

Aburrá Valley Metropolitan Area:

Strategy for Financial Management of Disaster Risk





PROJECT



Aburrá Valley Metropolitan Area:

Strategy for Financial Management of Disaster Risk

Area Metropolitana del Valle de Aburrá Valley (Aburrá Valley Metropolitan Area): Disaster Risk Financial Management Strategy

A publication by

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Presentation

The Aburrá Valley Metropolitan Area, by way of Laws 99 / 1993 and 1523 / 2012, which assign specific duties to the environmental authorities vis-à-vis disaster risk management, has been creating well-structured strategic processes with a view to strengthening risk management throughout the territory and reducing existing and future risk levels.

One of the fundamental actions to improve the metropolitan area's resilience against disasters is the adoption and subsequent implementation of this strategy; the Entity possesses the proper technical and political-administrative conditions to do so.

In order to achieve a strategy vested with these features, the first resulting from a territorial association of municipalities as a metropolitan area, it has been necessary to create a work plan based on the 2016 -2019 MANAGEMENT PLAN: INTEGRATED TERRITORIES, which sets as a goal the preparation of the Seismic Risk Management Metropolitan Plan, encompassing the development of different programs, projects and activities focused on knowledge and reducing seismic risks, strengthen the response to these events and establishing governance, education and communication actions. One of such projects is this strategy, which concludes the first cycle towards enabling the Aburrá Valley to gain greater knowledge of the phenomenon, be better prepared for it and obtain the financial instruments required later on, that will provide it with the necessary response and recovery tools.

It is truly satisfying for the Aburrá Valley Metropolitan Area to be able to show in this publication the results of the experience obtained thanks to the multiparty cooperation program involving the World Bank, the Swiss Embassy in Colombia – Economic Cooperation and Development, the Ministry of Finance and Public Credit of Colombia and our Entity. Having these tools, considering the conditions of our territory, has made us global pioneers.

Finally, here in the Aburrá Valley Metropolitan Area we will keep working tirelessly to carry out joint projects towards the identification of new cooperation scenarios that will entail strengthening, developing and enabling the progress of our municipalities, ensuring the optimization of the human and material resources available.

Eugenio Prieto Soto

Director Aburrá Valley Metropolitan Area



Preface

Colombia is greatly exposed to disasters caused by natural phenomena given our geomorphological, geological, hydrological and climate conditions. We are also highly vulnerable because of our demographic growth and the socioeconomic factors of our population: 86% is exposed to a high/medium seismic threat, 30% is exposed to floods, 31% to mass movements and although the volcanic risk has yet to be assessed, it is estimated that approximately 1.9 million people live in their influence area, 240 thousand of which in the high-risk area.

The serious disasters that Colombia has been forced to face in recent years have represented a significant burden to the nation's finances. This is why the implementation of optimal measures that will mitigate the fiscal risk and maintain the macroeconomic balance is such a meaningful challenge.

In this context, the Ministry of Finance and Public Credit, with the support of the World Bank and the Swiss Embassy – Economic Cooperation and Development - SECO, was the first to come up with a Financial Strategy against Disasters that was published in 2013, which has served as the guide concerning the use of financial protection mechanisms and the implementation of financial instruments in accordance with the characteristics of the events, their frequency and impact.

The National Planning Department, the Disaster Risk Management Unit, the National Public Procurement Agency - Colombia Compra Eficiente, among others, have joined this initiative and supported the coordination of multiple advancements enabling the reduction of the contingent obligation in the event of disasters, and fiscal risk management.

As recognized in the Foundations of the National Development Plan 2018-2022, *Pacto por Colombia, pacto por la equidad* (A Pact for Colombia, a Pact for Equality), it is a priority of the National Government to assist territorial entities in the structuring and implementation of their financial strategies based on the national strategy and replicating existing experiences in order to help build a proper fiscal discipline at all levels.

It is greatly satisfying for the MHCP that the Aburrá Valley Metropolitan Area, which brings together ten municipalities in the Antioquia department, to be one of the first entities to join this initiative and a pioneer in the design of a metropolitan-based territorial financial strategy, allowing Colombia to maintain its position as the reference point in this subject.

I wish to thank the teams of the Metropolitan Area and the Risk Deputy Director's Office at the Ministry of Finance and Public Credit for their hard work towards making this achievement possible for the country.

Javier Andrés Cuéllar Sánchez

Risk Deputy Director

General Directorate of Public Credit and National Treasury



Introduction

Understanding the territory's risk level and analyzing risk management as a comprehensive process that brings together factors such as threats, vulnerability exposure and capacity, it is possible to understand the relevance and transcendence of fostering decisive structural and non-structural actions. In this sense, the Aburrá Valley Metropolitan Area has started to achieve the reduction of the first three factors and the increase of the fourth via the implementation of different strategies, making evident the need to have a financial management tool for disaster risks that is grounded on the resulting risk levels and the identified contingent obligations or liabilities that may affect the economic stability of the municipalities.

In the Metropolitan Area and the ten municipalities that are part of it, disaster risk management has been increasing and gaining strength in its multiple processes involved, thanks to the creation of programs and projects that have promoted risk reduction, while improving the resilience of the communities and of the other elements exposed to the broad array of threatening phenomena that converge on their territory, which have materialized at one time or another in negative impacts on the municipalities and evidencing the lack of resources for response and recovery.

As for the occurrence of natural phenomena, disasters bring volatility to the budget of both the Metropolitan Area and the municipalities part of it, due to the sudden and unexpected expenses required during and after such events. Because of these sudden expenses, the Metropolitan Area and the municipalities part of it must have timely access to financial resources to provide an effective response and for the recovery process, which includes rehabilitation and reconstruction.

By virtue of the foregoing, the Metropolitan Area designed its Strategy for Financial Management of Disaster Risk ¹ (DRF Strategy) articulated with the national DRF strategy led by the Ministry of Finance and Public Credit (MHCP). The Metropolitan Area defined the following as the policy's objectives: (i) Identification and understanding of the fiscal risk due to disasters; (ii) Disaster risk financial management (DRF) for the public and private sector; and (iii) Catastrophic risk insurance for public assets.

¹ Approved by the Board of the Metropolitan Area (made up of 10 Metropolitan Area mayors, including the mayor of Medellín) in session held February 7, 2019, registered in Minutes No. 01 / 2019, approved during the meeting of the Board held on March 28, 2019, in accordance with its bylaws.



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Acronyms

Área Metropolitana	Aburrá Valley Metropolitan Area
APP	Public-Private Partnership
BM	World Bank
CCE	National Agency for Public Procurement - Colombia Compra Eficiente
CMNUCC/UNFCCC	United Nations Framework Convention on Climate Change
DNP	National Planning Department
DRF	Disaster Risk Financial Management Strategy
FTGRD	Disaster Risk Management Territorial Funds
GdC	Government of Colombia
GFDRR	Global Facility for Disaster Reduction and Recovery
DRF	Disaster Risk Financial Management
MFMP	Medium-Term Fiscal Framework
MHCP	Ministry of Finance and Public Credit
Natech	Natural Hazard Triggering Technological Disasters
NSR-10	Colombian Standard for Earthquake-Resistant Structures NSR-10
PAE	Annual Expected Loss
PML	Probable Maximum Loss
PND	National Development Plan
DRF Program	Strategy to reduce fiscal vulnerability against disasters
SECO	Swiss Embassy - Economic Cooperation and Development
SNGRD	National System for Disaster Risk Management
UNGRD	National Unit for Disaster Risk Management

Background

The Metropolitan Area is an administrative entity under public law with its own legal status, administrative autonomy, independent equity and special fiscal and administrative regime and authority. Made up of a group of municipalities *“integrated around one main municipality, linked among them by territorial, environmental, economic, social, demographic, cultural and technological dynamics and interrelations, which require a coordinated administration for the planning and coordination of their sustainable development, human development, territorial zoning/planning and reasonable provision of public utilities”*².

The Metropolitan Area is a territorial association structure made up of then (10) municipalities part of the Aburrá Valley³. *“Medellín is the main city around which the municipalities of Barbosa, Girardota, Copacabana, Bello, Itagüí, Sabaneta, Envigado, La Estrella and Caldas gravitate”*⁴; they are interlinked by the previously described aspects, which *“allow promoting and leading effective development strategies and solid regional processes based on governance, with the participation of the private sector, the university and organized parties, forging alliances among institutions and organizations promoting equitable territorial zoning/planning”*⁵. Their ultimate directive instance is the Metropolitan Board, whose members are the mayors of the municipalities part of the Metropolitan Area, and presided over by the mayor of the city of Medellín.

The following are among its main duties:

- **Plan and coordinate the harmonious**, integrated and sustainable development of the municipalities part of it, by gathering the elements relating to integrated human development and territorial zoning and planning, economic development and social management.
- **Lead the construction of metropolitan infrastructure for social public areas** and facilities, housing and their surrounding environment.
- **Be the articulator of environmental quality and sustainable development** by addressing issues relating to environmental care and protection, management, oversight and control and risk management.
- **Be the articulator of metropolitan public transportation** as the mobility authority; promote public transportation and other mobility alternatives, logistics planning, road safety and regional connectivity.

² Law 1625 / 2013 (April 29) “Whereby Organic Law 128 / 1994 is revoked and a regime governing metropolitan areas is issued”. Articles 1 and 2.

³ Name of the Medellín river natural basin located in the Antioquia department in the northwest of Colombia

⁴ Op. Cit. Law 1625 / 2013.

- **Be the articulator of security and coexistence** thanks to the territory's technical and technological capacities. ⁵
- **Comply with the responsibilities defined in Law 1523 / 2012:**

Paragraph 1 of Article 30 states that: *“Metropolitan areas and municipality associations should adopt risk management processes within the framework of the execution of development planning, environmental management and territorial zoning/planning in accordance with their competencies”.*

Article 31 states that *“Regional autonomous or sustainable development corporations, which for the purpose of this law will be referred to as regional autonomous corporations, as members of the national system for risk management, in addition to the duties defined in Law 99 / 1993 and Law 388 / 1997 or the laws amending them, will support the territorial entities of its environmental jurisdiction in the preparation of all studies necessary for gaining knowledge of and reducing risks and will incorporate them into the basin zoning plans, environmental management, territorial zoning and development plans.*

Paragraph 1. *The role of regional autonomous corporations is complementary and subsidiary regarding the duties of mayorships and governorships, and will be focused on the risk management tasks corresponding to the territory's environmental sustainability, and therefore do not preclude mayors and governor from their main responsibility regarding the implementation of disaster risk management processes.*

Paragraph 2. *Regional autonomous corporations must foster the articulation of climate change adaptation actions and disaster risk management in their territory, since both processes explicitly help improve the territorial sustainable environmental management.*

Paragraph 3. *Regional autonomous corporations, as members of the risk management territorial councils, in furtherance of the principles of solidarity, coordination, concurrence and positive subsidiarity, must support the territorial entities existing in their corresponding jurisdictions in the implementation of risk management processes considering the scope of their competencies, and will be co-responsible for their implementation”.*

⁵ Ibidem.



Source Metropolitan Area

Disaster risk management has been increasing and the different processes part of it have been strengthened in the metropolitan area, improving the resilience of communities and of the other elements exposed to a broad array of threatening phenomena that converge on their territory.

One of the fundamental actions to improve the metropolitan area’s resilience against disasters is the adoption and subsequent implementation of this DRF strategy; the Entity possesses the proper technical and political-administrative conditions to do so.

As a result, the Metropolitan Area has established the need to have a guiding framework to make progress in these matters, which is why it created the DRF strategy.



Legal Framework

In general, the DRF Strategy structured at a national level, and the support provided therefrom at a territorial level to strengthen the DRF are framed within the provisions of: (i) the laws part of the National System for Disaster Risk Management (SNGRD), especially Law 1523 / 2012 and regulatory decrees, (ii) laws dictating the obligation to insure public assets and (iii) the provisions relating to DRF incorporated in Laws approving the National Development Plan (PND).

The principles of concurrence and subsidiarity in the specific scope of DRF are defined in the SNGRD legal regime, in particular, Law 1523 / 2012 as the main regulation.

Laws dictating the obligation to insure public assets. Parallel to the SNGRD, there is a mandatory legal scope in Colombia (both at the national level and territorial level) that establishes as mandatory to get insurance policies for the effective insurance of public assets, and for their actual value ⁶.

Provisions relating to DRF incorporated in Laws approving the National Development Plan PND. Law 1450 / 2011, whereby the 2011-2014 National Development Plan (PND) (Article 220) was issued, which appointed the MHCP as the party responsible for designing an insurance strategy against natural and/or unintentional human-induced disaster risks focused on reducing the State's fiscal vulnerability. This DRF policy remains in force to date thanks to the express provision of Law 1753 / 2015, whereby the 2014-2018 PND was issued, extending its term (Article 267). In this context, the DRF Strategy at a national level was structured by the MHCP in 2013 (and updated in 2016).

⁶ Law 734 / 2002 (Articles 34 paragraph 21 and 48 paragraph 63) in addition to considering that it is the duty of all public officials to oversee and safeguard the assets and goods entrusted and ensure that they are duly and rationally used in accordance with their purposes, also defines as a serious disciplinary misconduct (punishable up to the removal and disqualification from performing public duties) *"Not insuring the State's assets for their actual value or failing to make the budgetary appropriations needed"*. Other supplementary laws, such as Law 42 / 1993 (Articles 101 and 107), National Decree 663 / 1993 (Article 101, paragraph 4) and Law 1474 / 2011 (Article 118) establish, among others, the imposition of fines and opening fiscal liability processes to public officials and private individuals who manage public funds or assets and default on these responsibilities, which must be compensated by any of the legally authorized insurance companies.



Exposure to disasters caused by natural, socio-natural and human-induced phenomena

The Metropolitan Area is exposed to different highly recurring phenomena. Additional to the seismic risk, which is the main phenomenon addressed in this strategy and which has been thoroughly assessed, there are highly recurring phenomena due to the characteristics of the territory, which bring about negative impacts among the communities, causing the greatest number of wounded and deceased and material damages, such as:

- **Mass movements, floods and flashfloods.** Hydrogeological events take place during the rainy season or in the presence of heavy rains, including mass movements, floods and flashfloods. Rains can vary significantly over the year in the Aburrá Valley, showing constant intense and/or lasting precipitation events, which, added to the high mountains of the territory, make it prone to the occurrence of mass movement, flood and flashflood phenomena.
- **Vegetation cover and interphase fires.** There is a high number of brush and vegetation cover fires when temperatures are high and there is not enough rain.

All of these natural and socio-natural phenomena are aggravated due to climate variability and climate change. The occurrence of most of these events may be affected by Climate Change understood as “a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (CMNUCC). The Entity has established an Action Plan for Climate Change and Variability for the Aburrá Valley Metropolitan Area 2018 - 2030, which sets the measures for Greenhouse Gas mitigation and adaptation to climate change and variability to be implemented in the territory.

The Metropolitan Area also takes into account the technological risks and the risks from Natural Hazard Triggering Technological Disasters. According to the economic activities and the industrial development of the metropolitan region, technological risks and risks from Natural Hazard Triggering Technological Disasters (NATECH) that may affect one or many municipalities of the Aburrá Valley are taken into account. These types of events may affect areas that may be at technological risk and deviate procedures or processes that in turn may trigger the accidental release of hazardous chemical substances. The Entity’s Risk Management Unit is currently working on identifying the zones where NATECH events may be potentially unleashed.

Vulnerability stemming from the territory’s occupation. The accelerated growth of urban centers entails the occupation of zones classified as being under high threat and to classify the buildings as under significant physical vulnerability conditions, for they may be affected by floods, flashfloods or mass movements.



This, in places where the population under difficult socio-economic conditions has settled, thus worsening the situation⁷.

The Metropolitan area has made progress regarding the assessment of the seismic risk of its residential portfolio. Even though earthquakes may affect other types of infrastructure and other events such as hydrometeorological events may cause significant economic impacts, estimations thereon are not included because such information is not available.

The recent seismic risk study allows concluding that 80% of the buildings were built with masonry, most of them unconfined and unreinforced, making them highly vulnerable not only to earthquakes, but also to phenomena such as mass movements, floods and flashfloods, which are the most recurrent phenomena in the territory.

⁷ Op.Cit. Universidad Nacional de Colombia, Medellín campus, Medellín municipality, Aburrá Valley Metropolitan Area, Envigado municipality and Corantioquia (2008).

Seismic risk of the residential portfolio of the Metropolitan Area

The Metropolitan Area is located in an intermediate-high seismic threat area. A study commissioned by the Metropolitan Area and conducted by Universidad de los Andes (2018) concluded that “The Aburrá Valley Metropolitan Area is located in an intermediate-high seismic threat area in accordance with the Colombian Standard for Earthquake-Resistant Structures NSR-10. The buildings located in the municipalities are highly vulnerable due to the significant percentage of buildings that do not meet the Earthquake-Resistant Structures design requirements (NSR-10 for Colombia)”. In the framework of said study, the contingent obligation of the Metropolitan Area and its municipalities⁸ was assessed regarding the housing of the most vulnerable population to the occurrence of earthquakes. Using probabilistic seismic risk models the Annual Expected Loss [Pérdida Anual Esperada (PAE for its acronym in Spanish)], was estimated at US\$ 234.7 million for an exposed value of US\$ 59,657 million of the total residential portfolio of the Metropolitan Area⁹. It is worth pointing out that 61.1% of the PAE is concentrated in Medellín, the municipality where 64.9 % of the population of the entire Metropolitan Area is located. Regarding the residential portfolio for socioeconomic strata 1 and 2, the PAE was estimated at US\$ 68.1 million for an exposed value of US\$ 17,085 million (28.7% of the exposed value of the total residential portfolio). The foregoing is observed in Graph 1, which also shows that “... in all municipalities (except Medellín) the expected annual loss of socioeconomic strata 1, 2 and 3 account for more than 50% of the total PAE of the residential sector”¹⁰.

CHART 1. Maximum Probable Loss for the portfolios taken into account

Portfolio	Replacement Value (USD\$ Million)	PAE (USD\$ Million)	PAE (%0)	PML 500		PML1000	
				(USD\$ Million)	(%)	(USD\$ Million)	(%)
Residential (all socioeconomic strata)	59,657	235	3.9	13,479	22.6	17,262	28.9
Residential socioeconomic strata 1 and 2	17,085	68	4.0	3,993	23.4	5,142	30.1
Residential socioeconomic stratum 1	5,909	24	4.1	1,357	23.0	1,727	29.2
Residential socioeconomic stratum 2	11,177	44	3.9	2,654	23.7	3,439	30.8

Source: Aburrá Valley Seismic Study, (2018)

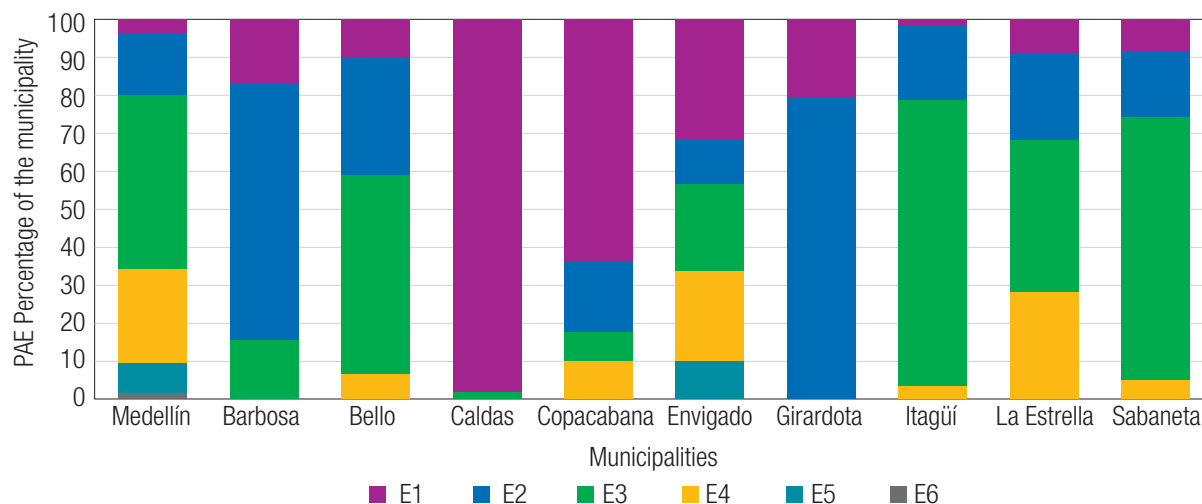
⁸ These results are dynamic and are permanently updated taking into account improved data and the new scientific developments.

⁹ According to the Metropolitan Area and Universidad de los Andes (2018) “The exposed value is the valuation of the structures considering direct and indirect costs to year 2017 (excluding land), to which purpose the unit values were estimated and then multiplied by the constructed area reported at the cadastral office”. Where “indirect costs account for approximately 20-25% of the direct construction costs...for public housing this value is set at 10% ...”.

¹⁰ Ibidem.



GRAPH 1. Expected Annual Loss by socioeconomic strata



Source: Aburrá Valley Seismic Study, (2018)

On the other hand, the study commissioned by the Metropolitan Area and conducted by Universidad de los Andes (2018) estimated deterministic scenarios “In order to assess the distribution of risk in deterministic scenarios, feasible hypothetical earthquakes from crustal or subduction sources with different magnitudes and epicenters are defined¹¹”, the results of which are shown in tables 2 and 3¹².

CHART 2. Expected economic losses for seismic scenarios from crustal sources (USD\$ million) for the entire residential portfolio of the Metropolitan Area

Municipality	Murindó - Belmira Oeste			Murindó -Don Matías-Calderas			San Jerónimo 3		
	Mw 6.4	Mw 6.8	Mw 7.3	Mw 6.2	Mw 6.6	Mw 7.1	Mw 6.1	Mw 6.3	Mw 6.7
Medellín	20,917	27,062	29,299	1,872	3,992	6,445	3,933	5,451	7,882
Barbosa	31	66	94	232	268	278	6	9	16
Bello	3,410	4,703	5,179	628	1,184	1,835	368	579	933
Caldas	126	244	298	17	37	75	514	594	671
Copacabana	420	605	666	169	276	341	41	70	133
Envigado	1,468	2,193	2,685	152	368	697	1,279	1,523	2,001
Girardota	117	186	234	156	253	348	13	20	40
Itagüí	1,155	1,731	2,236	134	324	518	1,144	1,366	1,869
La Estrella	314	545	669	33	75	142	627	780	1,041
Sabaneta	421	606	783	44	121	252	522	641	868
Total	28,381	37,939	42,144	3,439	6,897	10,931	8,448	11,033	15,453

Source: Aburrá Valley Seismic Study, (2018)

11 Op. Cit Metropolitan Area and Universidad de los Andes (2018).

12 Estimated losses for 500 and 1000 year return periods are linked to the economic loss (computed taking into account the integration of the economic losses for all deterministic events and their corresponding frequency occurrence), not to the earthquake that led to said losses. As for the deterministic events it is possible to suffer greater economic losses because they use catastrophic scenarios whose return periods can exceed 1000 years. E.G. a 7,3 earthquake in Murindó could lead to a 2500 year return period.

TABLE 3. Expected economic losses for seismic scenarios from subduction sources (USD\$ million) for the entire residential portfolio of the Metropolitan Area

Municipality	Subduction (North)			Subduction (Center)			Subduction (South)		
	Mw 6.4	Mw 7.2	Mw 7.9	Mw 6.4	Mw 7.2	Mw 7.9	Mw 6.4	Mw 7.2	Mw 7.9
Medellín	4,119	11,331	22,605	4,518	11,755	23,520	4,226	11,263	22,869
Barbosa	57	135	222	52	131	218	43	126	204
Bello	881	2,171	4,383	906	2,208	4,435	806	2,167	4,332
Caldas	90	285	441	118	306	486	125	311	494
Copacabana	158	336	587	161	338	592	142	324	595
Envigado	553	1,663	2,848	668	1,757	3,026	663	1,751	3,018
Girardota	69	174	345	68	172	343	59	172	339
Itagüí	444	1,446	2,373	512	1,326	2,592	506	1,317	2,580
La Estrella	142	535	914	171	533	1,013	172	534	1,016
Sabaneta	195	539	992	234	572	1,069	235	573	1,068
Total	6,707	18,615	35,710	7,408	19,098	37,295	6,977	18,539	35,515

Source: Aburrá Valley Seismic Study, (2018)

Metropolitan Area DRF Strategy Foundations

The national achievements and breakthroughs in DRF have set a context enabling the territorial level to make progress in the design and implementation of sustainable DRF Strategies. In 2013 Colombia established the disaster risk financial management strategy (DRF strategy) (updated to 2016)¹³, which has guided the definition of the activities carried out at a national level to progress in the DRF. The three policy objectives of said strategy are:

- (i) **identification and understanding of the fiscal risks due to disasters;**
- (ii) **Financial management of disaster risks, which includes the implementation of innovative financial instruments; and**
- (iii) **Catastrophic risk insurance of public assets.**



The design and implementation of the National Government's DRF Strategy includes supporting the strengthening of territorial DRFs. The Medium-Term Fiscal Framework (MFMP) 2018 defines the inclusion of DRF at a territorial level as a priority for the nation. With the support of the Disaster Risk Financing and Insurance Program of the World Bank and of the Swiss Embassy in Colombia¹⁴ - Economic Cooperation and Development (SECO) and the Global Facility for Disaster Reduction and Recovery (GFDRR), the Government of Colombia (GdC) has advanced in the strengthening of its strategy to reduce its fiscal vulnerability against the occurrence of disasters (DRF Program), articulated with the national DRF strategy. The DRF Program has made progress under the leadership of the MHCP, with the support and coordination of several public entities, such as the National Agency for Public Procurement - Colombia Compra Eficiente (CCE), the National Unit for Disaster Risk Management (UNGRD), the National Planning Department (DNP), the Financial Superintendence, the Ministry of Agriculture and Rural Development, the Colombian Geological Service, the National Infrastructure Agency (ANI), the Adaptation Fund, the Hydrology, Meteorology and Environmental Studies Institute (IDEAM) and the Ministry of the Environment and Sustainable Development. Said entities set an operational plan to implement the DRF Strategy, which takes into account, among others, that if the territorial entities adopt strategies towards reducing their fiscal vulnerability they will contribute to the national government's fiscal management. In this context, the Metropolitan Area prepared its DRF Strategy articulated with the national strategy¹⁵.

¹³ Ministry of Finance and Public Credit. General Directorate of Public Credit and National Treasury. Office of the Risk Deputy Director, "FINANCIAL STRATEGY TO REDUCE THE STATE'S FISCAL VULNERABILITY IN THE OCCURRENCE OF A NATURAL DISASTER", 2013 Available at: http://www.minhacienda.gov.co/HomeMinhacienda/ShowProperty?nodeId=%2FOCS%2FP_MHCP_WCC-143044%2F%2FidcPrimaryFile&revision=latestreleased

¹⁴ The opinion and contents herein expressed are not the responsibility of the Embassy

¹⁵ According to data from DANE, the percentage participation of the Antioquia Department in the GDP at current prices and using estimates for 2016 equals 14% of Colombia's total GDP.



Policy objectives from the territorial perspective of the Metropolitan Area

Policy Objective 1. Identification and understanding of the fiscal risks due to disasters

Generating information to analyze and support disaster risk financial management decision-making, including sectoral information, constitutes the cornerstone of any DRF Strategy. In order to move forward in the implementation of the DRF Strategy, the following are required, among others:

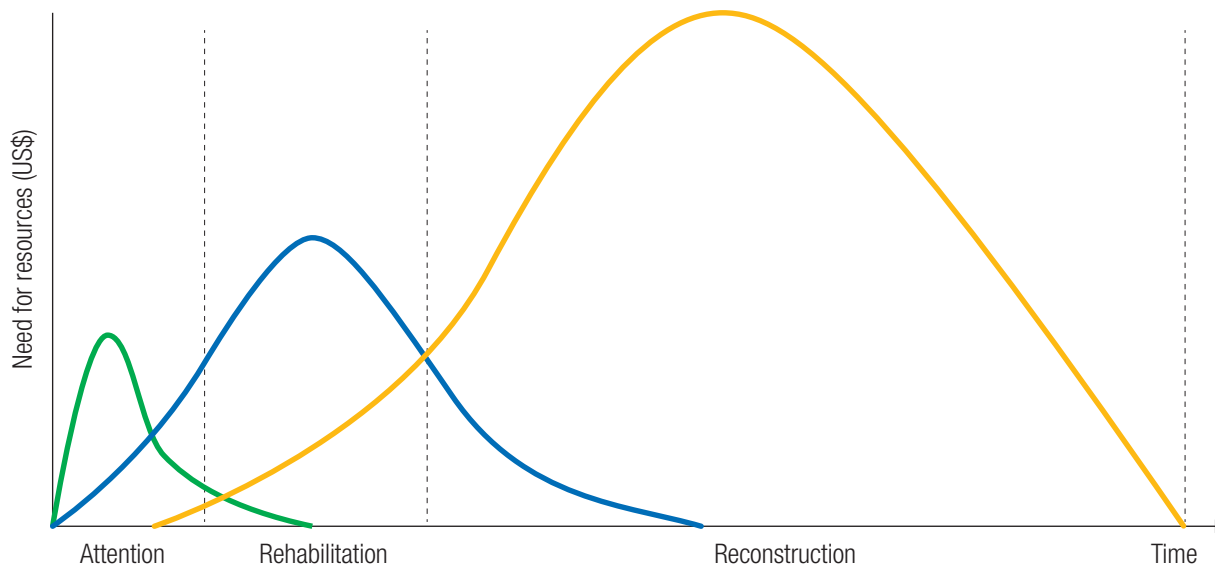
- **Continue preparing risk assessment studies of the main threats.** Defining the threats that could generate the greatest economic impact to the Metropolitan Area will allow spearheading the preparation of studies related to their analysis and assessment. These studies may guide the sectors in the preparation of the assessment of the threats that represent the greatest impacts to the sector.
- **Quantify the fiscal impact of the occurrence of historical events, both geological and hydrometeorological.** Gathering historic information on losses from disasters for each municipality part of the Metropolitan Area, detailed by sector, among others, will help to shape the need for resources to cover the different phases for attending the occurrence of a disaster (emergency, rehabilitation and reconstruction).
- **Have knowledge about the level of exposure and insurance of the inventory of public assets at a sectoral level.** Consolidating the information on the characteristics of the properties and their property insurance policies at a sectoral level will allow negotiating better terms and conditions in accordance with international standards to insure the public asset inventory, since there is less uncertainty about the risk portfolio to be covered.
- **Incorporate into the public investment process** (including infrastructure built via the Public-Private Partnership – PPP by concessions) the disaster risk analysis, as well as climate change adaptation studies¹⁶, both for the Metropolitan Area and for all of its municipalities.

¹⁶ As per the provisions of Law 1625 / 2013 (April 29) "Whereby Organic Law 128 / 1994 is revoked and a regime governing metropolitan areas is issued", metropolitan areas (and among them the Metropolitan Area) are a type of territorial entity authorized to make public investments, since they are empowered to establish, as an entity, a metropolitan area investment plan. The foregoing is also supported by Decree 2157 / 2017 governing Article 42 of Law 1523.

Policy Objective 2. Financial management of disaster risks for both the public and private sector¹⁷

One of the objectives of the Metropolitan Area's DRF Strategy is to guarantee different financing sources for post-disaster activities. The three post-disaster phases are shown in Graph No. 2 and they are relevant because they define beforehand the potential financial instruments, e.g. requirement of immediate resources to attend of the emergency, while the resources for reconstruction are used later on.

GRAPH 2. Temporal dimension of post-disaster financing



Source: Chesquiere & Mahul (2010)

Another purpose of the financial strategy is that it must be cost-effective. This, to define a financing strategy for disasters by layers resulting from natural phenomena, which must include a combination of multiple ex-ante and ex-post financial instruments, as shown in Graph 3. The ex-ante financial instruments allow ensuring the availability of resources if disasters of a significant magnitude occur. These financial instruments may be complemented with resources from ex-post financial instruments that could be used after the occurrence of an event. In the case of the Metropolitan Area, ex-ante instruments include: (i) Risk retention and/or transfer mechanisms or instruments to obtain and allocate resources for the different phases; (ii) contingent loans; (iii) Indemnity and parametric insurance. Ex-post instruments include: (i) Budgetary reallocations and (ii) Post-disaster loans¹⁸. The foregoing, with a view to have access to resources to attend the emergency, rehabilitation and reconstruction phases.

¹⁷ As provided in Article 10 of Law 1625 / 2013 metropolitan events (economic, social, technological, environmental, physical, cultural, territorial, political or administrative phenomena affecting or impacting two or more municipalities part of the Metropolitan Area simultaneously) includes "financial capacity" as one of its criteria which facilitates analyzing the actions or functions which due to their scale, require investments that exceed individual local capacities. In this sense and taking into account the previously described legal framework, the alternatives provided in the framework of this policy objective are feasible from a legal viewpoint.

¹⁸ The foregoing as per their legal attributions, especially those provided in subparagraphs 3 and 6 of Article 25 of Law 1625 / 2013, Articles 2 and 41 subparagraph 1 of Law 152 / 1994, Article 74 of Law 1474 / 2011, Article 31, subparagraph 2, in consonance with Article 66 of Law 99 / 1993 and other similar regulations authorizing it to exercise as the maximum environmental authority within the city limits of its municipalities.

GRAPH 3. Strategy by layer

Residual Risk		
Risk Transfer	<p>Indemnity insurance, e.g. <u>public assets</u>.</p> <p>Risk transfer, e.g. tranches of disaster risk transfer instruments procured at a national level, parametric insurance to cover prioritized infrastructure.</p>	<p>Indemnity insurance, e.g. <u>private assets</u>.</p> <p>Insurance to cover the housing of the most vulnerable populations.</p>
Risk Financing	Contingent loans	Post-disaster loans
Risk Retention	<p>Risk retention and/or transfer mechanism or instrument to obtain and allocate resources for the different phases</p> <p>Budgetary Reallocation</p>	

Issues to be taken into account by the Metropolitan Area when preparing the DRF Strategy. The Metropolitan Area took into account the following aspects, among others, in the preparation of its DRF Strategy: (i) DRF best practices at a national and international level; (ii) the impact of the occurrence of seismic events on the residential portfolio of the Metropolitan Area in terms of contingent liabilities and (iii) the temporal dimension and layer strategy of post-disaster financing. Concerning the latter, this requires the timely availability of resources for the attention and rehabilitation phases.

As has already been mentioned, the Metropolitan Area carries out support, complementary and subsidiary tasks without replacing the responsibility of its municipalities regarding the design and implementation of their own DRF Strategies that must be in consonance with the Strategy proposed by the Metropolitan Area. In general, the Metropolitan Area has foreseen assessing the possibility of including the following financial protection alternatives in its DRF Strategy, among others:

Financial protection instruments¹⁹. The possibility of strengthening the legal and financial capacity is addressed to ensure the following, among others:

- **Procure and allocate resources for the emergency** and rehabilitation phases via the risk retention and/or transfer mechanism or instrument that is compatible with the legal nature of the Metropolitan Area, including, for instance, retention funds, among others.

¹⁹ In this regard, it is important to explain that the provisions of Law 1523 / 2012 (Article 54) and Decree 1289 / 2018 (which regulated the FNGRD) the obligation of constituting Territorial Funds for Disaster Risk Management (FTGRD) is specifically defined for municipal, departmental and district administrations, i.e. Governorships and Mayorships (of districts and Municipalities). The law does not define the constitution of an FTGRD for other types of territorial entities such as Indigenous Territories, Regions or Provinces, or other types of administrative entities under public law, such as Metropolitan Areas. However, it is the decision of the Entity to set or not a fund with similar characteristics to support its associated municipalities.

- **Procurement of disaster risk transfer financial instruments**, including alternatives such as tranches of disaster risk transfer instruments hired at a national level, insurance to cover the housing of the most vulnerable populations, prioritized infrastructure, etc.
- **Obtaining contingent credit lines.**

The foregoing is proposed in a context where, as has been expressly established in the laws relating to the SNGRD, those who are indeed obligated to constitute their own Territorial Funds for Disaster Risk Management (FTGRD) are the ten municipalities part of the Metropolitan Area (Medellín, Barbosa, Girardota, Copacabana, Bello, Itagüí, Sabaneta, Envigado, La Estrella and Caldas), not the Metropolitan Area as an entity per se.

However, it is up to the Metropolitan Area regarding DRF, in accordance with the provisions of the Metropolitan Area regime (Law 1625 / 2013) to apply the “financial capacity” whereby, when faced with economic, social, technological, environmental, physical, cultural, territorial, political or administrative phenomena affecting or impacting two or more Metropolitan Area municipalities simultaneously (as in the event of disasters) it is easier to analyze the actions or functions which due to their scale, require investments that exceed individual local capacities, which includes the procurement of financial protection instruments. Therefore, even though the Metropolitan Area is not legally obliged to constitute its own FTGRD (as is the case with departments and municipalities), it is entitled (as a special administrative entity and the environmental authority of its territory) to carry out actions conducive to financially protect its 10 municipalities by way of multiple mechanisms (including, for instance, retention funds) and specific investments with a view to ensuring coverage from phenomena such as disasters, whenever their magnitude exceeds the capacity of one or several municipalities.

Implementation of an optimal combination of different financial instruments. Following the best national and international practices, the Metropolitan Area will evaluate the feasibility of establishing an optimal combination of financial instruments to attend the occurrence of disasters by way of conducting a cost-benefit analysis and their availability over time.

Insurance promotion schemes for private housing. The Metropolitan Area is interested in studying the feasibility of establishing schemes to promote the insurance of private housing. In this sense it will evaluate the structuring and results of certain schemes previously used both locally and abroad. By fostering the insurance of private housing, this will enable the Metropolitan Area to allocate greater resources to attend the most vulnerable population in case of a disaster.

Policy Objective 3. Catastrophic risk insurance of public assets

The DRF Strategy encompasses strengthening the insurance of both public buildings and concessions built by Public-Private Partnerships (PPP). In Colombia it is mandatory to insure public assets (both at a national and territorial level). The Metropolitan Area seeks, among others, that the enforcement of the legal obligation to get insurance policies entail better coverage at better prices, in line with international standards.

- **Strengthening insurance in concession contracts by way of PPPs.** The Metropolitan Area will evaluate the feasibility of creating technical guidelines for setting the insurance requirements in which the Metropolitan Area and its municipalities will have an insurable interest (based on the best practices of the international insurance and reinsurance markets), as well as the requirements for the participants in insurance contracts, with a view to guaranteeing high quality insurance coverage.
- **Strengthening insurance of public buildings.** The Metropolitan Area will assess the feasibility of creating guidelines to improve the level and quality of insurance of fiscal assets in the event of disasters caused by natural phenomena in the Metropolitan Area and its municipalities. To this end, it could assess the guidelines and objectives for insuring fiscal assets in the event of disasters caused by natural phenomena elaborated by the MHCP ²⁰.

²⁰ Available at: http://www.minhacienda.gov.co/HomeMinhacienda/ShowProperty?nodeId=%2FOCS%2FP_MHCP_WCC-063442%2F%2FidcPrimaryFile&revision=lat_estreleased







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