Effective socio-spatial integration of the "barrios" of Baruta into their urban context.
- Promotion of the permanence and consolidation of the community in neighbourhood areas with access to urban equipment, allocation of services in appropriate conditions of provision.
- The total number of ownership titles given out from 2002 to 2006 is 613 beneficiaries.

Activities:

- Coordination meetings between the management offices of the Legal, Planning and Cadastre Consultancy, and other offices involved.
- Meeting with representatives from the community.
- Preliminary cadastral survey.

Financing Source: Own funds (ordinary).
Type of financing: Municipal budget funds.
Approximate budget: Variable, depending on the extension and condition of the neighbourhoods, but on average it reaches Bs. 50,000,000 (approximately US$210,000). This includes preliminary cadastral survey and the preparation and handing over of the legal documents (with a team of minimum 30 people).

Potential:

- There is a detailed diagnosis of the areas in the municipality, identifying their restrictions and strengths.
- It constitutes a tool to make decisions about the future development and consolidation of popular sectors.
- Allows the inclusion of these houses and properties in the property market of the city.
- Implants the value of joint responsibility in the issue of urban and risk management, recognising both hazards and vulnerabilities, and contributing to risk prevention and mitigation and therefore minimising disaster occurrence.
- The programme can be an excellent example of inter-institutional cooperation and coordination if its advantages are strengthened and the necessary political willingness is achieved.

INSTRUMENT 14 REGULATION OF LAND OCCUPATION AND OWNERSHIP

Continuation...

Limitations:

- There have been frequent cases of denial by Public Registries attached to the Home Office and Ministry of Justice for the registration of ownership documents, because of the political difference between the local and the national governments.
- A challenge to the Ordinance on municipal Lands has been presented before the Supreme Court of Justice, despite the number of beneficiaries this ordinance generates.
- Disinformation campaigns have been carried out into the communities (Land Committees vs. Civil Associations of Housing and Habitat).
- There are constructions that have been stopped due to the lack of resources that need to be transferred from the National Executive Power [CONAVI, el Fondo Intergubernamental para la Descentralización -FIDES (Fund for Decentralisation) and the Ley de Asignaciones Económicas Especiales-LAEE (Law for Special Economic Allocations)].

Proposals for improvement:

- The resources for these types of actions should be approved with priority, and then given to the municipality to be executed, ensuring continuity.
- The national institutions should open themselves to accept this democracy and social justice mechanism, independently from the ideology of each municipal government.

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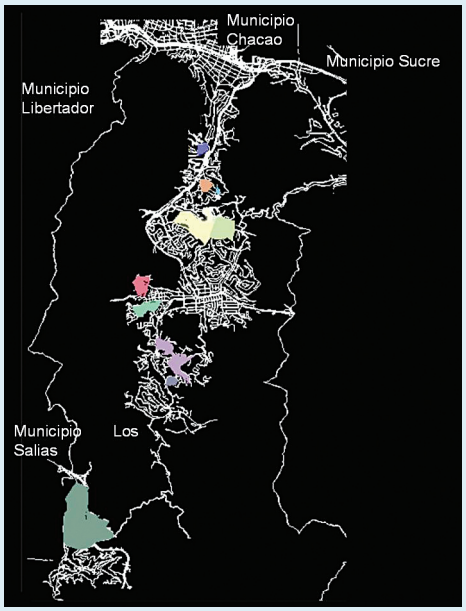

INSTRUMENT 15 ORDINANCE ON CLEANLINESS AND CONSERVATION OF LANDS AND PARCELS WITH OR WITHOUT ABANDONED OR PARTIALLY-COMPLETED STRUCTURES

Objective:

To regulate the obligations of owners or holders, by any title, related to cleanliness and conservation of lands or parcels without constructions, or with abandoned or partially-completed ones, as well as private gardens within the jurisdiction of the Municipality of Chacao, with the aim of giving adequate protection to the rights the inhabitants have to life, health, integrity, and safety.

Institution or organisation that implements it:

IPCA of the Municipality of Chacao, Municipal Engineering Directorate, Cadastre Directorate, Autonomous Institute, Municipal Police of Chacao.

Implementation

When: Since June 2006.

Where: Municipality of Chacao.

With Whom: All the management bodies from the Municipality of Chacao (Security, Urban, Social, Domestic), and other municipal authorities from the Executive and Legislative Powers, and the community.

Background:

Properties without constructions or with abandoned or partially-completed constructions could eventually become a risk for the health, integrity and safety of its inhabitants, as well as affecting the environment when the owners or holders do not carry out the appropriate cleaning and conservation necessary to prevent risks. This constitutes the basis to generate a reform in the existing regulation that would cover the subject more widely and comprehensively.

Results:

Creation of a legal instrument destined to ensure that lands and parcels without constructions, or with abandoned or partially-completed constructions, parks and private gardens adjacent to the roads are clean and well-kept, so they can guarantee an adequate environment with healthy conditions for the inhabitants of the municipality, and also prevent possible damages to their rights to health, safety and property.

Activities:

The conditions of hazard and vulnerability, in case there are constructions, are evaluated. Then based on the results, preventing and mitigating measures are identified, according to the case. If the land belongs to the municipality the measures are implemented directly by the municipality itself. In the contrary, if the land is private, the owner has the obligation of carrying out such measures. In the case that the latter does not carry out these measures, the municipality can do it and then ask for the corresponding payment that should be made by the owner.

General activities that are carried out:

- Supervise, coordinate and monitor the fulfilment of the obligations established in the ordinance.
- Start, process and decide the sanctioning administrative procedures.
- Impose the sanctions determined by the failing to execute such obligations.
- Determine the preventive measures destined to control infringements to this ordinance and execute them in case there is no voluntary application/fulfilment.

Approximate budget (Financing source):

City Hall of the Municipality of Chacao resource transfer to IPCA.

For 2007 it has an approximate budget of Bs. 800,000,000 that is US$335,556.

INSTRUMENT 15 ORDINANCE ON CLEANLINESS AND CONSERVATION OF LANDS AND PARCELS WITH OR WITHOUT ABANDONED OR PARTIALLY-COMPLETED STRUCTURES

Continuation...

Potential:

This is a model that can be applied in any municipality either within Venezuela or outside the country.

Limitations:

The recuperation of the corresponding payment by the concerning legal authority. This is difficult in the case the IPCA carries out, or through third parties, the preventive measures specified in the ordinance, and that the owner or holder had refused to fulfil in order to prevent, stop or avoid irreparable damages to life, health, integrity and safety of the people of property in the municipality and the environment.

Proposals for improvement:

Make improvements to public gardens under this regulation, with regard to their incorporation.

CONTACT PERSON

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INSTRUMENT 16 ORDINANCE FOR MUNICIPAL PUBLIC GREEN AREAS

Objective: To establish the system of conservation, defence and improvement of public green areas that belong to the municipality.	**Institution or organisation that implements it:** City Hall of the Municipality of Sucre.
Implementation	**When:** Published in the Municipal Gazette Extraordinary Number on 19th of August, 1981.
	Where: In the Municipality of Sucre in the State of Miranda.
	With Whom: It is carried out mainly by the Engineering and Local Urban Planning Directorate with specific interventions by the Cadastre Directorate.

Background:
The municipality alone cannot maintain and monitor the maintenance of all public areas that are part of the municipal patrimony, according to what is established in the Town-Planning Law, from both personnel and costs points of view.

Results:
It contributes to prevent erosive processes and landslides in urban zones.

Activities:
The individual or civil association makes a formal application to care for and maintain the green area. This area must be either within the territory of the association or be an area adjacent to the parcel of the individual.

A file containing the following is required:

- A plan of the location and cadastre number.
- Municipal solvency (for individuals)
- Articles of Incorporation (for associations)
- Detailed plan that explains how the maintenance will be carried out, where the funding comes from and how will the City Hall will cooperate.
- Topographical survey carried out by the Direction of the Cadastre.

The permit is given under certain conditions, and one of them is not to carry out any kind of construction.

The interested party hereby agrees to reintegrate the area when the municipality so requires.

Financing source: Own funds.
Type of financing: Ordinary budget.

Potential:

- Enables agreements with community associations or non-profit civil organisations to maintain and safeguard the area.
- Determines the way the area will be intervened.
- Permits for construction are not given.

Limitations:
At the moment they are still undetermined.

Proposals for improvement:

- Maintenance agreements could be established with the private company without the indispensable requirement that the area is adjacent to the parcel where the company carrying out the contract is, provided that this company is within the jurisdiction of the Municipality of Sucre.
- A time limit could be given to the agreement in order to oblige the contributor to renew it, after an inspection by the relevant entity and verification that the area is not being used inappropriately.

CONTACT PERSON
Architect María Alejandra González
Town-Planning Commission, Municipal Council, City Hall of Sucre.

INSTRUMENT 17 SPECIAL PLAN AND LAND USE ORDINANCE FOR THE SECTOR OF PETARE NORTE

Objective:	**Institution or organisation that implements it:**
To regulate public and private actions, and to establish zoning for land use within the scope of the Unidad de Planificación Física 4, with the aim of organising and improving town-planning development according to what it is established in the laws in force.	City Hall of the Municipality of Sucre, FUNDACOMUN (Foundation for the Development of the Community and Municipal Works).

Implementation	**When:** During the period of public consultation.
	Where: UPFs.
	With Whom: Whom: It will be carried out through the Cadastre Directorate and Engineering and Local Urban Planning.

Background:

- The Proyecto Caracas Mejoramiento de Barrios - CAMEBA (Project for Neighbourhood Improvement) that aimed at: improving the quality of life of the inhabitants in a selected number of "barrios" (which represent 15% of the total existent "barrios") in the Area of Metropolitan Caracas through the development and implementation of a sustainable programme for infrastructure improvement, conducted by the community.
- The 1989 Plan to Face Poverty, which for the first time officially acknowledged the existence of "barrios". Moreover, this presented a framework for the provision of services to the ones that are outside the responsibility of state and local governments.
- The World Bank financed in 1993 the "Proyecto de Mejoramiento Urbano en Barrios de Bajos Ingresos-PROMUEBA" (Project for the Improvement of Low Income "Barrios"), which establishes financing for municipalities earmarked for neighbourhood infrastructure linked to municipal technical assistance.
- The Inter-American Development Bank financed in 1993 the Programa de Inversión Social Local-PROINSOL (Programme of Social and Local Investment), which establishes financing secondary Venezuelan cities, under the above terms.
- The Sectoral Plan of 1994, which establishes a complete plan for the improvement of "barrios" in Caracas Metropolitan Area.
- The creation of the Comisión Nacional de Equipamiento de Barrios-CNEB ("Barrios" Equipment Commission) in 1995, whose objective is to coordinate policies and investments in the different "barrios".

Housing Policy of the State:

The Plan Especial de Ordenación Urbanística de la Unidad de Planificación Física Petare Norte -UPF 4, (Special Plan for Town-Planning of the UPF- Petare Norte 4) is within the framework of the Programa 2 Habilitación Física de las Zonas de Barrios (Programme for the Adaptation of Areas from the "barrios") in section 12 of the decree with status and force of law, that Regulates the Subsystem of Housing and Housing Policy.

Special Plans and Planning System:

The Special Plans for Town-Planning are the regulating instrument in town-planning interventions carried out to achieve physical adaptation and consolidation of the UPFs. A proposal of urban zoning is formulated for these plans; this proposal is made from an urban diagnosis that organises, analyses and synthesises the existing information, including the interests of the community through a continuous participation process. Equally, the proposal goes together with the legal elements necessary for the approval of the plan by the corresponding municipal authorities. According to the law the approval by the municipality is done through an ordinance.

Results:

- Risk maps were elaborated to help Municipal organisations make the decisions.
- The cadastre of the area was established and a process of Regularisation and Land Ownership, was carried out as a rewarding measure.
- Mitigation measures, such as cut-off walls and retaining walls on slopes.

INSTRUMENT 17

SPECIAL PLAN AND LAND USE ORDINANCE FOR THE SECTOR OF PETARE NORTE

Continuation...

Activities:
- Making a diagnosis of the current situation of the UPF 4.
- Coordination meetings between the Directorates of the Cadastre, Engineering, Institute of Civil Protection, Fire Brigade, and Municipal General Accountant's Office.
- Resettling programme.
- Making of the ordinance for Petare Norte.
- Revision of the ordinance by the different municipal organisations.
- Presentation before the Concejo Municipal y los Consejos Locales de Planificación Pública - CLPP (Municipal and Local Public Planning Councils).
- Official approval.
- Communicating to the whole population.

Financing source:
External Management: World Bank.

Potential:
The ordinance has an entire chapter on physical and social risk management; not only through making the maps but it also obliges the organisations of the City Hall to intervene in places and ways determined by the plan, in an organised and structured way.

Limitations:
At the moment they are still undetermined.

Proposals for improvement:
The Dirección de Ingeniería y Planeamiento Urbano Local must be strengthened so it can exert an effective control in the application of the ordinance.

CONTACT PERSON

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Operative Management of Petare Norte. Project CAMEBA. FUNDACOMUN.

INSTRUMENT 18 PHYSICAL HABILITATION OF THE UNIT [UDU] 8.7 SAN BLAS, PETARE SUR: CONSTRUCTION OF REPLACEMENT HOUSING FOR FAMILIES

Objective: To reduce the occupation of unstable lands and expand viability of the road hub in the sector San Blas.	**Institution or organisation that implements it:** Housing and Habitat Institute of the Municipality of Sucre, attached to the City Hall of the Municipality of Sucre.
Implementation	**When:** The elaboration of the Project of Adaptation of the UDU 8.7 started in 2002.
	Where: In the sector San Blas, located in the Urban Design Unit 8.7 that is part of the Planning Unit UPF-4 Petare Sur, from the city of Caracas.
	With Whom: This project was carried out under the guidelines of the Programme II of the Ley de Política de Habitaciones (Law on Housing Policy) with resources from CONAVI.

Background:

The programmes that lead to the progressive improvement of environmental, urban and land ownership conditions in different areas of the "barrios" are within the State's policy adaptation, carried out through CONAVI. The general objective of these programmes is "to carry out comprehensive physical adaptation actions" to standardise housing conditions of the residents of "barrios" with the rest of the Venezuelan population.

The UDU 8.7 San Blas is located in the southwest of the occupation Petare Sur in the city of Caracas, and it consists of 11 "barrios" with an approximate population of 32,900 inhabitants.

Results:

The project considers the evacuation of 10 families in risk conditions, the expansion of the existing road hub and the construction of 40 flats, 8 commercial establishments and 10 parking spaces. With this aim terracing of the plot was necessary, building concrete walls, roads, steps, sewage, adduction systems for drinking water, electrical connection, pile driving for buildings, and the construction of the first two buildings for 16 flats.

Activities:

- Coordination meetings between the inhabitants of the sector who are the Gran San Blas Civil Association, and the personnel of the IMVIH Sucre.
- Coordination of IMVIH-Sucre between the creators of the programme, the communities involved and CONAVI.
- Coordination with other offices in the City Hall.
- Social support and strengthening for the inhabitants of the San Blas Sector.
- A continuous and systematic process of assistance, technical and legal training to the inhabitants of the sector.
- Creation of a community association based on active, organised and conscious participation.
- Creation of the Organización Comunitaria Autogestionaria Gran San Blas 8.7 (Gran San Blas 8.7 Self-Managed Community Organisation), with the board elected in community assemblies.

Financing source:
External management: Financing by CONAVI.
Type of financing: Contributions by a trust fund.
Approximate Budget: US$ 700,000.

Potential:

To achieve, through programmes, projects and specific actions, the adequate inclusion of the area into the urban context of the city of Caracas, overcoming the lack of the levels of infrastructure services, equipment services, and the sanitation of the areas that present geological and ecological risks, through the improvement of houses in the area.

INSTRUMENT 18 PHYSICAL HABILITATION OF THE UNIT [UDU] 8.7 SAN BLAS, PETARE SUR: CONSTRUCTION OF REPLACEMENT HOUSING FOR FAMILIES

Continuation...

Limitations:

Some of the limitations are:

- Lack or deficiency of the structures in the area.
- Lack of land for the construction of new houses and services.
- Lack of organisation of the inhabitants of the sector.
- Lack of community awareness, something that needs to be created and strengthened over time.

Proposals for improvement:

Continue with social support and strengthening to create community awareness with the aim of undertaking the policies for neighbourhood improvement with more speed, so the inhabitants can commit to the new actions in the sector and continue with the work agreed with organised communities.

CONTACT PERSON

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INSTRUMENT 19 LAND USE PLANNING ORDINANCE FOR THE SECTOR LOS MARICHES

Objective: To regulate the use of the land; determine the location of the commercial establishments, industries, houses, and special activities. Establish area for parks and protection areas for the sector.	**Institution or organisation that implements it:** The Directorates of Engineering and Local Urban Planning, of the Cadastre, Municipality of Sucre.
Implementation	**When:** Published in the Municipal Gazette Extraordinary number on 16th February, 1982.
	Where: The Jurisdiction of the Municipality of Sucre. The Parishes of La Dolorita, Caucagüita and Fila de Mariches.
	With Whom: Dirección de Ingeniería y Planeamiento Urbano Local.

Results:
The use for certain commercial activities is currently restricted, specifically cooperatives, because it is necessary that the zoning guarantees the activity to be carried out. It is the same for the areas to be built.

Activities:

Evaluation of the original topography and the study of slopes to determine the usable area and give urban variables.

Financing source:

Private, whoever requests the variables assumes the administrative costs.

Potential:

- Defines the Area Verde de Protección - AVP, (Protected Green Area).
- Establishes the usable area where the slopes are less than 60%.
- The ordinance as a land use plan where AVP areas are shown; there areas are located considering the course of existing rivers and ravines in the territory.

Limitations:

The area, subject to the ordinance, presents illegal land use and occupation of lands before the promulgation of the ordinance and that have remained ever since. For this reason it is necessary to evaluate the modifications in specific areas allocated to road works, street lighting, work that cannot be carried out because of the invasions in the area.

Proposals for improvement:

Considering that the Sector Los Marches constitutes the area of expansion in the metropolitan area of Caracas, the environmental aspects should be considered in a more detailed way.

CONTACT PERSON

Architect María Alejandra González
Municipal Cadastre Directorate

3.4. EFFECTS MANAGEMENT

It compiles those instruments that strengthen, both institutional and community, local capacities, in terms of emergency preparedness, recovery (recuperation and rehabilitation), and financial protection considerations.

During the last decades many events have made the local actors aware of the need for emergency preparedness. Impacts that are still in the memories of the city, such as the earthquake in Caracas in 1967, Tropical Storm Brett in 1993, and the Vargas Disaster in 1999, with consequences in both the north and the south basins of the El Ávila Massif, and the recurrent events characteristic of the rainy season each year make imperative the need for work on preparedness for response.

It is important to consider that in the case of Caracas there is a Metropolitan Fire Brigade, attached to Caracas Metropolitan District, that works through its different stations in every municipality. On the other hand, there are various offices of Civil Protection, which depend on the municipality, that have started a coordination process with the Civil Protection Office from the Caracas Metropolitan District. This necessary interaction should encourage common objectives for Caracas in favour of emergency and disaster preparedness that go beyond municipal administration borders.

The instruments for response preparedness are, therefore, products developed by local entities linked to the Fire Brigade, Civil Protection and other entities that join efforts with the municipal authorities to protect the safety of the inhabitants before the possibility of having to face adverse events in the different municipalities.

In this sense, the instruments that represent these efforts are synthesised in early-warning systems, from monitoring stages for each one of the six municipalities of Caracas, to community alert systems. Moreover, training in terms of emergency plans is given, especially to school pupils; and contingence plans to face emergency situations once the effect has taken

place, operating and making recovery easy in the affected settlements. The majority of national resources intervene, as it is shown in the instruments, through an emergency fund that tries to repair the consequences of such emergencies.

In terms of economic protection, the municipality does not have mechanisms that transfer the economic impact of the risk. The initiatives of the insurances are individual for both, private and governmental actors.

INSTRUMENT 20 EARLY-WARNING SYSTEM (monitoring ravines)

Objective: To constant monitoring of the ravines to alert the population in case of possible overflowing, capable of mitigating damages or effects in the lives and property of the inhabitants of the municipality; this with the aim of having strict control, monitoring and early warning during rain, and adverse events that may occur as a result of the overflowing of the ravines in the Municipality of Chacao.	**Institution or organisation that implements it:** IPCA of the Municipality of Chacao.
Implementation	**When:** 24 hours a day, 365 days a year.
	Where: Municipality of Chacao (ravines: Chacaito, Seca, Pajaritos, Sebucán)
	With Whom: All the safety organisations of Chacao and the communities adjacent to the ravines.

Background:
The rains in the municipality in the last three years.

Results:
No damage to lives or property by overflowing of the ravines.

Activities:
- Constant monitoring of the ravines, in real time with wireless digital cameras, with regard to their behaviour, transport of sediments and flow, alerting the adjacent population to possible rises and overflowing.
- Direct control with employees from IPCA on key sites for constant monitoring.
- Making of maps and rain reports for the historical control of activities and affectations in the municipality.

Approximate budget. (Financing source):
City Hall of the Municipality of Chacao, transfer of resources to IPCA

Estimated costs of the three stages: Bs. 2,000,000,000 (approximately US$. 933,000.00).

Potential:
It can also be implemented in other municipalities and it incorporates community training in'] self-protection.

Limitations:
Not having an upstream monitoring system (high basin of the ravines in the National Park El Ávila), lack of knowledge of the conditions and behaviour of the ravines.

Proposals for improvement:
- Having a system for control and monitoring of the National Park El Ávila, to observe the conditions and their behaviour during rains.
- Having telematic systems to control environmental conditions.
- Participation and agreements with private and/or public companies to increase the capacity to control and manage the system with regard to technology and maintenance.

CONTACT PERSON

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INSTRUMENT 21 PROGRAMME: TRAINING IN SCHOOL SAFETY (CEYSE)

Objective: To train school pupils in the municipality in easy techniques of risk identification, prevention and evacuation of buildings, so they can become multiplying individuals in their communities.	**Institution or organisation that implements it:** Instituto de Protección Civil y Administración de Desastres del Municipio Sucre (Institute of Civil Protection and Disaster Management); División de Planificación y Adiestramiento, Municipio Sucre (Planning and Training Division), both from the Municipality of Sucre.
Implementation	**When:** The implementation of the programme started in 1984.
	Where: In the District of Sucre in the State of Miranda (that back then covered the actual municipalities of Chacao, Baruta, El Hatillo and Sucre).
	With Whom: The programme was initially carried out by the OIPC (Investigation and Civil Protection Office) and the Fire Brigade from the District of Sucre in different units in the east of the city.

Background:

The programme was created due to the demand by the different educational institutions asking for training, mainly because of the possibilities of an earthquake in Caracas.

It was part of a new implementation in basic education programmes of the Ministry of Education.

Results:

- Since it started in 1984, the programme has been implemented successfully, in both public and private institutions, having as the main result the training of a significant number of students, teachers, administrative personnel and the education community in general.
- Since the programme has a theoretical and practical character, the student is guaranteed comprehensive training in the area of risk management, thus achieving a culture of preparedness of adverse events.

Activities:

- Previous coordination with the Directorate of education of the City Hal and/or national or state educational areas.
- Coordination with management personnel in the case of private educative institutions.
- Planning with the management personnel of the chosen teaching staff.
- Inspection of the facilities of the teaching staff.
- Adapting the programme according to the results of the previous inspection.
- Development of the activity:
  - For teaching and administrative staff.
  - For the students.
  - Evacuating drills by classroom, floor and in general
- Evaluation of the results.
- Conclusions
- Elaboration of the final report.

Financing source:

Centralised funds from the City Hall.

INSTRUMENT 21

PROGRAMME: TRAINING IN SCHOOL SAFETY (CEYSE)

Continuation...

Potential:

- The programme has been accepted by the other dependencies of the municipality, mainly by the Education Directorate, as well as by private educational institutions.
- It has been replicated by other municipalities at a national level.

Limitations:

- Monitoring the results has been difficult due to the lack of personnel.
- It was not possible to measure the evaluation of the impact in the homes of the students with accuracy.

Proposals for improvement:

Creation of voluntary groups within educational communities of each teaching staff to ensure the results will be monitored.

CONTACT PERSON

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INSTRUMENT 22 SPECIAL PLAN OF RISK CONTINGENCE AND PREVENTION IN THE RAVINE CONOROPA [EL ORO] OF THE UPF 4 PETARE NORTE

Objective: Protect the physical integrity and health of the people affected by a hazard (overflowing of the ravine during rainy season).	**Institution or organisation that implements it:** City Hall of the Municipality of Sucre, and FUNDACOMUN.
Implementation	**When:** During the period of public consultation.
	Where: UPFs 4.
	With Whom: It will be carried out through the Cadastre Directorate and Engineering and Local Urban Planning Directorate.

Background:

In 1959 and 1966 the banks of the ravine Conoropa, near the mouth of the River Guaire were invaded. By 1990, the advanced state of these invasions made it impossible to distinguish the course of the ravine. In 1994 the mouth of the river was modified, building an embankment. A part of the ravine was without any activity and was blocked, bringing as a result the backwater and retention of the bed of the river, mainly in the lower zone of the ravine.

Results: (expected)

- Control of vulnerability.
- Decrease of the rates of material loses and diseases, such a hepatitis-B.

Activities:

- It has a system of early warning, evacuation, and shelter during the time the eventuality may last. Each family, which is under a potential risk, was assigned a "shelter" within the community; this shelter can be the house of a relative or of someone they know. Once the alert is activated, the people who may be affected should move to the place they were assigned as shelter and only return to their home once the event has finished.
- Meetings with municipal, governmental and private organisations.
- Socio-economic survey.
- Vaccination day.
- Temporal Relocation Plan of the affected families.
- Preparation of an informative leaflet of the actions programmed for the construction of the ravine Conoropa.
- A talk to the community to inform them of the work to be carried out and the plan of provisional accommodation.
- Signing the acts of acceptance or rejection of temporary accommodation with those affected.

Financing source: Internal, FUNDACOMUN
Type of Financing: Ordinary budget (it was already allocated for the Special Plan).

Potential:

The community have become more organised in this regard.

Limitations:

Some residents refused to leave the area.

Proposals for improvement:

Designate a shelter point that does not depend on the hospitality of a third party.

CONTACT PERSON
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Municipal Cadastre Directorate
Operative Management of Petare Norte.

INSTRUMENT 23 EMERGENCY FUND

Objective:

The Metropolitan fund is created for disaster management and preparedness, in order to:
- o Guarantee financial resources for the operation of the Metropolitan system for Civil Protection and Disaster Management.
- o Have the necessary resources to face a contingency. Provide food, accommodation, and clothing.
- o Alleviate the socio-humanitarian suffering of the affected population.

Institution or organisation that implements it:

Metropolitan Civil Protection, Caracas Metropolitan District.

Implementation

When:
When there is a violent, sudden and undesired event that alters the social and economic structure of the community, producing great loss (material and human lives) that goes beyond the capacity of response of the first aid or emergency organisations to deal with its consequences effectively.

Where: Within the territorial scope of Caracas Metropolitan District.

With Whom:
Metropolitan Mayor, with the approval of the Metropolitan City Hall.

Background:

The "Vaguada" (heavy rains and mudslides) on the 7th and 8th of February 2005.

Results:

- Supply of medicine, food and logistics to the refugees.
- Re-establishment of services, cleanliness, refurbishment of roads, construction of houses.

Activities:
- Recuperation or adaptation of infrastructure.
- Re-establishment of the functioning of the city

Financing source: Resources from the National Government

Potential:

Formal acknowledgement through the ordinary Official Gazette of the Metropolitan District No. 102 on 6th of March, 2006, Chapter II, Section 14.

Limitations:
- Use of the resources for prevention.
- The resources are not destined to one of the functions for which they were created (prevention).

Proposals for improvement:

- Ensure the application of the Decree or Law.

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