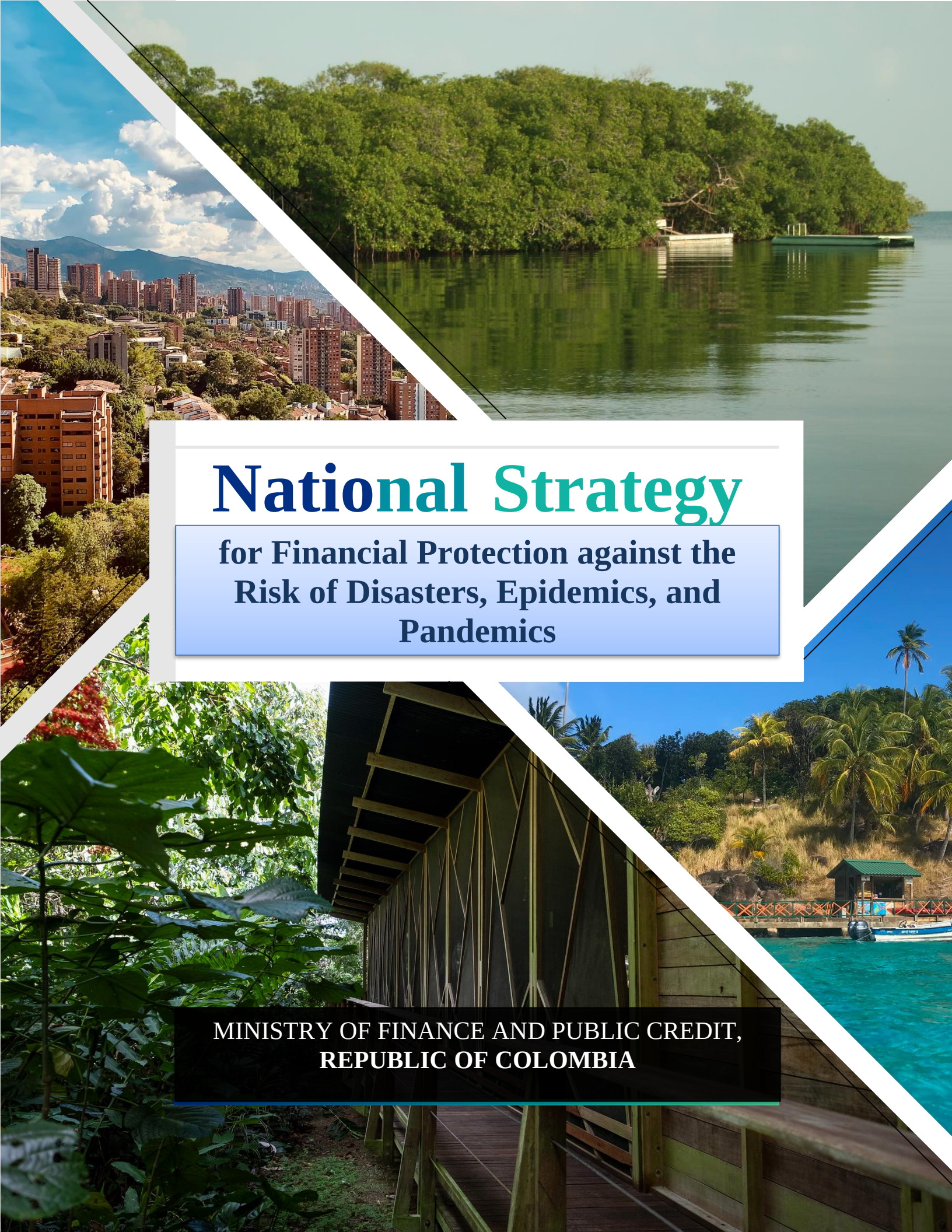


National Strategy

for Financial Protection against the Risk of Disasters, Epidemics, and Pandemics

MINISTRY OF FINANCE AND PUBLIC CREDIT,
REPUBLIC OF COLOMBIA

JOSÉ MANUEL RESTREPO ABONDANO

Minister of Finance and Public Credit

FERNANDO JIMENEZ RODRIGUEZ

General Vice Minister of Finance and Public Credit

JESUS ANTONIO BEJARANO ROJAS

Technical Vice Minister of Finance and Public Credit

CÉSAR AUGUSTO ARIAS HERNÁNDEZ

General Director of Public Credit and National Treasury

ANA LUCÍA VILLA ARCILA

General Director of Fiscal Support

This document was written and produced by:

JAVIER CUÉLLAR SÁNCHEZ

Deputy Risk Director

This document was written by:

YENIFER ALEJANDRA BARRAGÁN ROJAS

Coordinator, Comprehensive Risk Management Group

Participants in the preparation of this document:

Maria Catalina Cano Ramos

University Professional Comprehensive Risk Management Group

Laura Marcela Ruiz Daza

Adviser to the Office of the Technical Deputy Minister

German Romero Otálora

Contractor Office of the Technical Deputy Minister

Nestor Mario Urrea Duque

Deputy Director of Support for Subnational Fiscal Remediation

Andrés Felipe Urrea Bermúdez

Contractor, Office of Deputy Director of Support for Subnational Fiscal Remediation

Mario David Chaves Gamba

Contractor, Office of Deputy Director of Support for Subnational Fiscal Remediation

Comunications MHCP

JULIANA FRANCO ACEVEDO

Communications Advisor

DIANA ALEXANDRA LONDOÑO AGUILERA

Design and layout

Contributions of national government entities

Pedro Ivan Lara Forero

Ministry of Agriculture and Rural Development

Magda Constanza Buitrago Ríos

Ministry of Transportation

Special thanks to

National Planning Department

National Unit for Disaster Risk Management

World Bank - Disaster Risk Financing and Insurance Program

Swiss Embassy - State Secretariat for Economic Affairs (SECO)

October 2021 Edition

eISBN 978-958-53553-2-3

Table of Contents

Abbreviations

ANI	National Infrastructure Agency (from its Spanish abbreviation)
Cat-DDO	Development Loan with Catastrophe Risk Deferred Drawdown Option
CCE	National Public Procurement Agency - Colombia Efficient Purchase (from its Spanish abbreviation)
CEPAL	Economic Commission for Latin America and the Caribbean (from its Spanish abbreviation)
CONPES	National Council for Economic and Social Policy (from its Spanish abbreviation)
CPI	Consumer Price Index
CRED	Center for Research on Disaster Epidemiology (from its Spanish abbreviation)
DNP	National Planning Department (from its Spanish abbreviation)
DRFIP	Disaster Risk Financing and Insurance Program
EGFRDN	Policy strategy for public financial management of natural disaster risk
ENPFRDEP	National Strategy for Financial Protection against the Risk of Disasters, Epidemics, and Pandemics
FAO	Food and Agriculture Organization of the United Nations
FNGRD	National Fund for Disaster Risk Management (from its Spanish abbreviation)
GDP	Gross Domestic Product
IDB	Inter - American Development Bank

IDEAM	Hydrology, Meteorology, and Environmental Studies Institute (from its Spanish abbreviation)
MHCP	Ministry of Finance and Public Credit (from its Spanish abbreviation)
PND	National Development Plan (from its Spanish abbreviation)
PPP	Public-Private Partnership
SECO	State Secretariat for Economic Affairs of Switzerland
SGC	Colombian Geological Survey (from its Spanish abbreviation)
UNGRD	National Unit for Disaster Risk Management (from its Spanish abbreviation)

Executive Summary

The Ministry of Finance and Public Credit describes in this document the progress and challenges regarding disaster risk financial protection in Colombia. It complements and strengthens the policy objectives that will allow for the efficient and timely protection of disaster risk management from a financial perspective, thus guaranteeing the reduction of fiscal vulnerability at the national, subnational, and sectoral levels.

The proposed objectives arise from the analysis of the primary sources of fiscal risk that are annually included in the Medium-Term Fiscal Frameworks, where it is evidenced that disaster is a potential risk to public finances, accounting for 4.36 %[1] of the Gross Domestic Product (GDP). In economic terms, it is the most representative contingent liability vis-à-vis other sources of risk such as legal proceedings against state entities (1.19%), those derived from public-private partnership projects (1.02%), or operations guaranteed by the Nation (0.20 %), according to the data published for the 2021 fiscal period.

This Strategy is characterized by novel aspects such as understanding the link between disaster risk and epidemics, pandemics, and climate change phenomena. The exposure that these risks represent for macroeconomic equilibrium and fiscal stability is highly relevant, given the adverse consequences that they may cause to the economic development of the country. Therefore, they must be considered in the comprehensive disaster risk management public policy analysis, particularly in terms of financial protection.

The guidelines defined in this document will be closely related with the combination of early financial actions that contribute to the prudent fiscal administration promoted by this Ministry, aiming to access economic resources that facilitate the timely response for each of the post-disaster phases: relief, rehabilitation, and reconstruction.

[1]2021 Medium - Term Fiscal Framework Estimate, for three risks-: Earthquake, floods and droughts.

Introduction

For the Government of Colombia, disaster risk financial management has always been a relevant issue of public policy, which must necessarily include the design and implementation of ex-ante and ex-post actions and sustainable goals over time that transcend the different administrations that change regularly every four years. The importance of disaster risk management is based on the economic and social vulnerability to the occurrence of natural phenomena and anthropogenic events[2] that significantly impact public finances and the country's macroeconomic stability.

The development of tools to guide optimal and adequate management, embodied in disaster risk financial protection strategies, tends to reduce fiscal risk exposure, thus contributing to manage the Nation's contingent liabilities. Implementing these strategies allows access to immediate funds intended to handle emergencies while providing the necessary resources to carry out rehabilitation of essential and vital services for the population affected and subsequent reconstruction.

The starting point for developing the financial protection strategy is the identification of the phenomena or events to which the country is exposed, focusing the evaluation and estimation analysis of the fiscal impact generated from the frequency and severity of the events. The geographical location and geological characteristics place Colombia as a highly exposed country to various natural phenomena that occur year after year. In this context, having financial protection enables strengthening and managing the ex-ante and ex-post phases of the occurrence of the events. The Government is committed in launching multiple efforts that guarantee the reduction of fiscal vulnerability through the definition and implementation of plans and strategies.

Related to the above and considering the world situation due to COVID-19, which has considerably affected the nations' finances, it is essential that the epidemiological and pandemic risks are incorporated in the fiscal analysis as a risk factor for the public financial management. It is worth mentioning that the Colombian regulations that govern disaster risk management consider epidemics and pandemics (COVID - 19 case) within the definition of disasters.[3]. Because natural disasters, and of course epidemics and pandemics, have a significant impact on public health. The spread of epidemics affects a large number of people simultaneously, intensely, and indiscriminately for a certain time.

Currently, 90% of the frequency of disasters has climate change as its origin. This phenomenon, which significantly influences the recurrence and intensity of disasters, is considered the most significant risk on the planet nowadays (UNDOC, 2013). This is due to variations in temperature and precipitation regimes that may be significantly more intense or more frequent over time. Therefore, it is necessary to have policies that build resilience to future shocks and develop capacities for economies to cope with

[2] Produced by human activities that have been carried out over time. They are directly related to man's activity and behavior.

[3] Law 1523 of 2012 defines disaster as: "the result that is triggered by the manifestation of one or more unintentional natural or anthropogenic events that when finding favorable conditions of vulnerability in people, goods, infrastructure, livelihood, the provision of services or environmental resources, results in human, material, economic or environmental damage or loss, thus generating an intense, serious and widespread alteration in the normal operating conditions of society, which requires the State and the national system to carry out actions in response to the emergency, rehabilitation and reconstruction."

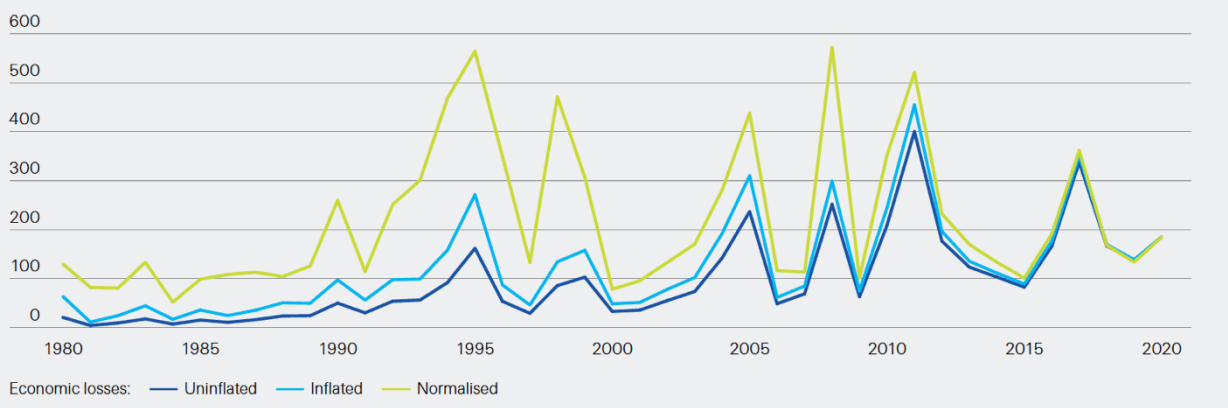
them and recover after such shocks. In this sense, progress has been made in reducing the vulnerability of the population based on actions to adapt to climate change, and at the same time, proposing emission reduction goals that, together with global efforts, may reduce the adverse effects of climate change.

Relevance of Financial Protection

A research effort by the World Bank (2010) determined that disasters world losses have increased significantly in the last 50 years and expectations only worsen if the increasing urbanization and climate change due to environmental damage, is considered. Having this perspective as a starting point and considering that as countries have greater economic growth, the economic exposure associated with disasters of natural origin tends to increase since there are more assets, more infrastructure projects, and more public investments that require protection.

In line with the above, Swiss Re (2021) estimated that the annual growth rate of losses due to natural disasters (normalized) on a 10 - year moving average basis between 1970 and 2020 was 1.3 % (Figure No. 1)

FIGURE No. 1. UNINFLATED, INFLATED (2020 PRICES), AND NORMALIZED ECONOMIC LOSSES FROM CATASTROPHES, USD BILLION



Note: normalized by GDP (real GDP of the country + US inflation); the quality of information on losses before 1999 is poor.

Source: Swiss Re (2021).

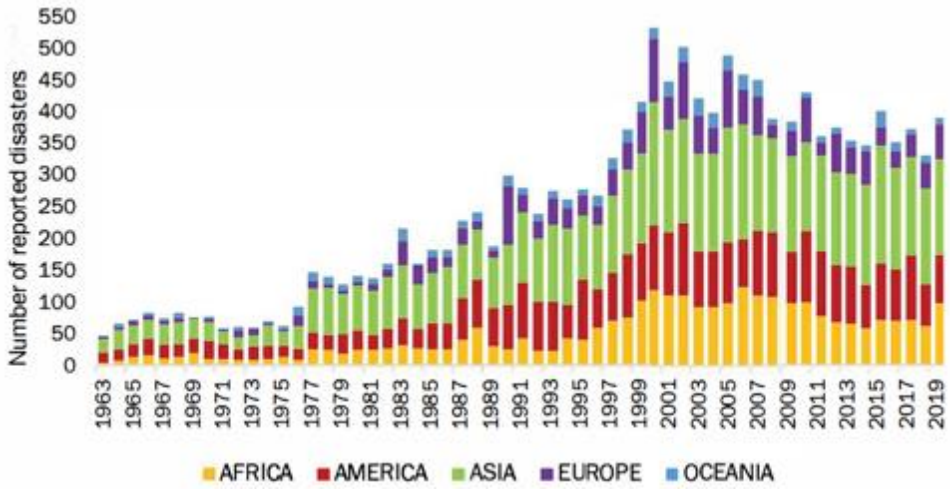
The annual growth rate of losses due to natural disasters, normalized, on a 10 - year moving average basis between 1970 and 2020, was 1.3%. The normalization settings show that a past event if it were to occur today with higher levels of asset values, could cause more damage. This is due to the accumulation of human and economic capital (physical assets) in the years considered.

This is also reflected in the April 2020 publication of the World Bank, which stated that since 1980 the materialization of catastrophic events had represented losses of around USD 3 billion. In addition, the publication states that natural disasters also influence the level of poverty in economies and that by 2030 climate change will cause an increase of 100 million people in extreme poverty. Similarly, by

2050 an increase in the urban population is estimated worldwide, which will cause river and coastal flooding that could affect 1.3 billion people and losses of around USD 158 billion in assets.

Figures from the Center for Research on the Epidemiology of Disasters (CRED) likewise show that the occurrence of disasters has increased significantly in all continents in the study period between 1960 and 2019, confirming that through time, the world is increasingly vulnerable to the occurrence of natural phenomena and unintentional anthropic events, and that, it is the responsibility of governments to protect both public finances and the well - being of the people (Figure No. 2).

FIGURE No. 2. OCCURRENCE OF DISASTERS AND EPIDEMICS 1960-2019



Source: Developed by MHCP using data from the Center for Research on Disaster Epidemiology (CRED)

The previous figure shows this growth, and that Asia is currently the continent with the highest number of events per year. This continent exhibited a more significant trend in the number of events in the '70s, where it went from reporting an average of 39 events a year to 79 annual events in the '80s, which means an increase of 103%. However, the African continent has shown the higher growth of events in recent decades, as it went from reporting an average of 50 events per year in the 1990s to reporting an average of 107 events per year between the year 2000 and 2010, which represents an increase of 113%.

Developing countries are the most affected, in terms of natural disaster losses compared to the GDP. First of all, because they do not allocate sufficient resources to improve and strengthen public and private infrastructure to mitigate adequately the risks associated with disasters (either due to shortages or due to lack of prevention). Secondly, the size of the losses in relation to the GDP is much greater in less developed economies than in developed countries (see TABLE No. 1 and No. 2) (Ghesquiere, Francis & Mahul, Olivier. September 2010 and CRED and UNSIDR).

TABLE No. 1. MAJOR DISASTERS BETWEEN 1970 AND 2010 AND THEIR EFFECTS ON ECONOMIC LOSSES

Year	Disaster	Country	Region	Estimated direct losses (million US $)	Losses (% of GDP)
Big economies					
2005	Hurricane Katrina	United States	North America	125,000	1.1 %
1995	Earthquake	Japan	East Asia	100,000	3.2 %
1998	Flood	China	East Asia	30,000	0.7 %
1992	Hurricane Andrew	United States	North America	26,500	0.4 %
Small economies (islands)					
1988	Hurricane Gilbert	St. Lucia	Caribbean	1,000	365 %
1991	Cyclone Val	Samoa	Oceania	278	248 %
2004	Hurricane Ivan	Grenade	Caribbean	889	203 %
1990	Cyclone Ofa	Samoa	Oceania	200	178 %
1985	Cyclone Eric	Vanuatu	Oceania	173	143 %
2010	Earthquake	Haiti	Caribbean	8,000	114 %
2009	Tsunami	Samoa	Oceania	120	22 %

Source: Ghesquiere. F & Mahul. Or with data from the CRED.

Table No. 2. TOP 10 CLIMATE-RELATED DISASTERS - LOSSES AS A PERCENTAGE OF GDP, 1998 - 2017

Name and Date	Countries/ territories affected	Economic losses (billion US)	Economic losses (%GPD)
Hurracane Irma – Sep.2017	Sint Maarten	2.50	797
Hurracane Irma – Sep.2017	Saint Martin	4.10	584
Hurracane Irma – Sep.2017	British Virgin Islands	3.00	309
Hurracane Maria – Sep.2017	Dominica	1.46	259
Hurracane Ivan – Sep.2004	Grenada	1.15	148
Hurracane Ivan – Sep.2004	Cayman Islands	4.43	129
Hurracane Georges – Sep.1998	Saint Kitts and Nevis	0.60	110
Hurracane Erika – Aug. 2015	Dominica	0.50	90
Hurracane Mitch – Oct. & Nov. 1998	Honduras	5.68	73
Hurracane Maria – Sep.2017	Puerto Rico	68.00	69

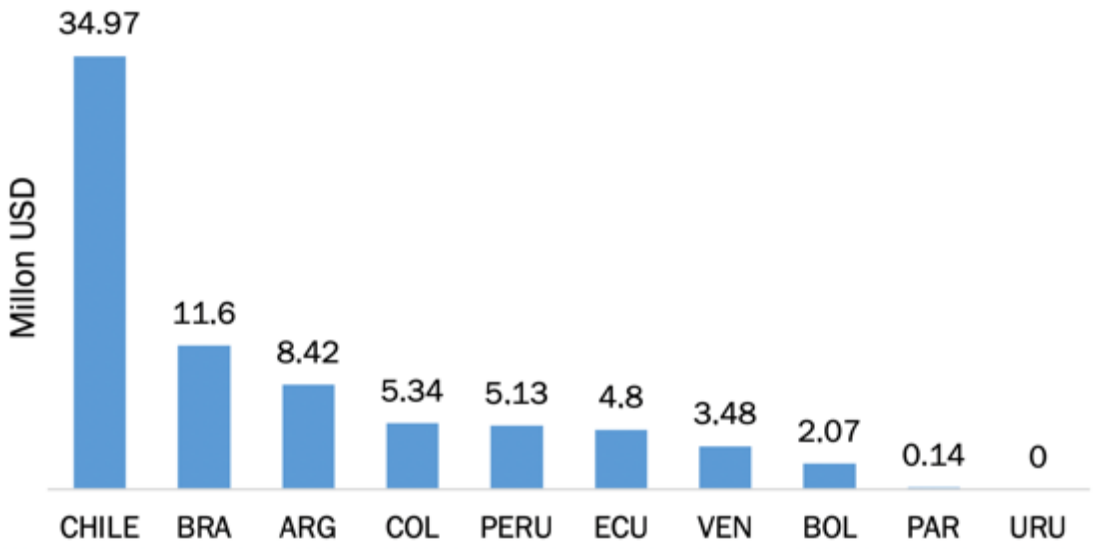
Source: CRED and UNISDR

The previous tables show that economic losses as a percentage of GDP are more significant in developing countries, the only exception is the impact of Hurricane María in 2017 in Puerto Rico.

Immediate resources are needed by governments to face losses derived from disasters, which directly affect their fiscal planning and, therefore, the fulfillment of their development plans. For this reason, in recent years, there has been an increase in the countries' interest to implement financial instruments that allow facing economic losses, providing comprehensiveness in disaster risk management through the strengthening of its components.[4] These tools and mechanisms improve the ability to respond to the effects generated by natural phenomena while protecting the long-term fiscal balance of governments (Ghesquiere, Francis & Mahul, Olivier. September 2010).

Colombia is located within the countries with the highest recurrence rates of disasters generated by natural phenomena in Latin America. Colombia is the fourth country with the highest economic losses among the countries of the American South Cone (FIGURE No. 3). As the country's population and economy continue to grow, so will future economic losses generate by these events, which in Colombia are reported 600 times each year on average[5].

FIGURE No. 3. TOTAL LOSSES (DOLLARS) FROM LARGEST DISASTERS IN SOUTH AMERICA BETWEEN 1960 AND 2016



Source: Prepared by MHCP, with data from the CRED.

The previous figure shows that in South America, Colombia ranks fourth in terms of total losses, with Chile being the country in this region with the highest losses. Therefore, financial protection component is a priority for the country. Evaluation and analysis are actively conducted for those coverage mechanisms that make it possible to insure and transfer the risks derived from disasters.

[4] Risk identification; risk reduction; financial protection; post-disaster preparedness and reconstruction (World Bank, 2012)
[5] IEG - World Bank (Independent Evaluation Group - World Bank). 2006. Nature Risks, Risks for Development: A World Bank Assistance Assessment for Natural Event Disasters (Washington, DC).

In this area, Colombia became a pioneer in Latin America in the development of this comprehensive vision regarding Disaster Risk Management (World Bank, 2012), and it stands out for being the first country to formulate and publish a "Policy strategy for public financial management of natural disaster risk" (EGFRDN) worldwide. This strategy was designed in 2013 (updated in 2016). It is the responsibility of the national government to update it following the baselines that support the National Development Plan (PND) 2018 - 2022 as a tool that strengthens the ability to respond to the occurrence of disasters.

One of the main results of the Financial Protection measures in Colombia is the introduction of the Disaster Risk Financing and Insurance Program[6] (DRFIP) led by the MHCP, and technically supported by the World Bank, and financed by the Swiss Embassy - Secretary of State for Economic Affairs (SECO).

This Program has an inter-institutional technical working group through which different entities of the national government support the implementation of the ENPFRDEP goals. The following agencies stand out among them: the National Planning Department (DNP), the National Disaster Risk Management Unit (UNGRD), the Ministries of Agriculture and Rural Development, Transport and Environment and Sustainable Development, the Financial Superintendency of Colombia, the National Public Procurement Agency - Efficient Purchase in Colombia (CCE), the Colombian Geological Service (SGC), the Hydrology, Meteorology and Environmental Studies Institute (IDEAM).

This strategy, as explained below, includes two new articulation objectives related to the subnational level and the public sectors directly affected by natural disasters and unintentional anthropogenic events. The need to involve subnational entities arises from considering both the decentralized nature of the country and the fact that risk materializes at the local level.

Regarding decentralization, the subnational entities are responsible for managing municipal or departmental affairs and planning their integral development.[7] In addition, these institutions are in charge of reducing the risks associated with disasters to the extent that corresponds to them. It should be noted that the State Council, in several judgments related to the responsibility of the State in disaster situations, has emphasized that mayors are directly responsible "for the implementation of risk management processes in the district or municipality, including knowledge, risk reduction, and disaster management in the area of their jurisdiction." Governors must also "Integrate strategic and priority actions in risk management within departmental development planning (...)" (Charry, D. 2017).

Additionally, as example, within the National Disaster Risk Management System, the risk management departmental, district, and municipal councils must guarantee the effective articulation of risk management processes and projects, hence the importance of including them in the ENPFRDEP.

On the other hand, since risk materializes at the local level, the MHCP will support the subnational entities to strengthen their financial protection capacity, in coordination with the national strategy but recognizing its particularities.

---

[6] The following are the objectives of the program : (i) To decrease the financial vulnerability of the State (at the national and subnational level) as a result of the occurrence of disasters generated by natural phenomena, thus increasing the ability to deliver an efficient financial response, while protecting the long - term fiscal balance; (ii) To increase sovereign disaster risk financing capacity in middle - income countries. The Program started in Colombia in September 2011.

[7] Article 311 of the Political Constitution of Colombia.

Various national catastrophic events have shown the importance of financial protection against disasters risk. For example, the tragedy of Mocoa in 2017 evidenced the great response capacity that both the country and the Putumayo Department have to face emergencies generated by disasters of natural origin.

However, the importance of having a comprehensive policy strategy for preventive financial risk management at the subnational level was also evident. The need for resources that would have allowed timely attention to the risks of erosion and overflow of the three rivers that converge in the municipality may have been previously identified if a Financial Protection Strategy in the Department of Putumayo for 2017 was in place and the Basic Plan of Subnational Planning[8] updated in Mocoa (UNGRD, 2018).

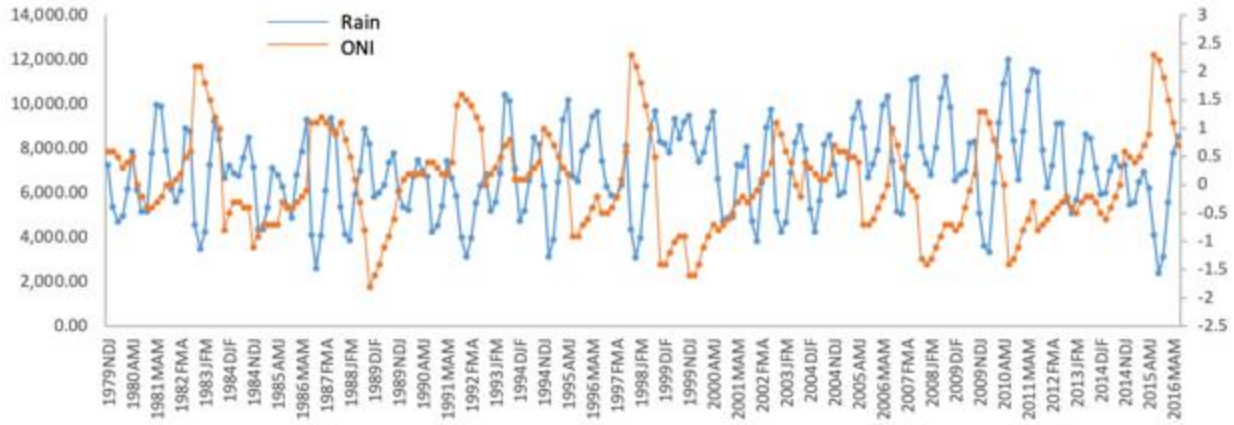
The active and cross-cutting presence of the public sectors such as housing (directly related to energy), agriculture and infrastructure, are a priority in the ENPFRDEP. They represent the most affected productive areas of goods and services in the majority of the disasters. For example, La Niña phenomenon, which is characterized by a considerable increase in rainfall and a decrease in temperatures in the Andean, Caribbean, and Pacific regions (SIAC, 2019), strongly affects the agricultural sector (as mentioned below) since the land becomes unproductive, and in the infrastructure and housing sectors roads and homes, among others, get flooded.

On the other hand, El Niño phenomenon, which corresponds to a period of intense droughts due to the warming of the Pacific Ocean, affects the hydro-energy sectors due to the shortage of water reserves. In the 2015 - 2016 drought, the country's reservoirs reached 60% of their capacity on average, and the cost of energy per kilowatt increased at historical prices (Ministry of Mines and Energy, 2018). The preceding added to the difficulties in farming and fishing that generated inflationary pressures in food and energy goods. During 2015, food and housing (the division where energy is located) alone contributed 47.7% to the increase in the CPI (consumer price index) compared to the previous year (3.11 percentage points). Inflation in 2015 was the highest since 2008. La Niña and El Niño phenomenon affect Colombia on average every two to seven years with different intensities (CIIFEN, 2017).

The above is reflected in Figure No. 4, which shows the relationship between the Oceanic Niño Index (ONI) and the rainfall volume.

Figure No. 4. OCEAN EL NIÑO INDEX VS RAINFALL VOLUME (USD)

[8] Corpoamazonia, 2019.



Source: MunichRe, with data from NOAA

On the other hand, the world's situation due to COVID-19 during 2020 and 2021 with its severe economic impact and loss of human life could not be ignored, at the time of writing this document. In this sense, it is essential that the risk associated with pandemic and epidemic which, according to the World Health Organization, is defined as those diseases that appear suddenly affecting a large part of the population, crossing regional and national borders, be explicitly included in this Strategy[9].

As of May 2021, there were 78,771 deaths, 3,031,725 contagion cases, 2,848,153 recovered and 97,746 active cases due to COVID 19. Regarding other impacts, the Colombian economy had a contraction of 6.8% in 2020. Additionally, the unemployment rate increased from 10.5 percent in 2019 to 16.1 percent in 2020.

The National Government, through the Ministry of Health and Social Protection's Resolution 385[10] of 2020, declared health emergency throughout the national territory until May 30, 2020, due to the situation caused by the new virus pandemic (Coronavirus Sars Cov-2 - COVID- 19[11]) and adopted a series of measures in order to prevent and control the spread of the virus as mentioned earlier. This health emergency was extended throughout the national territory employing Resolutions 844, 1462, 2230 of 2020, and 222[12] from 2021 to February 28, 2021.

In addition to addressing the health situation derived from the pandemic, decisions were based on the need of the State to have additional resources to face the greater social and economic requirements caused by the situation, including resources that are the sole responsibility of the Nation and subnational entities, by adopting extraordinary measures such as:

---

[9] According to PAHO and the WHO Regional Office for the Americas, an epidemic corresponds to "an unusual increase in the number of cases of a given disease in a specific population, in a given period ... In general, an epidemic can be considered as the simultaneous consolidation of multiple outbreaks in a wide geographical area and, generally, it implies the occurrence of a large number of new cases in a short period of time. A number that is greater than the expected number ". For its part, a pandemic corresponds to an "epidemic that has spread to several countries, continents or the whole world and that generally affects a large number of people" (pg. 7).

[10] (March 12) "Whereby the health emergency is hereby declared due to the COVID-19 coronavirus and measures are adopted to deal with the virus."

[11] On March 11, 2020, the World Health Organization - WHO declared the outbreak of Coronavirus disease Sars Cov-2 - COVID-19 as a pandemic.

[12] (February 25) "By means of which the health emergency due to the new coronavirus COVID-19 is extended, as declared by Resolution 385 of 2020 and extended in turn by Resolutions 844, 1462 and 2230 of 2020".

- Capital optimization of those financial entities that have state equity participation.
- Allow the Nation to issue securities or support their issuance for liquidity operations with the Central Bank (Banco de la República)
- Strengthen the National Guarantee Fund (Fondo Nacional de Garantías) - FNG through the use of capital resources of the executive branch entities at the national level to guarantee continuity of access to credit for natural or legal persons.
- Analyze all the tax measures necessary to face the crisis and in particular granting tax benefits, in order to promote the country's industry and commerce that generate sources of employment that will allow absorbing the affected workforce and,
- In general, adopt extraordinary measures aimed at meeting obligations of a different nature, such as tax-related and financial obligations, among others, in order to protect the health sector, promote industry and commerce in the country and allow the absorption of economic losses as well as the labor force that has been affected by the pandemic.

Therefore, for the purposes of this policy document, epidemic and pandemic risk will be considered a new concept of implicit contingent events whose occurrence, origin, and magnitude are uncertain. In this way, it will be necessary to evaluate and implement financial instruments that guarantee immediate liquidity to attend to emergencies derived from these risks categorized within unintentional anthropogenic events, which must be accompanied by strengthening mechanisms and information systems that allow the transfer of resources in a transparent and timely manner to the most vulnerable population.

Relationship between Disaster Risk Management and Climate Change

Disasters and climate change are closely related, and climate change poses a risk. The country must adapt to climate variability risks– periods of rains and droughts intensified by "El Niño" and "La Niña" phenomena - as well as those generated by the variation in precipitation, the increase in global temperature, and change in local temperature as a consequence of climate change.

Climate change is caused by the alteration of the average behavior of temperature and rainfall associated with the increase in global emissions of greenhouse gases. In 2018, Intergovernmental Panel on Climate Change (IPCC) studies indicated that changes in climatic conditions could increase landslides, floods, and/or drought; as well as rising sea levels that can lead to coastal erosion, which in turn will have an impact on the infrastructure and the population.

That is why greenhouse gas emissions must be reduced to achieve a reduction in climate risks on a global scale while making changes in vulnerable countries to adapt to new present and future climate conditions. In this sense, the Determined National Contributions (Contribuciones Nacionales Determinadas) set the goals to comply with the Paris Agreement (adopted in 2015, in force in 2016). Colombia committed to reduce greenhouse gas emissions by 20% concerning the emissions projected for the year 2030.

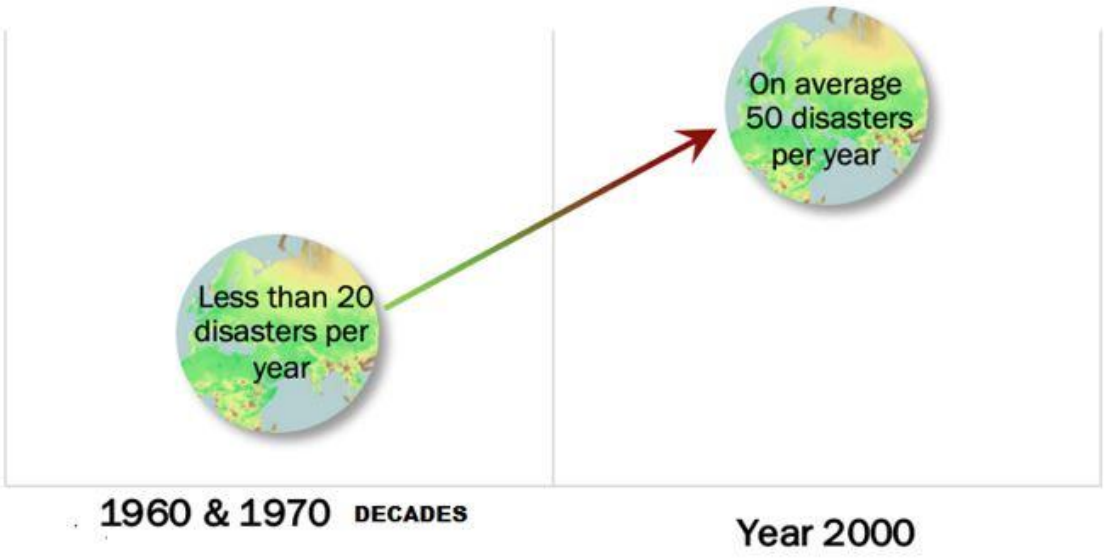
Similarly, climate risk is understood as the probability of occurrence of an event with negative consequences for life or infrastructure caused by a climate event of natural origin (a risk). This risk may

have a greater impact given the conditions of the vulnerability of populations and ecosystems. (IPCC, 2014).

This represents a global phenomenon and, therefore, actions and commitments from all countries are required to stop its progression. Within the United Nations Framework Convention on Climate Change (UNFCCC), agreements have been put in place to mitigate the growth of greenhouse gas emissions. Currently, the Paris Agreement (2015) is in force. This agreement recognizes the mitigation commitments of the different parties to avoid the increase in global temperature above 2°C. Likewise, the needs in adaptation measures are established to moderate or avoid the damages that may occur due to the materialization of the risk and the need to expand the means of implementation to meet the objectives (IPCC 2014, 2018).

Risk events associated with climate change will not only materialize in the long term but are currently occurring more frequently. The following illustration shows the actual increase of catastrophic events by comparing two periods in history. Thus, in the '60s and '70s, less than 20 disasters were observed per year, and in the 2000s, there were at least 50 events per year.

Figure No. 1. AN INCREASE IN CATASTROPHIC EVENTS



Source: Prepared by MHCP, with data from the IDB (2018)

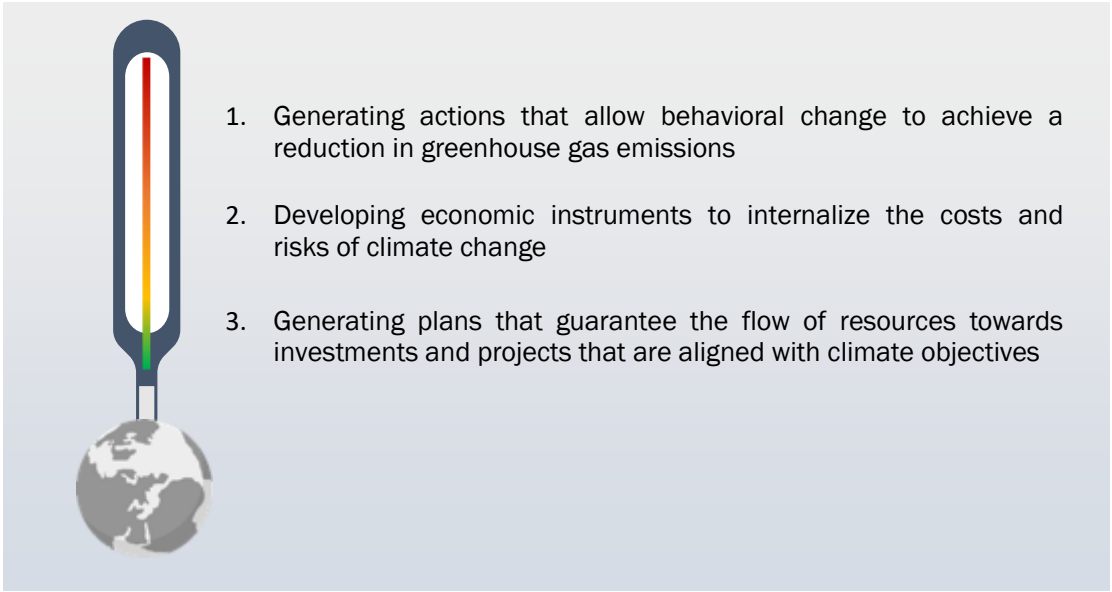
In Colombia, the effects that climate change could bring on the economy if adaptation mechanisms are not implemented would correspond to a loss of 0.5 % of annual GDP due to the loss in productivity (DNP-IDB-CEPAL, 2014). Likewise, temperature changes could affect power generation systems if investments are not made to guarantee the resilience of the energy matrix (Arango et al., 2019).

During the last 40 years, Colombia has accumulated economic losses due to natural disasters, equivalent to more than 7 billion dollars (World Bank, 2012). Although disasters have been increasing in frequency and severity due to climate change, taking policy actions aimed at the protection and

conservation of natural capital, and mitigation and adaptation to climate change would avoid a negative impact on the Gross Domestic Product. In fact, achieving a 1% reduction in the disaster rate would avoid a 0.02 % GDP drop in the short term and 0.11% in the long term. (Jaramillo et al., 2015).

Climate finance, as a means of implementation for climate objectives, has mainly been focused on the following three pillars:

Figure No. 2. PILLARS OF IMPLEMENTATION OF CLIMATE FINANCING[13]



Source: Prepared by MHCP

To reduce the costs and impacts, it is necessary to put in place articulated policies to increase disaster resilience through better risk identification and assessment, investment in adaptive measures, and prevention of physical risks to ensure that the recovery and rehabilitation efforts do not perpetuate existing vulnerabilities and exposures. Regarding economic instruments, this includes evaluating hydrometeorological risk transfer instruments since disaster and climate risk financing instruments and insurance strengthen preparedness against the occurrence of disasters and require strategic planning joint with investment mobilization.

Therefore, a more comprehensive approach is needed to manage climate change risks and disaster risks in general, including understanding fiscal risks (IMF, 2016). These approaches share common goals, but they are not always articulated. The adoption in 2015 of the Sustainable Development Goals (SDGs), the Paris Agreement on climate change, and the Sendai Framework for Disaster Risk Reduction 2015 - 2030 (Sendai Framework) provide a clear mandate for a more coordinated approach on climate and disaster risks (CFMCA, 2020). Although the three frameworks are limited to their respective objectives and mandates, the effective implementation of each depends on the successful articulation

[13] The Standing Committee on Finance of the United Nations Framework Convention on Climate Change (UNFCCC) has defined it as "finance that aims to reduce emissions and improve greenhouse gases sinks and reduce vulnerability, maintain and increase the resilience of human and ecological systems to the negative impacts of climate change (UNFCCC Standing Committee on Finance, 2018) "

of the whole. This is the only way possible to address the total exposure to potential risks to move towards sustainable development (OECD, 2020).

For this reason, it is essential that the objectives are articulated, within this Strategy, with the initiatives that are developed to mitigate the impacts that climate change generates with respect to the occurrence of catastrophic events of natural origin.

International Context

This strategy considers international best practices and the experiences and lessons learned from different actors, such as other countries, multilateral entities, and insurance and reinsurance companies. Thus, as other countries have taken Colombia's progress as a benchmark, Colombia has also benefited from the progress of other countries. Each advance produced by a region, country, or territory serves as a reference for the others. Some examples will be presented below.

Examples of financial instruments used by Latin American countries.

In the Latin American context, several countries have implemented financial and non - financial tools to deal with natural disaster risks, based on international best practices, including the Mexican, Peruvian and Chilean cases.

Mexico

Through the FONDEN[14], Mexico had several sources of resources to handle the occurrence of disasters. First, FONDEN received an annual budget allocation (equivalent to 0.4% of expenditures), which could be supplemented with special allocations if required (OECD, 2015). Second, through FONDEN, catastrophic bonds have been issued, and loss reinsurance has been contracted.

Mexico was the first country in the world to issue a catastrophic bond in 2006. Subsequently, in 2009 and 2012, Mexico issued a bond for multiple risks and regions (earthquakes and hurricanes) (OECD, 2015). This is a risk transfer instrument that had the support of the World Bank, called "Multi Catbond," and it works as a financial account where investors receive their money with interest upon maturity of the bond if the catastrophe was not triggered during the life of the instrument. Otherwise, if the coverage is triggered, the money is immediately disbursed to the Mexican government to handle the emergency. The investor stops receiving the flows, and part or all of its capital is suspended, depending on the trigger characteristics in the agreed negotiation.

Thus, in October 2017, the Mexican government received 150 million dollars for the earthquake of magnitude 8.1 on the Richter scale, registered on September 7, 2017, equivalent to 100% of the value of the catastrophe bond renewed almost a month before the tragedy. The importance of renewing these instruments is due to the uncertainty of events. At that time, the authorities indicated that in addition to the resources from the catastrophe bond, the FONDEN (Fund for Natural Disasters of

[14] The liquidation of FONDEN is being carried out by the Government of Mexico, as evidenced at: http://www5.diputados.gob.mx/index.php/esl/Comunicacion/Agencia-de-Noticias/2020/Noviembre/06/7410-Publica-DOF-decreto-que-extingue-109-fideicomisos-entra-en-vigor-manana-sabado#:~:text=%2D%20El%20Diario%20Oficial%20de%20la,cultura%20y%20cinematograf%C3%ADa%2C%20entre%20otros

Mexico) had available budgetary resources that amounted to 8,243 million Mexican pesos (436.5 million dollars), as well as additional insurance against excess losses of 5,000 million Mexican pesos (265 million dollars) (Europa Press, 2017).

On the other hand, the country has mechanisms for financial protection against disaster risk, such as AGROASEMEX, the Federal Government's Agricultural and Patrimonial Assets Insurer.

Peru

Peru is a reference for Colombia and neighboring countries in articulating natural disaster risk management at different levels of government (subnational entities). Since 2014 the country has had the National Disaster Risk Management Plan (PLANAGERD 2014 – 2021), a Law that plans risk management in all its dimensions and is mandatory for all Peruvian authorities. It is in line with the Hyogo Framework for Action 2005 - 2015[15] and its National Disaster Risk Management System (SINAGERD).

Peru has an "updated Monitoring, Follow-up and Evaluation Information System," open to the public and with truthful information on compliance with the objectives of PLANAGERD at the three levels of government.[16] This system is monitored by the country's National Center for Estimation, Prevention, and Reduction of Disaster Risk[17], attached to the Ministry of Defense of Peru.

Peru also has the Strategic Budget Program PP 0068 called "Reduction of Vulnerability and Attention to Disaster Emergencies," through which resources are allocated to the different components of the DRM (IDB, 2015).

Financial instruments such as the Cat Bond, various contingent credit lines (which were disbursed to address the occurrence of COVID -19), the Fiscal Stabilization Fund, the contingency reserve, and insurance (strengthened through guidelines for public-private partnerships), are, among others, the financial protection mechanisms of the neighboring country.

In the case of Peru, the bond issued in February 2018 was triggered within the Pacific Alliance framework, in which, particularly in the Peruvian case, it had total coverage of $200 million dollars. The bond was triggered due to an earthquake event on May 26, 2019, in the Loreto region, Alto Amazonas, which registered a magnitude 8 on the Richter scale, the most intense earthquake that has hit the country in twelve years (Artemis, 2019). Given the specific characteristics of the magnitude, depth, and location of the earthquake, a payment of 30% of the total value of the Cat Bond was generated: $60 million dollars.

Chile

The Political Constitution authorizes the use of resources from the nation's annual budget for emergency relief, up to an amount that should not exceed 2% of the total annual expenditure approved

[15] It has become a global reference instrument for the implementation of disaster risk reduction. Adopted by 168 United Nations Member States at the World Conference on Disaster Reduction held in Kobe, Hyogo, Japan in 2005.
[16] Central, regional and municipal.
[17] Available at: https://dimse.cenepred.gob.pe/simse/resultados-enagerd

by the Budget Law. Additionally, the country has several budgetary provisions that allow it to allocate resources to DRM activities (IDB, 2015).

In addition, Chile has a fairly developed insurance market that has allowed the country to implement policies to combine insurance against natural hazards with private financing for housing (IDB, 2006). Within this context, the market was able to respond to the 2010 earthquake, which caused 222,416 claims and compensation for US$ 6,235 million (Pontificia Universidad Católica de Chile, 2012).

The countries mentioned above, together with Colombia, are part of the first multi-country sovereign bond in the world, the largest sovereign risk hedging operation that jointly protected Chile, Mexico, Peru, and Colombia for a total amount of $1.36 billion dollars, brokered by the World Bank. Thus, reinforcing the innovation and scope of new financial instruments for disaster insurance (World Bank, 2019).

Several countries are using the acquisition of hedging instruments, as evidenced in Figure No. 5, which shows the percentage of participation in the acquisition of financial protection instruments in the event of disasters, of a total of $40 billion dollars in 2019.

FIGURE No. 5. PENETRATION OF THE COVERAGE MARKET BY COUNTRY

Source: Prepared by MHCP with information from Artemis, WB.

Examples of financial instruments that include the subnational level.

Coverage Program for National and Local Government Assets in the Philippines. Regarding the experiences at the subnational level, in 2017, within the framework of Strategic Priorities for Financial Management of Disaster Risk public policy, the Government of the Republic of the Philippines established a coverage program for the assets of the national and local (25 provinces) government against earthquakes and typhoons, including public primary and secondary schools.

The program consists that in the event of a disaster, the catastrophe risk model estimates a loss amount. If it exceeds a specific level previously determined or a trigger point, it will lead to a payment.

The program has two triggers: one for medium-sized events and the other for severe events (defined with a probability of occurrence of 10% and 3.3%). Payment is made within 20 days of the event. The policy can make multiple payments, for multiple events, within the coverage period.

Schemes to reduce fiscal vulnerability designed by multilateral banks

Caribbean Catastrophe Risk Insurance Facility (CCRIF SPC).

In order to take advantage of the benefits of diversification, CCRIF was established in 2007 as a mutual company owned by sovereign countries. It has allowed setting a joint reserve mechanism to pool the risk profiles of member countries (initially of the Caribbean and from 2015 also Central American countries) in a single portfolio to have more economical access to the reinsurance markets. The CCRIF SPC offers coverage through parametric catastrophic insurance for earthquakes, tropical cyclones, excess rainfall, fishing, and the electricity sector.

All payments have been transferred in a maximum of 14 days, which shows that one of the purposes of the instrument has been fulfilled, which is to provide immediate liquidity to the countries to attend the first phases in the event of the disaster.

Contingent Credit Lines

Both the World Bank and the Inter - American Development Bank offer contingent credit lines, which allow access to immediate liquidity in the event of disasters. For example, the DPL with Cat DDO of the World Bank consists of the approval of ex -ante funds (based on a Program of Policy Reforms) of free destination that are rapidly disbursed after triggered (usually the declaration of the country's state of emergency). Also, it can be used for shocks related to public health by providing liquidity not only when a public health outbreak becomes an emergency situation but also in the early stages to avoid an escalation of the situation.

Financial Instruments for Pandemics

COVID-19 has shown the need to have several financial instruments to support the health sector and reduce the social and economic impact of the pandemic. In order to manage resources to attend the pandemic, the countries have used, among others, the contingent credit lines of the World Bank and the IDB[18].

However, both the demand from governments and the market supply for client governments of measures to protect public finances in this matter has had a slower development pace than for disasters caused by natural phenomena. In 2016, the World Bank launched the first financial product to protect poor countries against pandemics, called the Pandemic Emergency Financing Mechanism (PEF), an innovative fast - disbursing international financing instrument designed to protect the world against deadly pandemics.

Between 2014 and 2015, pandemic risks such as the devastating Ebola crisis in West Africa paralyzed the economies of Guinea, Liberia, and Sierra Leone, resulting in an estimated loss of $ 2.8 billion in just

[18] https://www.bancomundial.org/es/news/factsheet/2020/04/02/world-bank-response-to-covid-19-coronavirus-latin-america-and-caribbean and https://www.iadb.org/es/noticias/prestamos-contingentes-del-bid-cubriran-covid-19-y-otros-riesgos-de-salud-publica

two years ($ 600 million in Guinea, $ 300 million in Liberia and $ 1.9 billion in Sierra Leone). The Middle East Respiratory Syndrome (MERS) outbreak damaged the South Korean economy, and the virus of Zika, which spread in America put pregnant women at risk (World Bank).

TABLE No. 3. MAIN EPIDEMICS SINCE THE TWENTIETH CENTURY

Spanish Flu ⊕ Between 20 and 100 million deaths ⊕ Growth loss: 11% (USA); 17% (United Kingdom); 15% (Canada); 3% (Australia)	1918	
	1957	**Asian Flu** ⊕ Between 700,000 and 1.5 million deaths ⊕ 3% GDP growth loss in the United States, the United Kingdom, Canada, and Japan
The Hong Kong Flu ⊕ 1 million deaths ⊕ Between USD 23 and 26 billion of direct and indirect costs in the United States	1968	
	1981	**AIDS** ⊕ More than 70 million infected and 36.7 million deaths ⊕ Annual Growth Loss: between 2% and 4% in Africa
Severe Acute Respiratory Syndrome (SARS) ⊕ 37 countries (China, Taiwan, Singapore, and Canada were the most affected) ⊕ 744 deaths, 8,098 cases. Mortality rate 9.2% ⊕ Losses of USD 4 billion in Hong Kong, between USD3 and $6 billion in Canada, and USD5 billion in Singapore.	2003	
	2005	**H5N1 Avian Flu** ⊕ Mortality rate between 11% and 21% ⊕ Countries affected: 21
Swine Flu ⊕ Between 151,700 and 575,000 deaths ⊕ Loss of USD 1 billion in South Korea	2009	
	2012	**Middle East Respiratory Syndrome (MERS)** ⊕ 22 countries (Saudi Arabia, Korea, and the United Arab Emirates were the most affected ones) ⊕ 659 deaths and 1,879 cases ⊕ Losses of $ 2 billion in Korea, sparking USD 14 billion in government stimulus
Ebola Virus Disease Epidemic in West Africa ⊕ 10 countries (Liberia, Sierra Leone, and Guinea were the most affected ones) ⊕ 11,323 deaths and 28,646 cases ⊕ Losses of USD 2 billion in Liberia, Sierra Leone, and Guinea	2013	
	2015	**The Zika Virus** ⊕ 76 countries (Brazil was the most affected) ⊕ 2,656 cases of microcephaly or malformations of the central nervous system ⊕ Between USD 7 and USD 18 billion of losses in Latin America and the Caribbean

Source: Prepared by MHCP using data from the estimates of the World Health Organization, the Pan American Health Organization, METABIOTA, and the International Monetary Fund. Information supplemented with inputs from Marsh & McLennan Companies.

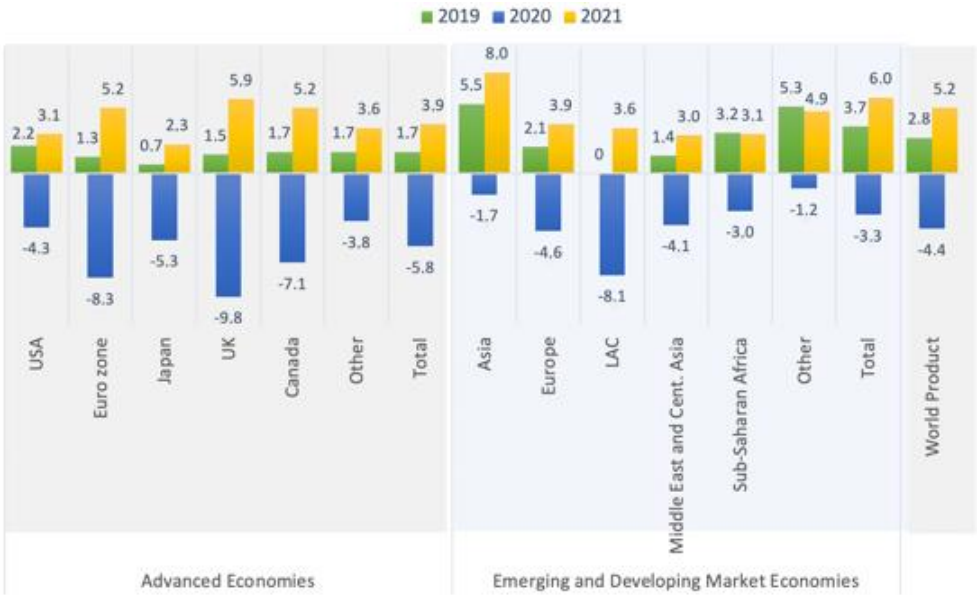
After the Ebola crisis, which ended in 2016 and generated economic losses estimated at 10 billion dollars, greater interest was promoted in the design of instruments to mitigate the fiscal risk of national governments linked to the occurrence of pandemic risks.

At the end of 2019, during the year 2020, and for the time passed of 2021, the world faces a new pandemic event known as Coronavirus by Sars Cov 2 (COVID-19), which has killed thousands of people around the world. To slow the spread of the virus, governments have implemented measures such as lockdowns and widespread shutdowns, which have resulted in the worst recession in the world economy since the Great Depression. According to publications up to October 2020[19], the International Monetary Fund (IMF) stated that the economic contraction forecast for the year 2020 would be - 4.4% (World Economic Outlook) and according to the flexibility of the restrictions and the economic reactivation of the developed countries, for 2021 the growth of the world economy is projected at 5.2% (Figure No. 6).

For Colombia, up to 1st of August of 2021, there were 120,998 deaths, 4,794,414 contagion cases, 4,587,754 recovered, and 71,989 active cases. Regarding the vaccination process, on August 1st, 2021, 6,478,808 vaccines were applied, of which 12,252,821 correspond to second doses. In relation to other impacts, the economy contracted 6.8% in 2020. Additionally, the unemployment rate increased from 10.5 percent in 2019 to 16.1 percent in 2020. According to DANE, the percentage of people classified as poor with respect to the total national population was 42.5%, which meant an increase of 6.8 percentage points compared to 2019 (35.7%). The percentage of people living in extreme poverty was 15.1%, which meant an increase of 5.5 percentage points compared to 2019 (9.6%). It is worth mentioning that the social programs implemented mitigated the incidence of poverty by 3.6 percentage points.

FIGURE No. 6. WORLD ECONOMY PROJECTIONS (%) 2020-2021

[19] The report is available at: https://www.imf.org/es/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020



Source: Prepared by MHCP, with data from the IMF's World Economic Outlook report as of October 2020

It is estimated that the cumulative loss of world GDP in 2020 and 2021 due to the COVID-19 pandemic crisis could reach $9 trillion. This figure is higher than the economies of Germany and Japan together. However, in October 2020 updated Global Financial Stability Report (GFSR report), there is a degree of uncertainty in these figures given the possibility that financial conditions will tighten due to the high acquisition of debt of the real sector of economies worldwide.

The Colombian Regulatory Framework

The preparation and development of the financial strategy to cover the contingent liability generated by disasters of natural origin began with Law 1450 of 2011, through which the 2010 - 2014 PND "Prosperity for All" was issued. This Law determined the responsibility of the MHCP in the design of a strategy for insurance against risks of natural disasters, aimed at reducing the fiscal vulnerability of the State (Article 220[20]) and the power to "manage, acquire and/or celebrate with national and/or foreign entities instruments and/or contracts that allow the insurance and/or coverage of these events" charged to resources from the General Budget of the Nation (PGN, for its initials in Spanish).

Subsequently, Law 1955 of 2019, through which the PND 2018 - 2022 "A Pact for Colombia, A Pact for Equity" was issued, broadens the mandate and includes the evaluation of financial protection mechanisms of various kinds, such as insurance, that make it possible to take advantage of the benefits of diversification, as well as the formulation of plans, mandates, or incentives that promote and/or enable state entities to financially manage the risk of natural and/or unintentional man-made disasters.

[20] It remained in force based on article 267 of Law 1753 of 2015 "By which the National Development Plan 2014 - 2018" All for a new country " is issued·

The ENPFRDEP is normatively and institutionally framed by the competence assigned to the MHCP in matters of financial protection, among others:

1) Law 448 of 1998, enforcing entities of the national and subnational level, and decentralized entities of any order, to include in their (debt) budgets the appropriations necessary to cover possible losses due to contingent liabilities.[21]

2) Law 819 of 2003 mandates the National Government to submit as part of the Medium-Term Fiscal Framework of each year a list of contingent liabilities that may affect the Nation financially, including those that are not explicit such as disasters due to natural phenomena.

3) Regulations setting the obligation of insuring public assets for their real value and making budgetary appropriations, under penalty of punishments as stated in Law 734 of 2002 or the Single Disciplinary Code that establishes for this omission, a punishment up to dismissal and inability to perform public functions. This in line with Law 42 of 1993, National Decree 663 of 1993 and Law 1474 of 2011 that establish, among others, the imposition of fines and the opening of fiscal responsibility processes to public servants and individuals that lack said responsibility, and

4) Law 1523 of 2012 as the main regulation of the National Disaster Risk Management System through which the special sub-account for Financial Protection is established within the National Fund for Disaster Risk Management (FNGRD), through which the MHCP may manage, acquire or enter into instruments or contracts with national or foreign entities that allow for financial protection against disaster risk.

It is required the interinstitutional work of state entities that, according to their competence, are responsible for the comprehensive disaster risk management, as established by the applicable legal system, with the support and permanent accompaniment of the National Disaster Risk Management Unit (UNGRD). They act as the coordinator of the National Disaster Risk Management System and as facilitators for implementing all the functions under the responsibility of other state entities in this area and regarding financial protection.

In addition, the identification and evaluation of the sources of fiscal risk, including the implicit and explicit contingent liabilities, are in line with the recommendations of the Code of Good Practices of Fiscal Transparency of the International Monetary Fund (2007).

Likewise, the articulation of the ENPFRDEP with subnational entities is protected by the subnational decentralization model adopted by the 1991 Political Constitution, which granted the subnational entities the power to govern themselves by their own authorities, exercise their competencies, manage

[21] Contingent liabilities according to article 6 of Act 448 of 1998 are understood as: obligations in money at the expense of the entities, generated by the occurrence of a future and uncertain event.

their resources, establish the necessary taxes for the fulfillment of their functions and participate in the national income[22].

It should be noted that the State Council, in several judgments on the responsibility of the State in disaster situations, has emphasized that mayors are directly responsible "for the implementation of risk management processes in the district or municipality, including knowledge, risk reduction, and disaster management in the area of their jurisdiction." Governors must also "Integrate strategic and priority actions in risk management within departmental development planning (...)" (Charry, D. 2017). This reinforces the need to articulate this Strategy with that of the entities of the subnational order.

The next figure summarizes the regulatory framework:

Figure No. 3. ENPFRDEP REGULATORY FRAMEWORK

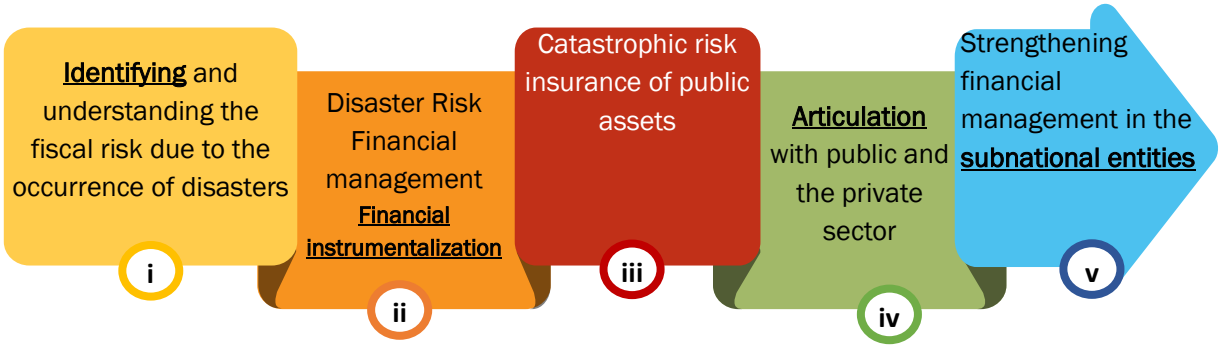
Source: Prepared by MHCP

National Strategy for Financial Protection against the Risk of Disasters, Epidemics, and Pandemics (ENPFRDEP)

[22] For more information: Political Constitution of 1991: articles 151; 272; 288; 295; 313; 338; 356; 357; 364. Laws 358 of 1995; 617 of 2000; 715 of 2001; 819 of 2003; 1530 of 2012; Law 1751 of 2015. And Decrees: Decree Law 1222 of 1986, Decree Law 1333 of 1986, 2132 of 1992, 714 of 1996.

The MHCP identified five priority policy objectives to assess, reduce and manage fiscal risk against the occurrence of unintentional natural and anthropogenic phenomena:

Figure No. 4. ENPFRDEP POLICY OBJECTIVES



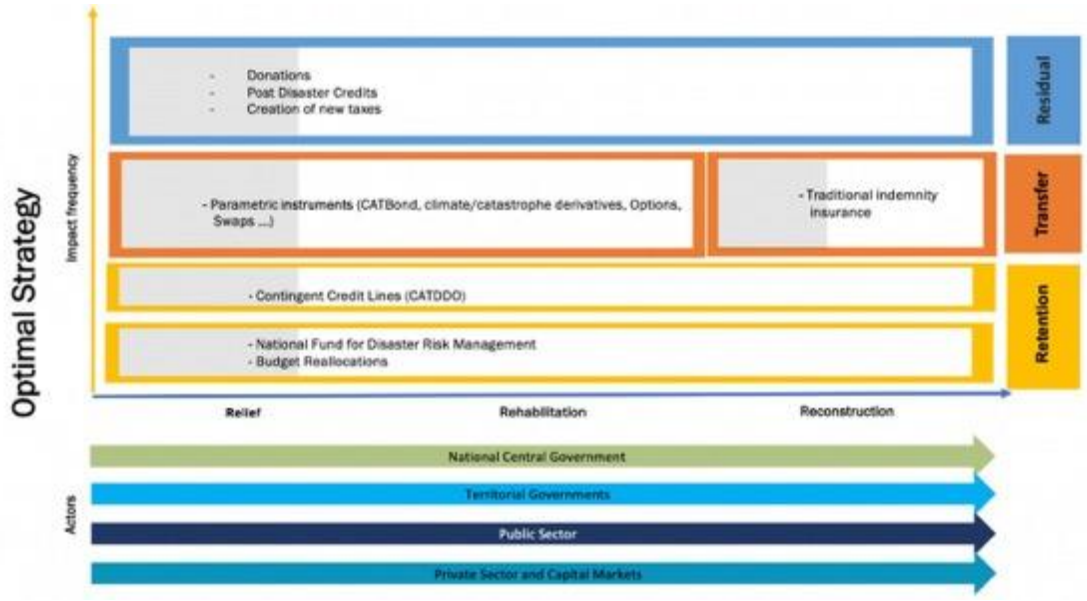
Source: Prepared by MHCP

It should be emphasized that the last two objectives are incorporated into this strategy compared to the first National Strategy. It was foreseen the need for the policy to be in harmony with efforts at the subnational, sectoral, and private sector levels to manage disaster risk broadly and thus improve the country's financial response capacity to these events. Likewise, financial management against the risk of climate change, epidemic, and pandemic is explicitly contemplated.

The ENPFRDEP considers ex-ante instruments against catastrophic events, such as contingent credit lines and both traditional and innovative insurance, to be complemented with ex-post financial resources, which must be guaranteed after the occurrence of an event. That is how the MHCP promotes ex-ante development based on a layered strategy to financially manage disaster risk based on the quantification and evaluation of its contingent liability. As illustrated in

Figure No. , risk retention is used for more frequent and less severe events, and it is financed through reserves and contingent credits. Any risk that exceeds the government's retention capacity is transferred through market financial instruments. Finally, post-disaster credit is used for long-term reconstruction.

Figure No. 5. FINANCIAL INSTRUMENTS LAYERED STRATEGY



Source: Prepared by MHCP

Policy Objectives

- ## I) Identifying and understanding the fiscal risk due to the occurrence of disasters

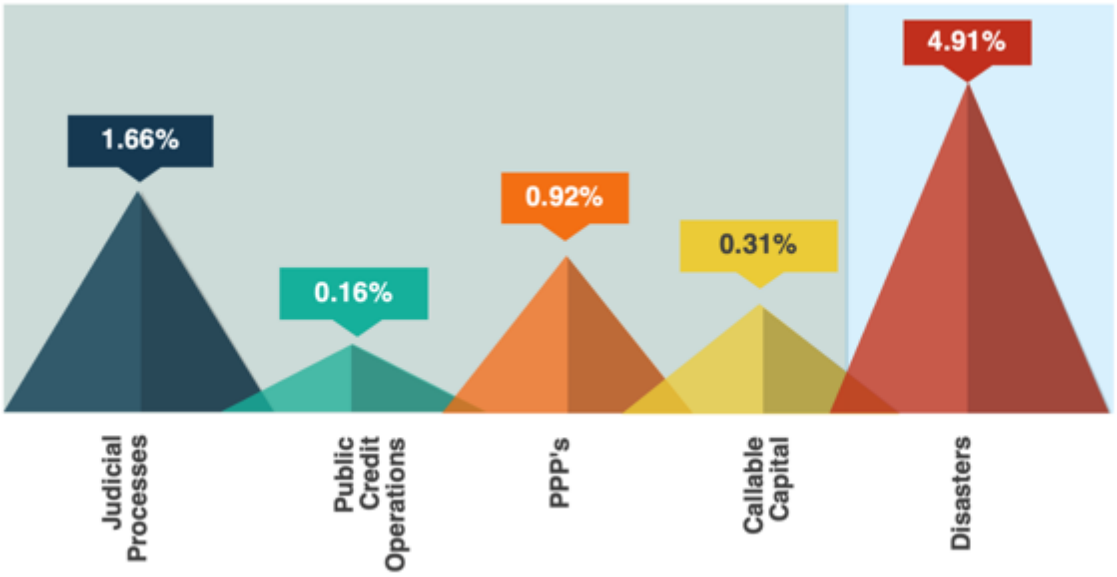
Decision-making requires robust information and technical analysis that allow, among others, to understand fiscal risk, perform quantitative analysis, and generate tools for decision-making. The Nation has advanced in the process of identifying and understanding its fiscal risks by quantifying possible losses as a percentage of GDP through probabilistic models. These results are reflected in the Medium-Term Fiscal Frameworks, as shown in figure No. 6.

Disaster risk has been identified as the costliest fiscal risk for the country in the event of the occurrence of simultaneous events: large earthquake, La Niña Phenomenon, and Hydrometeorological events (droughts and landslides), which would amount to 4.36% of GDP (3%, 1.06%, and 0.30% respectively)[23]. The other possible contingencies costs derived from different sources of risk to which public finances are exposed are: i) Public credit operations 0.20%, ii) Callable capital[24] 0.33%, iii) Legal proceedings against state entities 1.19%, iv) Contracts of Public-Private Partnership (PPP) 1.02%.

As more complete and higher quality information is available on the potential losses that other disasters could generate, such as the volcanic, epidemic, and pandemic risks, the respective quantifications will be incorporated into the contingency analyses as a component of fiscal risks that have an impact on public finances.

[23] There are other risks associated with disasters that have not been assessed due to the lack of technical information, such as volcanic phenomena, landslides, mass movements, but which are in the evaluation phase by technical - scientific entities.
[24] Callable capital is understood as that potential requirement of the multilateral organizations to all its member countries only in exceptional circumstances, with respect to the commitments that are underwritten.

Figure No. 6. FISCAL CONTINGENT LIABILITIES (% GDP)



Source: 2021 Medium Term Fiscal Framework (MFMP 2021) - General Directorate of Public Credit and National Treasury

On the other hand, the MHCP, through the technical table of Disaster Risk Financial Protection and with the support of the different national entities that participate in it, has established, and prioritized different initiatives that promote this first objective, same of which are summarized in the following figure:

Figure No. 7. INITIATIVES OF THE TECHNICAL TABLE FOR FINANCIAL PROTECTION

Improve information on the exposure of buildings

Taking into account that in Colombia there is no centralized information on the characteristics of public properties, nor on their insurance policies, all information related to the inventory of public properties, as well as property insurance policies, will be collected through formats that the technical discussion tables has been developing, as a first measure to apply the best practices of the insurance market.

A system will be implemented to capture, monitor, and update standardized property and policy records, in a sustainable way over time, to identify the level of exposure and manage an adequate and optimal insurance.

Include other risks in the contingent liability quantification

In a joint and articulated way with the technical - scientific entities, analysis on the probable maximum losses of different risks such as hydrometeorological, volcanic, pandemic and epidemic will be incorporated into the next Fiscal Frameworks.

Source: Prepared by MHCP

• II) Financial management of disaster risk (financial instrumentalization)

According to the layered Financial Strategy instruments (FIGURE No. 5), it is necessary to build a diversified and efficient portfolio of instruments that incorporate both retention and transfer of fiscal risk. The construction of this portfolio should take into account that after the occurrence of the disaster, not all resources are required at the same time: rapid access to resources is needed for the relief and rehabilitation phase, while resources for the reconstruction phase will be required several months, or years later, once the necessary studies are in place not to build back in the conditions of vulnerability. In addition, some instruments, such as contingent credit lines, will be used for different types of disasters, such as epidemics and pandemics.

In order to illustrate the type of financial instruments that can be part of the said portfolio, some examples are mentioned below.

The Nation has contracted with the World Bank a contingent loan called Cat-DDO (Catastrophe Deferred Drawdown Option) on two occasions since 2008. This tool is a deferred transfer loan for up to three years, which is activated when economic resources are required to face the damage of a disaster caused by a natural phenomenon[25] by providing immediate liquidity. The following figure shows the chronology and importance that this instrument has meant for disaster risk financial protection:

[25] Previous declaration of national emergency.

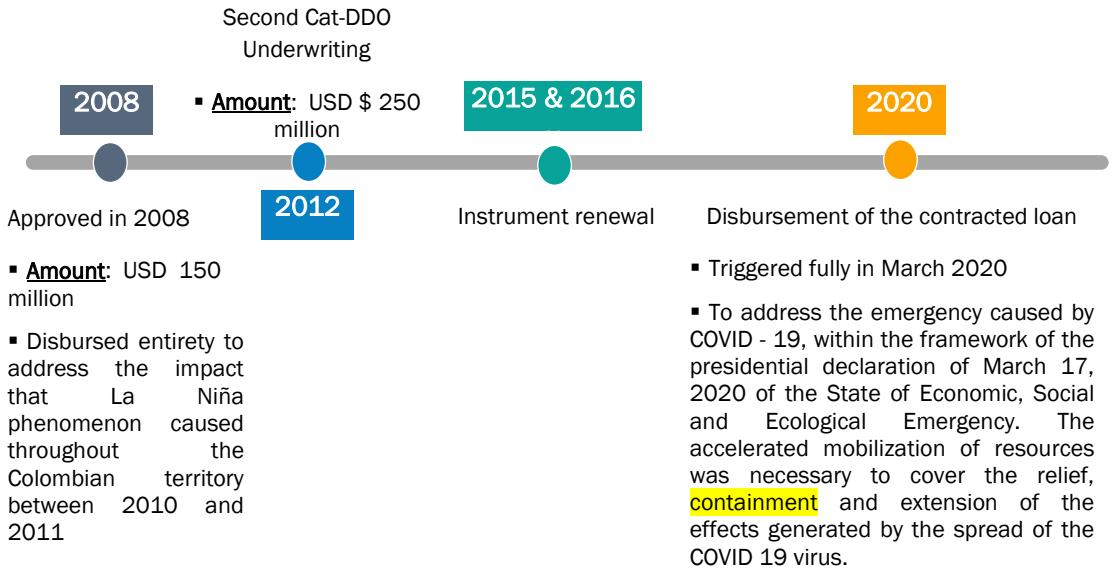


Figure No. 8. CAT-DDO CHRONOLOGY FOR COLOMBIA

Source: Prepared by MHCP

The relevance of managing instruments that guarantee immediate liquidity to face a disaster of natural origin, such as contingent credit lines, is demonstrated. Therefore, it is a priority for the Government of Colombia to continue with this implementation path.

Another instrument that the Nation managed to reduce fiscal vulnerability to disasters is the Seismic Catastrophic Bond "Cat Bond" within the Pacific Alliance (AP)[26] framework. This financial instrument is a risk transfer mechanism, unlike the Cat-DDO that corresponds to indebtedness, that protects the Nation's finances in the event of a major earthquake. If the risk materializes, governments guarantee compensation for a total or partial amount of the coverage, after paying an annual commission to the World Bank, as long as certain previously established parameters are met.

The transaction was carried out in February 2018 through the World Bank for a total value of $ 1.36 billion dollars among the four PA member countries, with a maturity of three (3) years in the case of Colombia, Peru, and Chile and two (2) years for Mexico. TABLE No. 4 summarizes the characteristics of the issuance.

TABLE No. 4. CAT BOND ISSUANCE RESULTS FROM PACIFIC ALLIANCE COUNTRIES

[26] Regional integration initiative of four member countries: Chile, Colombia, Mexico and Peru

	Issued Value US$	Coverage Duration	Risk Premium	Expected Loss	Multiples
	500	3 years	2.50%	0.86%	2.91
	400	3 years	3.00%	1.56%	1.92
	200	3 years	6.00%	5.00%	1.20
	160	2 years	2.50%	0.79%	3.16
	100	2 years	8.25%	6.54%	1.26

Source: Prepared by the Risk Sub - Directorate of the General Directorate of Public Credit - MHCP, based on data from the World Bank.

It is important to mention that, as of the date of issue, this transaction is the second largest in the catastrophe bond market history and the largest sovereign risk insurance transaction.

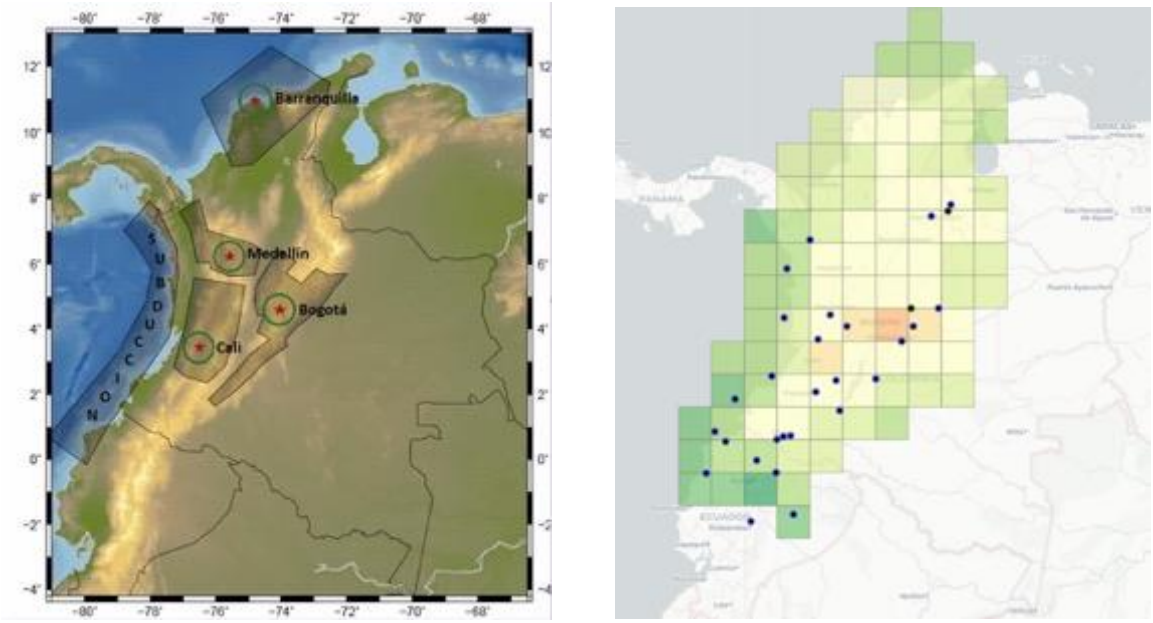
Previously to the successful operation in the capital market of this Seismic Cat Bond, Colombia had the experience of evaluating an instrument called CatSwap, which provided the necessary inputs to the technical modeling of the instrument actually issued, facilitating the availability of information and supporting the identification of trigger parameters.

This exercise was carried out in 2014 and consisted of a parametric instrument, which used as trigger a combination of the location, magnitude, and depth of the earthquake in relation to large urban centers, selected according to the seismic risk, to the contribution to the national GDP and population coverage, aspects very similar to the current Seismic Catastrophic Bond.

However, its purpose was to suspend for a period of time, the payment of the Nation's debt to the World Bank in order to protect the budget against interruptions in coverage of part of its obligations with the World Bank, while generating a fiscal space for the Government to finance the post-disaster response in the event of a major earthquake.

At that moment, it was decided not to continue with its implementation, and it was left only in the design phase because the technical analysis concluded that the economic and financial conditions were not the most pertinent to carry out the operation. However, this initiative shows evidence of the government's interest in financially manage and reduce the risk associated with disasters, reduce fiscal vulnerability and promote a culture of resilience.

Figure No. 9. CAT SWAP Vs. CAT BOND DESIGN[27]



Source: World Bank 2015 (Cat Swap) and World Bank 2018 (Cat Bond)

Concerning the next steps towards this objective, potential catastrophic bond issuances will be evaluated to cover different risks, such as those associated with meteorological, hydroclimatic, volcanic, or other, events. Likewise, coverage schemes will be promoted, including not only multi-risks but also multi-sectorial and joint phases between the Nation and subnational entities, aspects that will be detailed later.

The evaluation of different transfer instruments, traditional or new, offered by the insurance, reinsurance, or capital market, for the coverage of unintentional anthropogenic events, such as pandemic risks, is also contemplated.

• III) Catastrophic risk insurance of public assets

Even though the insurance of public assets in Colombia is mandatory, the 2012 analysis of insurance policies of the Colombian National Government buildings identified that the acquired coverages could be improved, given: i) the little existing information is scattered in different sources and is of low quality and ii) it was evidenced that there is probably some level of underinsurance[28]. In this sense, many of the efforts aim to strengthen insurance to improve coverage according to the best market practices.

In order to optimize insurance, in 2016, the National Public Procurement Agency - Colombia Compra Eficiente (CCE), the MHCP, the World Bank, and SECO, started exploring the possibility of implementing a mechanism that would allow, among others: (i) demand aggregation for insurance intermediation of

[27] The design does not include the final model under which the Cat Bond issued in 2018 was structured.
[28] Insurance of goods for a value lower than their real value.

the entities at the national level, (ii) improve the efficiency in the acquisition of the Insurance Intermediation Service by making a single selection process, and iii) have access to updated information that may be centralized in a robust information database.

From that perspective, CCE established as first step, the acquisition of Insurance Intermediation Services through the standardization method that characterizes the demand aggregation mechanisms known as Price Framework Agreements[29], enhancing the insurance of public buildings. Under this mechanism, CCE established the conditions in which providers should deliver the Insurance Intermediation Service to state entities, grouping the market with the budget state entities allocate to purchase insurance.

Framework Agreements for Insurance Underwriting and Intermediation in the United Kingdom

Through the Framework Agreement for Underwriting Services in the United Kingdom, buyers, regardless of their size, can access a wide variety of insurance intermediation and underwriting services including but not limited to civil liability, travel, personal accident, property, construction and engines. Additionally, there are other services available to buyers, such as claims handling and risk management.

Thus, in December 2016, the first Framework Agreement for Insurance Intermediaries was published, with a validity of two (2) years, without renewal. Based on the study that CCE carried out to develop this tool, it was found that *"(…) Most of the State Entities do not have a Risk management unit, so they do not have the experience to directly diagnose their Risks, propose a Risk prevention strategy, manage their Policies, among other needs, and therefore they require the specific knowledge and experience of Insurance Intermediaries to overcome information asymmetries with the insurance market, seeking better insurance and negotiation conditions."*

Difficulties lie mainly in obtaining relevant information that guarantees the effectiveness of the instruments used. This initiative is expected to resume once there is an information system that identifies the characteristics of public properties and their insurance policies, an initiative proposed in the first policy objective of this Strategy.

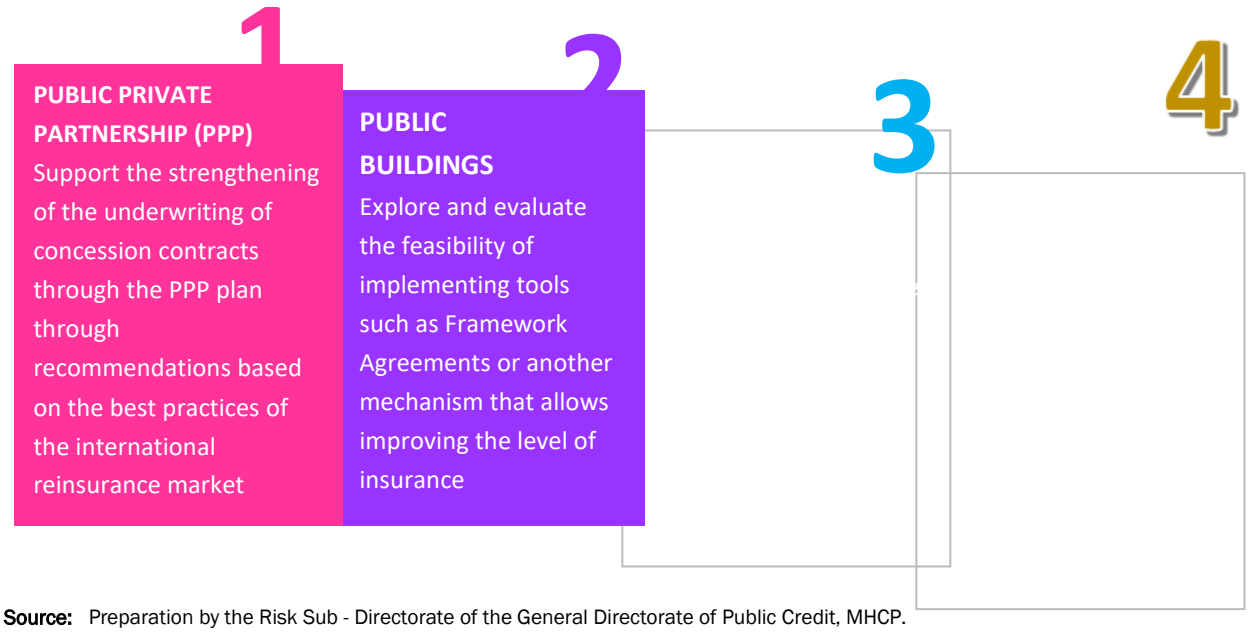
Consequently, the MHCP and CCE, with the support of the World Bank and SECO, developed guiding guidelines, objectives, and activities in order to generate an instrument that improves the level and quality of the insurance of fiscal assets in the event of natural disasters, strengthening the process of contracting insurance for both direct and indirect damages[30]. The guidelines allow state entities to know:

(i) The type of information must be complete and robust to carry out an adequate process of policies underwriting and placing.
(ii) How should the underwritten policies information be organized and protected,
(iii) The way in which claims collection must be managed and indemnity paid in a timely manner, and
(iv) Have suitable inputs for robust risk management.

[29] The Framework Price Agreements as a mechanism for Demand Aggregation is a tool framed as a good international practice that is gaining strength worldwide. The most successful experience is that of the United Kingdom (Source: World Bank 2018)
[30] Available at http://www.urf.gov.co/webcenter/ShowProperty?nodeId=%2FConexionContent%2FWCC_CLUSTER-080205%2F%2FidcPrimaryFile&revision=latestreleased

The following figure shows the lines of action according to each objective to be strengthened.

Figure No. 10. LINES OF ACTIONS TO OPTIMIZE INSURANCE



Source: Preparation by the Risk Sub - Directorate of the General Directorate of Public Credit, MHCP.

This is why there is a need to include, in this document, the strengthening of information about the insurance of public assets as the main policy of disaster risk management to advance in the identification of fiscal risk and contribute to the mitigation of the economic impact that this type of risks present on public finances.

• IV) Articulation with public sectors and the private sector

The international organization ODI[31] claims in their studies that climate change affects the frequency and intensity of disasters increasing their impact even more (ODI, 2014). Therefore, as disasters grow, the disaster risk financial management becomes more relevant against the high intensity and more frequent impacts generated in different sectors. For this reason and within the framework of this Strategy, the need to involve the sectors was identified so that, in an articulated manner, the fiscal risk associated with these phenomena is actively managed from the scope of Financial Protection.

As a result of Colombian catastrophes experienced throughout history, sectors such as housing, agriculture, and infrastructure have been the most impacted, with significant economic losses, due to recurring risks such as excess rainfall and other less frequent risks such as earthquakes. Recently, with the emergency caused by COVID-19, the adverse effects have spread throughout the national economy, limiting the production of many industries in various sectors. The relevance of the allocation of

[31] Overseas Development Institute - ODI

economic resources required by the health sector is highlighted to ensure a timely response to the high demand of health effects of Colombians and to contain the spread of the virus.

However, even when some sectors are more affected than others, depending on the type of risks, the aftermaths will always impact more than one sector. This, added to the uncertainty and ignorance of the moment of occurrence and magnitude of a natural event, it is essential that all sectors manage their risk against these types of threats. Within this context, it is important for the private sector to know the needs of the government so that it is possible to offer different solutions embodied in the design of policies.

Some sectors have made significant progress in the identification and quantification for disaster risk financial protection purposes. Therefore, such progress must be articulated to contract several financial instruments, including, for example, insurance mechanisms, which can take advantage of the benefits of diversification; schemes, mandates, or incentives development that allow reducing fiscal vulnerability, centralized under the ENPFRDEP.

Some background information that characterizes the prioritized sectors in this policy document is briefly described below:

- Housing Sector

Although a house is defined as a building that accommodates people or families for habitational purposes, the housing sector necessarily considers factors such as drinking water and sewerage, electricity, infrastructure, and urban facilities in its analysis. This forces the estimation of the fiscal effects of a disaster on this sector to be coordinated with different sectors, coordinated with different sectors, hence the importance of its articulation with the ENGFRDN (ECLAC, 2014).

In the Colombian case, between 1970 and 2011, economic losses of approximately $ 2 billion dollars were reported. Events with little frequency but of great magnitudes represented $ 51 million dollars per year. On the other hand, for the more recurrent events of smaller magnitudes, damages in the housing sector in that same period have been even greater. Losses have been approximately $ 5 billion dollars, representing an annual loss of $ 126 million dollars (World Bank, 2012).

According to the "Final report of affected areas by floods 2010 - 2011", prepared by DANE, once La Niña phenomenon in Colombia ended, more than two and a half million (2,510,858) homes were affected by this winter emergency, and another 879,542 households were potentially affected, among the 998 municipalities reported.

Housing vulnerability is increasing due to the informal settlement of families, higher birth rates, which shows an increase in the Colombian population. Another determining factor is the high migration caused by conditions of majeure force due to different causes. Conflict and insecurity have often caused communities to move to high-risk regions, which increases their vulnerability. This is also due to

the economic dependence of the population on activities located around high-risk places (Williams, 2011).

This context has caused high growth in urban areas, translating this into the fact that, until 2010, around 1,370,000 families lived in informality and precarious conditions (DNP, 2010). It is worth mentioning that the above could be exacerbated due to the migration of Venezuelan citizens[32].

According to the information reported by the Ministry of Housing, City, and Territory, risk management in the sector is addressed from two approaches: i) from the provision of housing public services, and ii) on the effects of the provision of housing public services on society and the environment[33].

In addition, the sector has formulated planning instruments such as the National Contingency Plan for the Drinking Water and Basic Sanitation Sector for the Rainy Season, disaster risk management policy guidelines, among others. These will provide solid bases for implementing financial protection mechanisms with the information provided by the sector and the assistance of the MHCP. To the extent that the housing sector is protected, in the event of a disaster, the sector will demand fewer resources, so the government will allocate more resources to serve the most vulnerable population affected by disasters.

- Agricultural Sector

The Ministry of Agriculture and Rural Development has designed different financial instruments to deal with disasters. This section presents background information on the impact of disasters on the sector, which shows the need to advance on the subject.

It has been established that, repeatedly, climate presents transitory alterations or long-term changes that affect agricultural production (Ruiz C. and Pabón C., 2013) . Farmers face various productive risks, including droughts, floods, storms, and pests, and the frequency and intensity of these adverse events are increasing due to climate change (Bucher and Moya, 2014). Most of these recorded and documented losses, of around 70% to 80%, are considered attributable to excess rainfall or deficit of rainfall (Herbold; 2014).

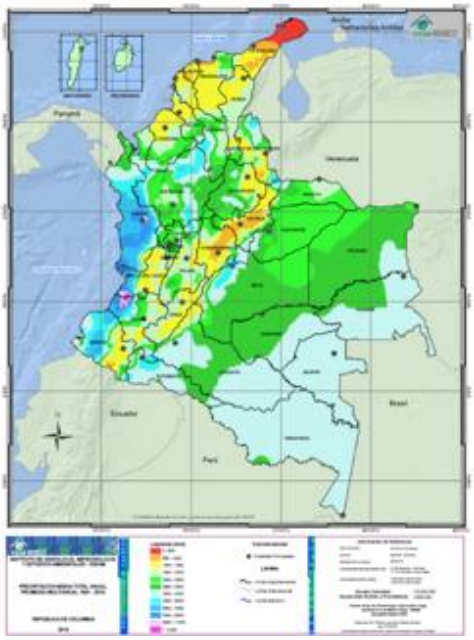
The agricultural sector comprises the agriculture, livestock, poultry, fish, and forestry subsectors. Colombia is a biodiverse country with grasslands whose productivity depends largely on rainfall. All phenomena associated with meteorological and hydrological events, such as droughts, floods, hurricanes, landslides, and volcanic eruptions, significantly affect the prosperous development of Colombian soils (ODI, 2014).

The climatic characteristics of Colombia make agricultural activity significantly exposed to this type of shock. Colombian is an equatorial country located in the Intertropical Confluence Zone (ITCZ), which causes a high climate variability (especially different rain regimes) with different seasonal behaviors dispersed at a spatial and temporal level, in different regions and generating microclimates, as seen in the following figure.

[32] According to the data from Migración Colombia, as of December 31, 2020, more than 1,729,000 Venezuelans were in Colombia
[33] Available at: http://www.minvivienda.gov.co/viceministerios/viceministerio-de-agua/gestioninstitucional/gestion-del-riesgo

Basically, in Colombia, there is neither winter nor summer, but two rainy seasons, the first in March, April, May, and June and the second in September, October, and November. As for the dry and less rainy periods, there are the months of January, February, July, August, and then December.

Figure No. 11. CLIMATOLOGY OF THE TOTAL ANNUAL MULTI-YEAR AVERAGE PRECIPITATION IN COLOMBIA (1981-2010).



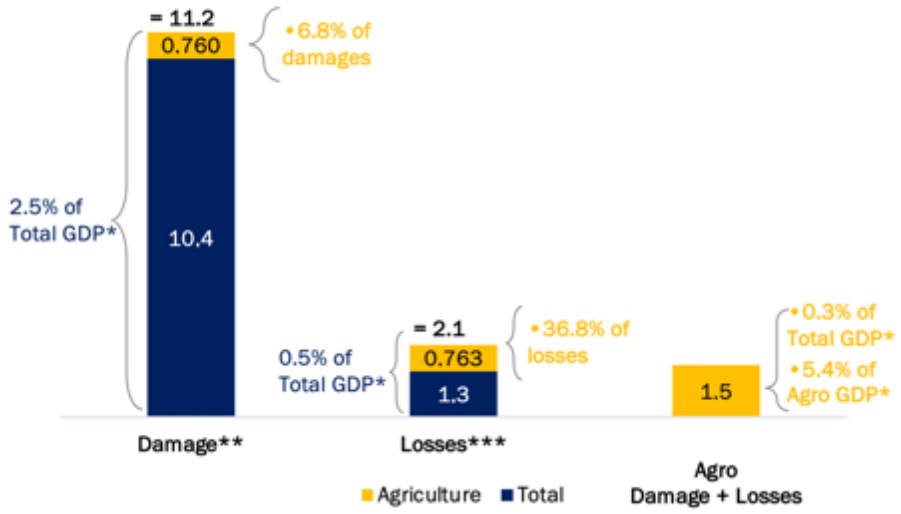
Source: IDEAM -Hydrology, Meteorology, and Environmental Studies Institute

An analysis by the Ministry of Agriculture and Rural Development (MADR) in 2009 indicates that the Colombian agricultural sector has been affected by serious events related to climatic phenomena. The intensity of El Niño phenomenon towards the end of 2009 and the beginning of 2010 as well as La Niña, which was considered the strongest in the last 30 years, caused significant economic losses in the country in late 2010 and early 2011, such as $ 285.7 million dollars, only in the production of coffee.

According to the Agricultural Outlook document (first semester 2011), it was estimated that due to La Niña phenomenon in February 2011, more than one million agricultural hectares were affected throughout the country, of which 800,287 hectares correspond to flooded agricultural areas, and around 200,000 hectares affected by excess humidity. The most affected hectares were planted with: rice, banana, cassava, coffee, corn, African palm, and cotton (MADR - IDEAM, 2011).

Based on the above, figures of the impact of the Winter Wave from 2010 - 2011 are shown below. Losses and damages of the agricultural sector amounted to $ 1.5 trillion, corresponding to 0.3% of the total GDP of 2011 and 5.4% of the agricultural GDP. Consequently, the damages represented 0.2% of GDP and 2.7% of agricultural GDP.

CHART No. 8. RAINY SEASON DAMAGES AND LOSSES IN BILLION PESOS - TOTAL AND AGRO SECTOR



Source: Prepared by MHCP - IDB and CEPAL Report (2012)

* 2011 GDP (constant 2005 prices)

** Corresponds to the sum of damages to infrastructure, machinery, and damages to crops, among others

*** Understood as the value of the goods and services that were stopped being produced in the country and the higher costs in production due to the catastrophe

When the impact of the last El Niño phenomenon 2014 - 2016 is analyzed, the records confirm agricultural productivity decreasing trends. When the phenomenon covers two consecutive years, it has been verified that the negative impact is greater on agricultural yields in the second year, decreasing productivity on average by 5%. The impact is slightly greater in permanent crops (5.5 %) than in transitory ones (4.4 %). For 2015, there were agricultural effects in 1,185,763 hectares in 20 departments of the country, the most affected being Atlántico (403,365 hectares), Córdoba (243,677 hectares), Nariño (108,250 hectares), Antioquia (92,344 hectares), and Casanare (67,575 hectares).

Regarding the livestock sector, in 2015, it suffered losses of 3,421,590 livestock units in 15 departments, including cattle, pigs, poultry, equines, among others. The most affected department by El Niño season was Córdoba, with 2,389,769 livestock units, followed by Antioquia (465,157 units) and Boyacá (188,818 units). Nariño, Cauca, Santander, Arauca, Bolívar and Atlántico were affected, but to a lesser extent.

According to reports from the National Livestock Fund (FNG, for its initials in Spanish), for the fourth quarter of 2015, the total livestock deaths due to El Niño phenomenon were 44,099 head of cattle with higher losses in the Caribbean Region, in the department of Magdalena.

Also, according to information from the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM, for its initials in Spanish), the occurrence of El Niño phenomenon became official from March 2015, during the period May 2015 - January 2016. According to the FNG, partial losses in the livestock sector amounted to $ 632 billion pesos.

Given the importance of the agricultural sector for the country's productivity, the Ministry of Agriculture and Rural Development, with the support of the Fund for Financing the Agricultural Sector (FINAGRO, for its initials in Spanish), the MHCP, and the World Bank, have worked on the design and implementation of Parametric insurance instruments, with which it is expected for lower-income agricultural producers to have effective protection against natural phenomena of great magnitude such as droughts or floods (MADR 2018).

This tool will protect public finances since the sector has assumed about $ 685 billion to address the producers' loss due to La Niña phenomenon in 2010 - 2011 and the drought caused by El Niño phenomenon in 2015 - 2016. (MADR 2020).

- **Fishing Subsector:**

In particular, agricultural activity responds directly and indirectly to climatic conditions, so that climate variations and the occurrence of disasters end up having an impact on the development, productivity, and quality of the subsectors of the agricultural sector, which are: 1) Crops, 2) Livestock (both production and animal health), 3) Fisheries and Aquaculture (including both capture and subsistence fisheries), and 4) Forestry (UNDP 2015). The reduction or productive incapacity is the factor affecting this sector, which impacts local and regional livelihoods and economies, generating a loss of competitiveness and compromising food and nutritional security (GIZ, 2019).

For the specific case of fisheries, the Food and Agriculture Organization of the United Nations - FAO (2012) establishes that fishermen, fish farmers, and their communities around the world are usually especially vulnerable to disasters due to i) the location, ii) livelihood activities characteristics, iii) the general level of exposure to natural hazards, iv) crises that have an impact on livelihoods, and v) the effects of climate change. Exposure and vulnerability to these risks are increasing.

Given the importance of the fishery and aquaculture sector for food and nutrition security, both locally and nationally, disasters that affect communities whose livelihood is fishing also have multiplier effects on the national economy. In this sense, the National Government recognizes the importance of this sub-sector and will prioritize the design and implementation of actions aimed at generating financial resilience of subsistence, artisanal, large, and small-scale fishing.

The preceding allows blue growth as a strategy that, in the long run, guarantees sustainable growth by overcoming structural deficiencies, improving productivity and competitiveness, and strengthening the social economy.

- **Transport Sector**

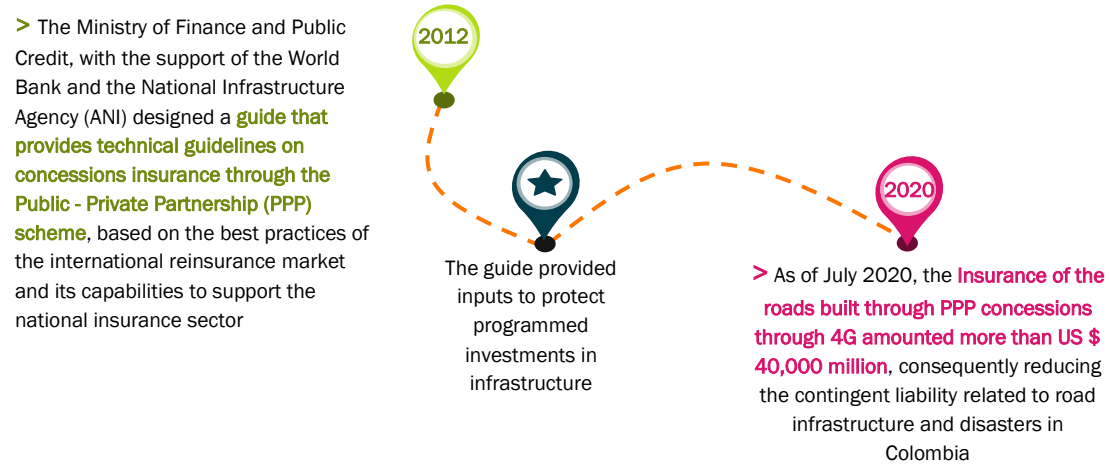
For the ENPFRDEP, the transport sector will include all the effects that disasters have on the primary, secondary, and tertiary road networks, as well as the river, rail, port, and airport infrastructure. The IDB assessed the damages and losses that the 2010 - 2011 rainy season generated in Colombia, which indicates that road transport absorbed the largest proportion of the total damage reported (29%), with road connectivity being temporarily restricted, due to landslides and floods. Specifically, road and energy infrastructure damages amounted to more than four billion pesos. 55% of the respective road damage was concentrated in just five departments: Antioquia, Atlántico, Bolívar, Magdalena, and Sucre.

CEPAL performed the damage assessment with the support of technical teams from the Ministries through the monetary quantification of the damages recorded on the national and regional transport infrastructure.

2010 – 2011 La Niña caused landslides, loss of roadways, bridge collapses, undermining of structures, and floods; causing damages over $3,2 billion, of which 1.38 billion were the primary road network, according to the assessment of damages and losses prepared by the IDB – CEPAL. Over 1,600 kilometers of roads and 92 bridges of the national road network were affected, and rehabilitation was required in more than 53 sections of national roadways (Ministry of Transportation, n.d.).

The following figure describes the progress and some of the achievements made in road insurance for concessions through the Public-Private Partnership (PPP) scheme with ANI.[34].

Figure No. 12 COLOMBIA: ADVANCES AND ACHIEVEMENTS OF ROAD INSURANCE[35]



Source: Prepared by MHCP with information from ANI

One of the sources with the greatest direct losses to the patrimony of the Nation occurs in this sector, due to the public infrastructure that has been seriously affected by the occurrence of disasters. Megaprojects focused on contributing to the economic development of the country, such as the large trunk roads that connect borders and thereby enable production, consumption and national and international trade, and others such as ports, airports, and dams, are highly vulnerable to the risk of disasters.

Additionally, the impacts on the secondary and tertiary road network, which are responsibility of the subnational entities, have been considerably high, mainly due to floods and landslides and in some proportion to seismic activity and droughts. However, even when there are no estimates of the possible losses caused by the damage to this road network, it is estimated that about 95 thousand kilometers of roads have been affected (Ministry of Transport, 2017), directly damaging the budgets of the

[34] ANI has focused on assigning the insurable force majeure risk to the concessionaire in harmony with the provisions of CONPES 3764N
[35] Colombia, Direct Reduction of Fiscal Risk by Insuring Road Infrastructure concessions for US $ 40,000 million (http://documents1.worldbank.org/curated/en/224851614150967750/pdf/Colombia-Reduction-in-Fiscal-Risk-by-Insuring-40-Billion-Dollars-Road-Infrastructure-under-Concession.pdf)

departments and municipalities and indirectly affecting commerce, due to the impossibility of transporting the load of the production of different industries.

Despite the lack of knowledge of the exact impact that this sector has absorbed and considering the recurrence of the different risks that affect it, it is necessary to initiate preventive interventions that, in terms of financial protection, ensure the reduction of fiscal vulnerability through the optimal combination of instruments and financial tools for both retention and risk transfer.

• V) Financial protection in subnational entities.

Considering that risk materializes at the local level, the MHCP is supporting subnational entities to strengthen their financial protection capacity in coordination with the national strategy but recognizing its particularities. Disaster Fiscal management in the Nation and the subnational entities is vital to avoid social and economic difficulties at an event. The multiple tragedies that municipalities and departments have suffered over the years can give an account of this.

The eruption of the Nevado del Ruiz volcano in Armero (Tolima) on November 13, 1985, was, until before the COVID-19 pandemic, the disaster that had claimed the most lives in Colombia. Despite almost 70 years of inactivity of the volcano, the volcano's eruption caused the death of approximately 23,000 of its 29,000 inhabitants, destroying more than $ 339 million in properties and costing the Nation 2.05% of GDP that year (USGS, 2001).

In the coffee region, an earthquake of magnitude 7.1 on the Richter Scale in January 1999 strongly affected the departments of Quindío and Risaralda. The coffee farms in both departments (the main economic activity in the region) were destroyed, causing a direct cost of approximately $ 900 million dollars and indirect costs of $ 600 million dollars (FASECOLDA, n.d.).

According to World Bank data, Colombia is the country with one of the highest rainfall rates in the world, with an average rainfall of 3,240 millimeters each year, which is concentrated in the departments of Chocó, Cauca, Risaralda, and Meta. On the other hand, 12% of the national territory is located in areas with a greater susceptibility to flooding, mainly in Valle del Cauca, Atlántico, Cundinamarca, Magdalena, Antioquia, Córdoba, Cesar, Cauca, and Meta.

18 % of the national territory is located in areas of high and very high risk due to mass movements, especially in the departments of Quindío, Risaralda, Caldas, Nariño, Cauca, Arauca, Meta, Huila, Cundinamarca, Boyacá, Tolima and Santander. On the other hand, 44% of the Colombian territory is exposed to high and intermediate seismic risk, mainly in Huila, Chocó, Valle del Cauca, Nariño, Risaralda, Cauca, and Quindío departments. (World Bank, 2012), evidencing the need for the territories to comprehensively manage their risks, including aspects related to financial protection.

Another example of the importance of managing disaster risks is the economic impact of closing the plains road (which connects the city of Villavicencio with the capital city Bogotá, DC) currently and since 2018. By September 2018, 188 landslides were reported in the road corridor, and it was necessary to close the road 136 times. Likewise, in 2019, nine closures of the same road between March and May, represented losses of almost 2 trillion Colombian pesos, mainly for the trade and services sector due to the decrease in overland tourism (Villavicencio Chamber of Commerce, 2019). All this without counting

the increase in inflation in agricultural products such as rice and meat that supply 30% of the country's domestic market, respectively (Dinero, 2019).

Colombia has been the epicenter of dozens of earthquakes greater than 5 on the Richter scale between the 20th and 21st centuries. In addition, it has suffered catastrophic landslides that greatly affect the fiscal capacities of subnational entities and other types of recurring disasters. For this reason, the national government encourages and promotes the creation of Financial Protection Strategies from Disaster Risk in all municipalities and departments.

Since 2017, the MHCP began the accompaniment and technical support to subnational entities in matters of Financial Protection, which materialized in May 2019 with the formulation and publication of the Financial Strategies for Financial Protection of the Metropolitan Area of the Aburrá Valley (AMVA)[36] and the Government of Cundinamarca[37], becoming the first subnational strategies worldwide, as stated by the World Bank's Disaster Risk Financing and Insurance Program (DRFI). In addition, the city of Medellín is currently developing the implementation of the financial protection strategy for its municipality, articulated with AMVA's and with the national level strategy, with the technical support of the different entities at the national level and with international support from the World Bank and SECO.

The Capital District (Bogotá, DC) has advanced in developing financial management for disaster risk. In addition, with the inclusion of the strategic lines in the District Disaster Risk and Climate Change Management Plan for Bogotá DC, 2018 - 2030, goals were formalized, aiming at financial protection. Through joint efforts between the District Institute for Risk Management and Climate Change (IDIGER), the District Treasury Secretary, and the MHCP, progress is being made in formulating the District Strategy for Financial Protection from Disaster Risk and Climate Change.

Subsequently, the possibility was given for any interested subnational entity to participate in the DRFI Program. Since the second semester of 2019, active work has been carried out on the implementation of the aforementioned subnational strategies and the design of the Financial Protection Strategies of the departments of San Andrés, Providencia and Santa Catalina[38] (Archipelago), Putumayo[39], Huila, and Tolima. The first two have already been formalized and published, and the latter are being finalized at the time of this publication, as shown in the following figure.

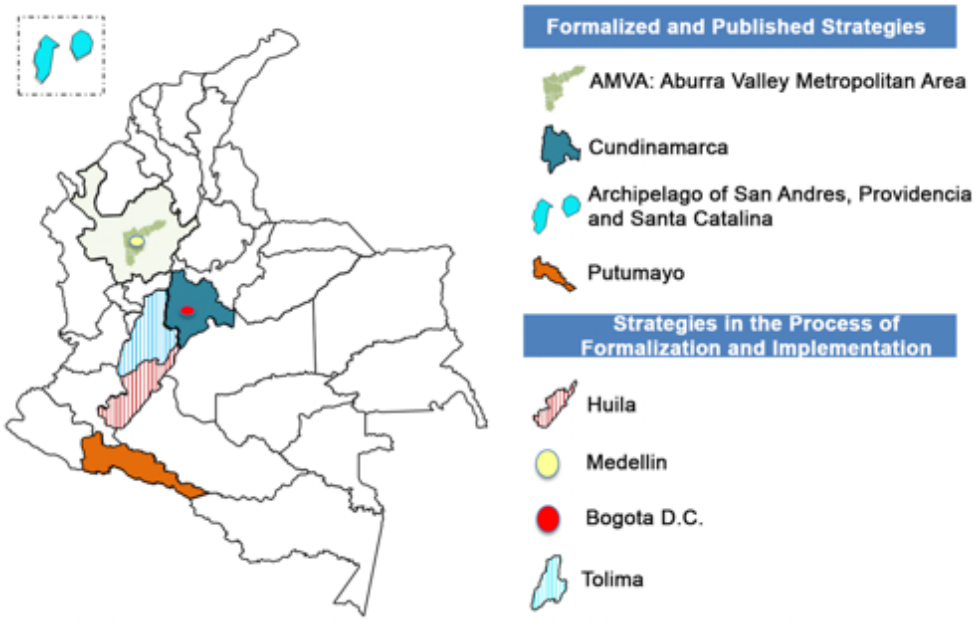
Figure No. 6. TERRITORIES THAT ARE PART OF THE DRFI PROGRAM

[36] Available at: https://www.metropol.gov.co/ambiental/Gestin%20financiera%20ante%20el%20riesgo/Estrategia%20de%20gestio%cc%81n%20financiera%20rantes%20el%20riesgo%20de%20desastres.pdf#search= financial protection% C3% B3n% 20

[37] Available at: http://www.cundinamarca.gov.co/wcm/connect/ca100655-14a6-4f85-aa8c-f1c719abd60c/ESTRATEGIA+FINANCIERA+PARA+LA+GESTION+DEL+RIESGO.pdf?MOD=AJPERES&CVID=mGdSOP7&CVID7mGdSOP7&CVID7mGdSOP7&CVID7mGdSOP7&CVID7mGdSOP7

[38] Available at: https://www.sanandres.gov.co/index.php/prensa/enterese/publicacionese

[39] Available at : http://www.urf.gov.co/webcenter/ShowProperty?nodeId=%2FConexionContent%2FWCC_CLUSTER-130181%2F%2FidcPrimaryFile&revision=latestreleased



Source: Prepared by the Risk Sub - Directorate of the General Directorate of Public Credit, MHCP.

The proposed actions regarding the implementation of the aforementioned financial protection strategies respond to the risks of each region and are structured according to the priorities of each subnational entity, considering geographic factors, exposure to risks, economic losses, historical and most representative economic sectors, as well as contribution to municipal/departmental/metropolitan /district GDP, all of this reflected in specific work plans, adjusted to the same approach as their public policy documents.

Subnational financial protection contributes to mitigate the impact of catastrophic events on local budgets and must be accompanied by public policies focused on preventive interventions. Public policy on financial protection seeks to guarantee the availability of resources to have access ex-post to timely economic resources for relief, rehabilitation, and disaster recovery, which must be managed ex-ante. This would avoid resorting to underfunding previously structured development plans and programs or increasing public indebtedness.

Subnational Entities Risk Management

As mentioned above, governments and subnational entities are exposed to events of different nature (social, economic, environmental, etc.) that can put their fiscal sustainability at risk, either due to eventual falls in their income, limitations to assume commitments of spending, accumulation of liabilities, reduction of current savings or increase in the fiscal deficit, situations that could compromise their ability to provide the goods and services required by citizens.

In order to mitigate the risk factors identified, the subnational governments currently have four financial protection instruments: creating special funds, acquiring insurance policies for their assets, entering into debt, or creating local taxes.

The primary economic resources to handle emergencies come from subnational entities funds called Contingent Liability Funds created under Law 448 of 1998 and modified by Law 1955 of 2019 and the National Pension Fund of Subnational Entities - FONPET - established by Law 549 of 1999.

Since 2019, subnational entities and their decentralized entities can create autonomous Contingency Funds in order to make provisions against contingent liabilities defined in article 3 of Law 819 of 2003: *i)* contractual contingencies (Decree 423 of 2001), *ii)* derived from public credit operations (Decree 3800 of 2003) and *iii)* judgments and conciliations.

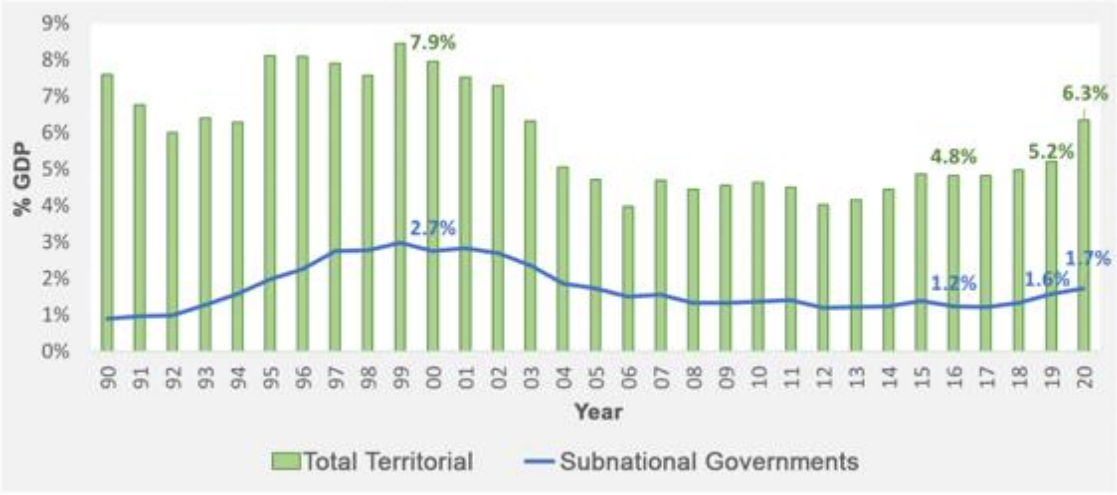
In order to do this, the entities must identify the contingent liabilities that arise during the administration, value assessment, and include in their debt service budget the appropriations necessary to feed the Fund following the evolution of the event that could materialize the contingent liability.

Concerning disaster risk, the subnational entities have their departmental or municipal funds constituted and some regulated, but they have not yet appropriated resources for financial protection.

It is worth mentioning that the territory budget reallocations and the budget allocations to the FNGRD are the first sources of financial resources to be used in the event of a disaster.

As already stated, debt is another financial instrument that provides resources to address disasters. It is important to note that access to credit for subnational governments is limited by Law 358 of 1997, which defines a maximum ratio of 80% between the balance of debt and current income and a ratio of no more than 40% of interest and operational savings [40]. Currently, the levels of subnational debt are moderate, as shown in the following graph, and below the levels of the OECD countries (24.2%)[41].

CHART No. 9. SUBNATIONAL PUBLIC DEBT (% GDP)



Source: DAF calculations with data from the Secretaries of Finance and CGR

[40] Upon meeting the limits indicated, the entity will have full autonomy for the acquisition of new credits. Otherwise, it will require the authorization of the Ministry of Finance and Public Credit.

[41] OECD stats (2020) Subnational governments in OECD: key data SNG Budget a balance and debt. OECD.

Local administrations have the possibility of accessing credit resources as a mechanism to mitigate the effect of unforeseeable eventualities, specifically those aimed at investment projects.[42] However, this has not yet been considered within debt management as a financing mechanism for risk reduction or risk and vulnerability mitigation. Little–used resources are available according to the conditions of the market and capacities of the entity to guarantee those obligations.

It is worth mentioning the case of Bogotá, which in 2006 signed a loan for USD 80 million with the World Bank to reduce fiscal vulnerability to the occurrence of disasters, which had five (5) components: (i) Component A was aimed at improving the District's capacity to identify and monitor risks; (ii) Component B to reduce the level of damage to essential infrastructure; (iii) Component C to strengthen the entities of the Emergency Prevention and Attention System; (iv) Component D, included the subcomponents of risk training, mass communication, social-environmental actions for risk reduction, and the comprehensive resettlement of households located in non - mitigable, high - risk areas; and (v) Component E to develop a financial risk strategy for losses due to natural disasters[43].

Within this Strategy, it is essential to contribute to social and economic development within the territories from the design and implementation of Financial Protection Strategies at the Subnational level to promote risk management in each of the regions against different risks of natural origin in order to manage the portfolio of financial instruments subject to the particular needs of the territories but coordinated with the ENPFRDEP.

For the MHCP, it is a priority to direct efforts to generate mechanisms that facilitate the access of territories to sources of post-disaster financing in such a way that, with ex-ante management, resources are guaranteed to face emergencies, within the framework of proper and prudent fiscal management.

In order to reference a guiding framework that allows subnational entities to prosecute financial protection actions through financial tools such as contingent lines offered by the market to ensure the availability of resources without compromising the level of indebtedness unless it is strictly necessary, the following section is presented:

- Fiscal Discipline as a Debt Risk Management Mechanism of Subnational Level

Colombia's fiscal and political decentralization was accelerated by the mandate of the Political Constitution of Colombia of 1991, granting greater political, administrative, and fiscal autonomy to the subnational governments.

In this context, measures were adopted aiming at promoting fiscal responsibility and discipline for subnational entities, among which the following stand out:

TABLE No. 4. RESPONSIBILITY AND FISCAL DISCIPLINE MEASURES AT THE SUBNATIONAL LEVEL

[42] Law 358 of 1997 does not allow public credit operations to finance recurring expenses, especially operating expenses.
[43] This credit is aligned with the credit subscribed for USD 260 million by the national level in 2005 in order to reduce fiscal vulnerability to the occurrence of disasters.

Law	Regulation
358 of 1997	Whereby establishing the regulatory procedure of article 364 of the Constitution, and other provisions regarding indebtedness are enacted.
550 of 1999	Whereby establishing a regime that promotes and facilitates business reactivation and the restructuring of subnational entities to ensure the social function of companies and achieve the harmonious development of the regions and provisions are issued to harmonize the current legal regime with the regulations of this law.
617 of 2000	Whereby establishing the partial amendment of Law 136 of 1994, Extraordinary Decree 1222 of 1986, the organic budget law is added, Decree 1421 of 1993, other norms are enacted to strengthen decentralization, and norms are enacted for rationalization. of national public spending.
819 of 2003	Whereby enacting organic norms in relation to budget, responsibility, and fiscal transparency, and other provisions are enacted.

Source: Prepared by MHCP

In this sense, the capacity for indebtedness at the subnational level in Colombia has an implicit regulatory framework to guarantee greater robustness in public finances and reduce the risks of credit operations carried out by local administrations. For example, for acquiring a new loan by a subnational entity, the borrower must demand compliance with the respective limits defined in Law 358 of 1997 and Law 617 of 2000[44].

Additionally, and without being alien to market conditions, the departments, districts, and municipalities of special category 1 and 2 that have an interest in contracting new loans must comply with the requirement to submit an analysis issued by a risk rating agency where it is accredited the indebtedness capacity of the subnational entity.

As a result of applying these rules, regional and local finances have strengthened since the late 1990s. In particular, operating expenses subject to the dynamics of own - collection income stabilized, current savings increased, liabilities were restructured and decreased, progress was made in identifying and debugging both pension and contingent liabilities, and overcame a situation of fiscal deficit, and investment expanded without increasing the debt balance as a percentage of GDP. In this context, the

[44] Law 819 of 2003

risks associated with the management of public finances are currently limited thanks to the implementation and high level of compliance with the rules of fiscal discipline by subnational entities.[45]

In this sense, beyond the autonomy that local governments have for the fiscal management of their resources, the regulatory framework of fiscal discipline in Colombia has been consolidated as a vital tool in analyzing the debt capacity to reduce risks associated with public fiscal management.

[45] However, it is important to mention that some subnational governments still have significant budgetary weaknesses that have forced them to adopt Fiscal Sanitation Programs or Liability Restructuring Agreements within the framework of Act 550 of 1999.

Bibliography

Ghesquiere, Francis & Mahul, Oliver. (September 2010). *Financial Protection of the State against Natural Disasters.* World Bank.

World Bank, GFDRR (2012). Campos A .; Holm - Nielsen N .; Díaz C .; Rubiano D .; Costa C .; Ramírez F .; Dickson E. *Analysis of disaster risk management in Colombia: a contribution to the construction of public policies.* Bogotá, Colombia.

Grandolini, Gloria. (July 2012). *Colombia: an innovative response to natural disasters.* World Bank. Recovered from: https://blogs.worldbank.org/es/latinamerica/colombia-cr-dito-a-la-innovaci-n-en-prevenci-n-de-desastres

Europa Press. (October 11, 2017). *The World Bank activates the catastrophe bond of 127 million euros to Mexico after the earthquake.* Recovered from: https://www.europapress.es/internacional/noticia-banco-mundial-activa-bono-catastrofe-127-millones-euros-mexico-terremoto-20171011061603.html

Artemis (May 29, 2019). *Peru cat bond payout decision within 20 days: Minister of Finance*. Steve Evans. Recovered from: https://www.artemis.bm/news/peru-cat-bond-payout-decision-within-20-days-minister-of-finance/

Pettersen. I, Skjelvik. J. M, Krokeide, N. (August 2006). *Taking advantage of international financial markets to manage the risk of natural hazards in Latin America.* IDB, Washington, D.C.

World Bank. (February 7, 2019). *World Bank issues catastrophic earthquake bond in Pacific Alliance.* Press release. Recovered from: https://www.bancomundial.org/es/news/press-release/2018/02/07/banco-mundial-emite-bono-catastrofico-contra-terremotos-en-la-alianza-del-pacifico

World Bank. (April 14, 2020). *Disaster Risk Management - Context*. Recovered from: https://www.worldbank.org/es/topic/disasterriskmanagement/overview#1

Charry, Diana. (2017). "*The extra-contractual liability of the Colombian State for damages generated by natural disasters."* Law School, Universidad Externado de Colombia. Bogotá, D.C.

Ministry of Finance and Public Credit (July 2019). *Medium Term Fiscal Framework*. Recovered from: https://www.minhacienda.gov.co/webcenter/ShowProperty?nodeId=%2FConexionContent%2FWCC_CLUSTER-111638%2F%2FidcPrimaryFile&revision=latestreleased

Benitez, Jaime. (April 4, 2001). *Mocoa, tragedia anunciada.* El Tiempo, Colombia.

ODI. (2014). *Cambio climático y riesgos de desastres.* Retrieved from: https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9587.pdf

ECLAC. (February 2014). *A Handbook to Asses Disasters*. United Nations. Retrieved from: https://repositorio.cepal.org/bitstream/handle/11362/35894/1/S2013806_es.pdf

DANE. (August 30, 2011). *Reporte Final de Áreas Afectadas por Inundaciones 2010 – 2011.* Retrieved from: https://www.dane.gov.co/files/noticias/Reunidos_presentacion_final_areas.pdf

Molina, Carlos. (April 11, 2019). *Fiscal protection against natural disasters.* Recovered from: https://revista.fasecolda.com/index.php/revfasecolda/article/download/519/487/

Esther Payueta. (December 2017). *This is how natural disasters are related to climate change.* The World. Recovered from: https://futurosostenible.elmundo.es/mitigacion/asi-se-relaciona-los-desastres-naturales-con-el-cambio-climatico

UNGRD (2018). COLOMBIA MENOS VULNERABLE. La gestión del riesgo de desastres en nuestra historia. TOMO I. 01. Y UNA NOCHE MOCOA SE DESVANECIÓ.

Ministry of Agriculture and Rural Development and IDEAM. (March 2013). *Efectos del cambio climático en la producción y rendimiento de cultivos por sectores. Evaluación del riesgo agroclimático por sectores.* Retrieved from: http://www.ideam.gov.co/documents/21021/21138/Efectos+del+Cambio+Climatico+en+la+agricultura.pdf/3b209fae-f078-4823-afa0-1679224a5e85

United States Geological Survey - USGC. (2001). *Socioeconomic and Environmental Impacts of Landslides in the Western Hemisphere.* Retrieved from: https://pubs.usgs.gov/of/2001/ofr-01-0276/

Fasecolda. (s.f). *Colombia: el impacto de sus terremotos a lo largo de la historia.* Retrieved from: https://www.fundacionmapfre.org/documentacion/publico/i18n/catalogo_imagenes/imagen_id.cmd?idImagen=1065434

World Bank, Colombian Agency for International Cooperation and National Planning Department. (October 2004). *Estudio sobre desastres ocurridos en Colombia: estimación de pérdidas y cuantificación de costos.*

World Bank. (2019). *Promedio detallado de precipitaciones (mm anuales).* Retrieved from: https://datos.bancomundial.org/indicador/AG.LND.PRCP.MM?view=map

Villavicencio Chamber of Commerce. (November of 2019). *Impacto económico "cierre de la vía Bogotá-Villavicencio".* Retrieved from: http://ccv.org.co/site/fileadmin/user_upload/Investigaciones_Economicas/INFORME_FINAL_DE_LA_VIA_A_BOGOTA_FINAL_.pdf

Dinero. (June 14 of 2019*). El cierre de la vía al Llano y su millonario impacto.* Retrieved from: https://www.dinero.com/economia/articulo/impacto-economico-del-cierre-de-la-via-al-llano/273274

Government of Colombia. Contribución Prevista y Determinada a Nivel Nacional iNDC. Retrieved from https://www.minambiente.gov.co/images/cambioclimatico/pdf/colombia_hacia_la_COP21/iNDC_espanol.pdf

Ruiz C. and Pabón C., A.d. (2013). Efecto de los fenómenos de El Niño y La Niña en la precipitación y su impacto en la producción agrícola del departamento del Atlántico (Colombia). Cuadernos de Geografía: Revista Colombiana de Geografía, 35-54.

Arango, S. Turner, S. Daenzer, K. Ríos - Ocampo, J Hejazi, M; Kober, T; Álvarez, A.

Romero, G van der Zwaan, B. (2019) Climate impacts on hydropower in Colombia: A multi-model assessment of power sector adaptation pathways, Energy Policy.

IDB CEPAL DNP (2014) Economic impacts of climate change in Colombia - Synthesis study.

IDB (2015). Índice de Gobernabilidad y Políticas Públicas en Gestión de Riesgo de Desastres (iGOPP). Informe Nacional Perú. División de Medioambiente, Desarrollo Rural y Administración de Riesgos por Desastres. TECHNICAL NOTE # IDB-TN-745.

IDB (2015). Índice de Gobernabilidad y Políticas Públicas en Gestión de Riesgo de Desastres (iGOPP). National Report. Chile. División de Medioambiente, Desarrollo Rural y Administración de Riesgos por Desastres. TECHNICAL NOTE # IDB-TN-751.

IDB (2018) Climate change: building resilience and reducing emissions

The Coalition of Finance Ministers for Climate Action - CFMCA (2020) Better Recovery, Better World.

OECD / The World Bank (2019). Fiscal Resilience to Natural Disasters: Lessons from Country Experiences. Paris: OECD Publishing.

OECD (2014). Boosting Resilience through Innovative Risk Governance, OECD Reviews of Risk Management Policies. Paris: OECD Publishing; OECD / The World Bank (2019). Fiscal Resilience to Natural Disasters: Lessons from Country Experiences. Paris: OECD Publishing.

OECD (2015), Disaster Risk Financing: A global survey of practices and challenges, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264234246-en

OECD (2020). Common Ground Between the Paris Agreement and the Sendai Framework: Climate Change Adaptation and Disaster Risk Reduction. Paris: OECD Publishing.

IMF (2016). Analyzing and Managing Fiscal Risks: Best Practices.

Jaramillo, F; Gómez, L. Calderón S, Romero G, et al (2015). The economic impacts of climate change - Economic costs of extreme events. Ed IDB- CEPAL- DNP.

CIP - Pontificia Universidad Católica de Chile (2012). Emergency and Reconstruction: the before and after the earthquake and tsunami of 27-F in Chile. Learning About housing, urban, and insurance matters.

Teknidata Consultores and Environmental Economic Assessment SAS (2014). Impact evaluation of the project - Reduction of Vulnerability to Disasters in Bogotá, partially financed with a loan - IBRD 7365 - CO. Executive Summary Final Report.

UNFCCC Standing Committee on Finance (2018) 2018 Biennial Assessment and Overview of Climate Finance Flows Technical Report.

Swiss Re Institute (2021). Sigma No1/2021. Natural catastrophes in 2020: secondary perils in the spotlight, but don't forget primary-peril risks.

Williams (2011). Study on disaster risk reduction, decentralization, and political economy analysis prepared as UNDP's contribution to the Global Assessment Report on Disaster Risk

Reduction 2011. The Political Economy of Disaster Risk Reduction.

Virtual reference:

Center for Research on the Epidemiology of Disasters (CRED) and UN Office for Disaster Risk Reduction (UNISDR). Economic Losses, Poverty & Disasters, 1998-2017. Available at: https://www.undrr.org/publication/economic-losses-poverty-disasters-1998-2017#:~:text=The%20report%20finds%20that%20between,in%20need%20of%20emergency%20assistance.

Pan American Health Organization (PAHO) and WHO Regional Office for the Americas. COVID-19. Glossary on outbreaks and epidemics. A resource for journalists and communicators. Available at: https://www.paho.org/es/documentos/covid-19-glosario-sobre-brotes-epidemias-recurso-para-periodistas-comunicadores

Ministry of Social Protection. The Republic of Colombia. Epidemiological report. Available at: https://www.minsalud.gov.co/sites/rid/1/AN%C3%81LISIS%20DE%20LA%20PANDEMIA%20DE%20INFLUENZA%20A%20H1N1.pdf

Ministry of Finance and Public Credit ABC: Economic and social emergency. Available at: https://www.minhacienda.gov.co/webcenter/ShowProperty?nodeId=/ConexionContent/WCC_CLUSTER-126997

https://www.gob.mx/agroasemex

Carrera 8 No. 6 C 38
Bogotá D.C. Colombia

atencioncliente@minhacienda.gov.co

www.minhacienda.gov.co