# CLIMATE RISK TRANSFER PUBLIC POLICIES: AN ANALYSIS OF THE COLOMBIAN CASE

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## ABSTRACT

Colombia is one of the Latin America and Caribbean Region (LAC) countries to have achieved substantial progress in financial protection Public Policies (PPs). Following the integral approach of the Disaster Risk Management (DRM) and through a comprehensive review of international and (sub)national regulatory frameworks, this study analyzes the PPs relating to climate risk transfer in Colombia as well as exploring challenges and recommendations in overcoming them. It is expected that the study will prove to be a reference for implementing risk transfer PPs in other countries in the region. We have identified and characterized DRM and risk transfer PPs through a matrix integrated with 21 items related to three typologies: reference, context and content, with eight PPs having been identified as relating to our topics of interest. The results show that the frameworks for Colombian PPs include risk transfer with regard to natural phenomena but are not specific to a single kind of event. Likewise, they are not regulated at the subnational level and present a top-down approach. Some identified limitations reflect the absence of evaluation and monitoring instruments and a lack of information about the consulting and participatory processes.

## KEYWORDS

Climate change adaptation; Climate risk transfer; Colombia; Disaster risk management; Public policies

POLÍTICAS PÚBLICAS DE TRANSFERENCIA DEL RIESGO CLIMÁTICO: UN ANÁLISIS AL CASO COLOMBIANO

## RESUMEN

Colombia es uno de los países de la región de América Latina y el Caribe (LAC) con mayores avances en Políticas Públicas (PPs) de protección financiera. Siguiendo el enfoque integral de la Gestión del Riesgo de Desastres (GRD) y mediante una revisión comprensiva del contexto internacional y (sub)nacional, este estudio analiza las PPs de transferencia del riesgo climático en Colombia y presenta retos y recomendaciones para superarlos, como referencia para la implementación de marcos de PP de transferencia del riesgo en otros países. Identificamos ocho PPs y realizamos una caracterización de las PPs de GRD y transferencia del riesgo a través de una matriz de análisis compuesta por 21 variables relacionadas con tres tipologías: referencia, contexto y contenido. Los resultados muestran que las PPs colombianas incluyen a la transferencia del riesgo ante fenómenos naturales, pero no se encuentra regulada en el nivel subnacional y presentan un enfoque 'top-down'. Las limitantes identificadas se basan en la carencia de instrumentos de monitoreo y evaluación, así como de información sobre los procesos de consulta/participación.

## PALABRAS CLAVES

Adaptación al cambio climático; Colombia; Gestión del Riesgo de Desastres; Políticas Públicas; Transferencia del Riesgo climático

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## INTRODUCTION

According to Bello (2017), 10,271 disasters have been recorded worldwide, while 16.9% of them occurred in the Latin America and Caribbean region (LAC): climate-related disasters are the most representative. Floods, droughts and tropical cyclones were recorded as having higher recurrence and with greater impacts. Moreover, climate- related hazards are set to increase in intensity due to the influence of climate change (UNDRR, 2020).

The LAC region has implemented theoretical approaches for addressing disaster reduction, in recent times administered through Public Policies (PPs). For instance, in the early '90s there was a general agreement that disasters are as a consequence of human activity and could be prevented through urban/regional planning. This idea, derived from the sociological conception of disaster (Beck, 1999) prompted a reflection on the event's causes, factors and triggers. In the LAC region, such approaches were enhanced (Maskrey, 1993) and subsequently developed by the Network for Social Studies on Disaster Prevention in Latin America (LA RED in Spanish) (LA RED, 1992). The work carried out by LA RED influenced the PPs in the region, moving from the 'disaster response' to an 'understanding and prevention' approach (Lavell & Wilches-Chaux, 1997; Trejo-Rangel et al. 2022).

### Disaster risk management in the LAC region

The transboundary project 'Support to the Disaster Prevention in the Andean Community 2005-2009' (PREDECAN in Spanish) (CAN, 2002) aimed to reduce the vulnerability of people and goods to natural hazards. The project focused on socioeconomic vulnerability (rather than physical vulnerability) and risk knowledge rather than disaster response. In the frame of PREDECAN, the theoretical and methodological approach carried out by Narváez et al. (2009) brought a new regional perspective for addressing disaster risk. The Disaster Risk Management (DRM) introduced through this approach established six processes: (i) risk knowledge, (ii) prevention of future risk, (iii) reduction of the current risk, (iv) response preparation, (v) response and rehabilitation, (vi) recovery and reconstruction. Regarding components iv and v, the DRM, through processes, considered financial protection as an alternative for reducing the economic impacts of disasters. It is currently the most widely used public policy in the LAC region due to its alignment with the Sendai Framework for Action.

To provide context, it is worth noting that the disaster risk finance component emerged as a priority in the Hyogo Framework for Action 2005-2015. Further notable progress in the design of PPs in the LAC region came about via the guidelines developed by Cardona (2009) –through the framework of PREDECAN– for promoting financial protection in the Andean subregion. Such work exposed the principal financial instruments for risk retention and risk transfer to reduce disaster risk. Other academic models for disaster risk intervention include risk transfer, such as the risk governance model used in Europe (Klinke & Renn, 2019) and the USA (IRGC, 2017).

Financial protection is a compound of risk retention and risk transfer. Risk transfer is defined as the 'process of formally or informally shifting financial consequences of a particular risk from one party to another, whereby an actor obtains resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party' (UNDRR, 2017). Risk transfer as a component of disaster reduction has been widely used since the early 21st century, having been consolidated through the Hyogo Framework for Action. Prior to this (throughout the 20th century), disaster risk finance was institutionalized by PPs (with private sector support) in developed countries, mainly through natural hazard pools (Haueter, 2017) especially in Switzerland (Savina et al. 2020), Germany (Maurer & Somova, 2005) and the USA (Swiss Re, 2017). In the LAC region, we find the implementation of representative risk transfer in PPs having taken place since 2005, specifically for earthquakes and climate-related hazards (Fernández, 2020).

Risk transfer is activated when an extreme event strikes, providing support for the affected population through resources aiding their recovery. Risk transfer does not mean a DRM strategy per se. Miller and Keipi (2006) argued that it must be carried out alongside comprehensive risk knowledge, risk reduction and recovery processes, with the specific aim of avoiding the promotion of risky behaviors within the insured populations due to the existence of a risk transfer policy (a situation called moral hazard/risk). In this case, risk transfer is not equivalent to risk reduction but a component that reduces the negative socioeconomic impacts of the events. Risk transfer is

designed to address the residual risk and must be implemented in parallel with other DRM actions. Hence, it reduces the probability of the population developing a dependency on the risk transfer mechanisms –the so-called 'charity hazard', as described by Raschky and Weck-Hannemann (2007). In this regard, risk transfer must be implemented within a comprehensive DRM strategy to avoid working in silos. Consequently, the counterpart to risk transfer is a set of alternatives aimed at distributing the economic consequences of an event through a sufficient quantity of risk holders. This counterpart would impact positively on the knowledge and risk reduction processes of DRM as it increases sectoral synergies. However, it would appear to be a non-practical alternative due to the sizeable complexity of distributing responsibilities (in silos) through several sectors and institutions.

**Risk transfer in the LAC region**

In the LAC region, risk transfer consists of three strategies: assurance of properties from disaster risk, agricultural insurance, and social protection from disasters. Of these, the most addressed is transferring the risk of national public real estate to capital markets. The risk transfer instruments generally used are insurance, reinsurance, and catastrophic insurances. These differ according to the impacts and recurrence of the hazards. For instance, low/medium recurrence and moderate impact would suggest (re)insurance, while high recurrence and moderate impacts would lean towards catastrophic insurance (MHCP, 2012).

The most significant signs of progress in risk transfer in the LAC region are: (a) The inclusion of risk transfer in sustainable development PPs. Some manifest themselves as national policies on DRM such as with Mexico (SHCPM, 2012), Jamaica (Senate of Jamaica, 2015), Colombia (Congreso de Colombia, 2012), Peru (Congreso del Perú, 2011), Bolivia (Asamblea Legislativa de Bolivia, 2014) and Chile (ONEMI, 2020). (b) Signs of progress relating to inclusive insurance (WFP, 2021) making the market more accessible and reducing the insurance gap between low-income and high-income countries. (c) The consolidation of a segregated portfolio company as with the Caribbean Catastrophe Risk Insurance Facility (CCRIF, 2021a), of late activated during the hurricane season (June 2021) and through the US$ 40 million payouts after the Haiti earthquake on 14th August 2021 (CCRIF, 2021b).

There are relevant examples of the implementation of financial protection instruments in the LAC region. One of the most representative in terms of innovation and antiquity is the FONDEN –Natural Disasters Fund– of Mexico. FONDEN is an interinstitutional instrument which focuses on the application of economic resources for mitigating against the impact of natural phenomena. Currently, FONDEN is being decommissioned and the culmination of its operations is being processed by the Federal Government during 2022/23 (CEFP, 2022). In Peru, Act No. 29664 of 19th February 2011 created the National System for Disaster Risk Management (SINAGRED), establishing the disaster risk financial management strategy (Ministerio de Economía y Finanzas, 2016) to include the implementation of risk transfer tools for public and private assets. Finally, in Colombia, the DRM fund incorporates a sub-account specifically designed with risk retention and risk transfer in mind (Congreso de Colombia, 2012). In such cases, the financial protection fund represents a fundamental instrument that enhances the capacity of the territories to prepare and recover from the economic impact of disasters.

The experiences of the three countries mentioned above reflect the way that risk transfer is regulated and implemented in the region. It is regulated by each national government through the respective ministries of the economy which assures the viability of the risk financing instruments jointly with the DRM authority ensuring a comprehensive approach and articulation with the DRM priorities and planning instruments. Regulatory processes are carried out in line with international regulatory frameworks/guidelines (e.g., the World Bank and InsuResilience) and sectoral national associations from the private sector (e.g., FASECOLDA in Colombia).

Despite such progress in the LAC region, there are still challenges and limitations that the countries must overcome to address disaster risk finance. Fernández Lopera (2020) exposes the challenges facing financial protection in the Latin American region, which remain in the hands of (sub)national governments, international development agencies/donors and the private sector. The three types of stakeholders have a common challenge in the LAC region. This relates to the design and operationalization of risk transfer strategies in the framework of comprehensive DRM PPs. As such, highlighting the Colombian risk transfer PPs as a reference for developing risk transfer in the LAC region is pertinent. Likewise, the analysis of the Colombian case promotes the articulation of

the risk transfer PPs to other Colombian planning instruments, namely the development plans of the national, departmental, municipal and indigenous territories.

**Colombia as a case study**

Colombia is one of the countries in the LAC region facing greater exposure to hydrometeorological threats such as floods given that 20 million people have been affected by such events in the last 20 years (UNDRR, 2020). Of the entire South American continent, it is the country most affected by floods (Bündnis Entwicklung Hilft, 2019). Colombia is particularly vulnerable to climate-related hazards such as floods, droughts and tropical cyclones; likewise, it presents intermediate adaptability to climate change compared to other LAC countries (Nagy et al., 2018).

In Colombia, Law No. 1523 of 2012 requires DRM authorities to implement risk transfer mechanisms for reducing vulnerability to disasters. These are covered in the Financial Protection Subprocess under Process No. 2 'risk reduction' (where Process No. 1 is 'risk knowledge' and Process No. 3 is 'disaster management') (Congreso de Colombia, 2012). On the other hand, Law 1955 of 2019 established the National Development Plan 2018-2022 (Article 269) and specified the reduction of the state's fiscal vulnerability to disasters (Congreso de Colombia, 2019).

Despite many signs of progress at the national level in Colombia, risk transfer is poorly addressed at the subnational level. Although relevant technical (Salgado-Gálvez et al. 2017) and institutional capabilities (Cardona, 2019) for carrying out comprehensive risk transfer schemes are in place, the territories are still lacking with regard to risk transfer. In this sense, this work aims to analyze the climate-related risk transfer PPs in Colombia as a contribution to the advancement of DRM PPs frameworks in the LAC region. This work studies the contexts, stakeholders, development features and inclusion of risk transfer within the environmental planning instruments. To this end, we have constructed a matrix with 21 items divided into three typologies: reference, context and content. The analysis has an international and (sub)national scope.

## METHODOLOGY

To address the objective, we have developed a matrix for the analysis of PPs that refers to the characterization of risk regulation regimes presented by Hood et al. (2001). The variables from the regulation regimes matrix include reference, context and content. The reference variables reflect the general features that allow the location of the PP in a given field of knowledge, as well as to identify the hierarchy of the PP in national contexts. The context variables show the international framework, participatory process, stakeholders, and modifications/revisions. The content variable develops the analysis matrix presented by Valente (2013), who incorporates information about the goals, objectives, users, indicators and funding sources to help to understand how the policy is structured. Such variables contribute to the understanding of the hierarchy and approach (top-down or bottom-up) of the framework for the risk transfer PPs.

Table 1 introduces the eight PPs at international and (sub)national levels included in this research. The variables on reference, context and content have 21 items and afford a deeper understanding of each PP. The matrix helps to identify and articulate context details not presented in the documents that legally establish them. The understanding of the context of the PPs improves the articulation with other development planning instruments, such as local and national development plans, land use, sectoral development and DRM plans. The variables of reference, content and context help facilitate the understanding of the risk transfer role in consolidating a solid sustainable development PP framework.

Within the reference variables, the item of 'general topic' indicates whether or not the PP is related to environmental sustainability, DRM, climate change adaptation, economic development or poverty reduction. The item 'name' refers to the name of the PP according to the official administrative act. It serves to recognize if the PP is a law, a decree, or a resolution, indicating the hierarchy of the PP. Some PPs, with (inter)national frameworks for example, stipulate deadlines. Hence, items with 'year of establishment' and 'ending year' present the period of validity for the PP. The item 'leading organization' refers to the organization responsible for the implementation of the PP or for promoting its exertion into the (sub) national systems.

For the context variables, the item 'common elements' describes those that articulate the PPs. The item 'milestones' refers to events that triggered the creation of the PP, for instance, structural changes in the government model, relevant natural, socio-natural or anthropogenic events, disasters

and the influence of international PPs. The item 'level/scope' refers to the territorial level in which the PP is applied (i.e., national, departmental, district, local and sectoral).

| PUBLIC POLICIES | | |
|---|---|---|
| **International** | **National** | **Subnational** |
| 1. Hyogo 2005- 2015<br>2. Sendai 2015-2030 | 3. Law 1523/ 2012 | 8. Financial Protection Departmental Strategy for Disaster Risk Management (EDPF in Spanish) |
| | 4. Law 1931/ 2018 | |
| | 5. Decree 308/ 2016 | |
| | 6. Policy Strategy for Public Financial Disaster Risk Management (EGFRD in Spanish) | |
| | 7. Law 1955/ 2019 | |
| **VARIABLES** | | |
| **Reference Variables** | **Context Variables** | **Content Variables** |
| General topic | Common elements | Application instruments |
| Specific topic | Milestones | Structural topic |
| Name | Level/scope | Goal and objective |
| Law, decree, act. | Context of the international framework | Specific objectives |
| Year of establishment | Participatory process | Main end users |
| Ending year | Stakeholders | Indicators |
| Leading organization | Modifications and revisions | Funding sources |

**Table I. Matrix for analyzing public policies related to disaster risk management and climate risk transfer at the national and sub-national level for Colombia**
Source: Authors, 2023.

The item 'context of the international framework' shows the approach (bottom-up or top-down) of the international PP that influences the national PP. The item 'stakeholders' refers to the institutions and grassroots organizations in charge of implementing the PP. The item 'modifications and revisions' identifies whether the PP was modified, with the aim of acknowledging changes in its approach or scope.

Content variables expose the structural components of the PP. The item 'application instruments' seeks to know if the PP has financial and planning instruments such as plans, programs, projects, territorial and sectoral intervention strategies and funds. The item 'structuring topic' tells us if the PP refers to environmental management, DRM or risk transfer. The items 'goal and objective' and 'specific objectives' show those that are established in the administrative acts. The item 'main end-users' refers to the beneficiary groups. The item 'indicators' specifies if the PP has a monitoring and evaluating system of progress/results. 'Indicators' includes the periodicity, responsibility, evaluation period and channels for communicating advances and outputs. Finally, the item 'funding sources' identifies the financial mechanisms of the policy, specifying whether the resources are autonomous and specific.

The identification of the PP was carried out through the definition of topics related to risk and disasters triggered by natural events such as sustainable development, economic development, DRM, territorial planning and governance. Subsequently, gray and academic literature was reviewed in order to identify the main regulatory framework (Figure 1).

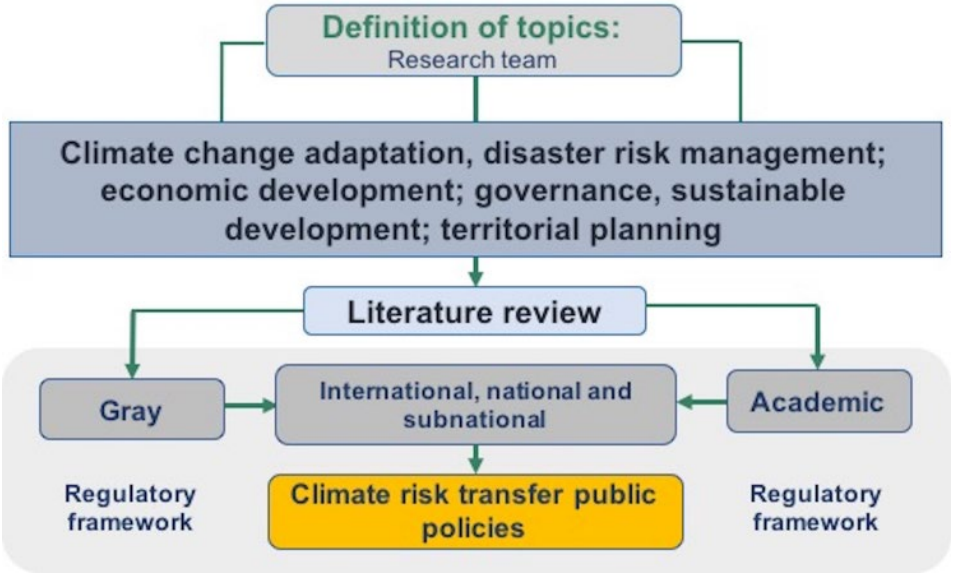


**Figure 1. Sequential scheme for the identification of the public policies related to climate disaster risk transfer**
Source: Authors, 2023.

## RESULTS

After reviewing the sustainable development regulatory framework following the sequential scheme in Figure 1, we identified the PPs related to DRM and risk transfer at the international and national levels. We found that at the national level, there are more specific PPs related to earthquake-resistant constructions. However, since this study is focused on climate-related issues and given that the main climate-related events in Colombia are floods, flash floods and tropical cyclones (UNGRD, 2022), we do not include such seismic framework in this analysis.

We identified a total of eight PPs, including five from the national level: (i) Act No. 1523/2012, (ii) Policy Strategy for Public Financial Disaster Risk Management (EGFRD in Spanish), (iii) Act No. 1931/2018, (iv) Act No. 1955/2019, (v) Decree No. 308/2016 updated by the Decree No. 1478/2022. One PP at the departmental level was selected as a case study: (vi) Financial Protection Departmental Strategy for Disaster Risk Management (EDPF in Spanish). At the international level, the policies selected were: (vii) the Hyogo Framework for Action 2005- 2015 (for background and context) and (viii) the Sendai Framework for action 2015-2030. We included 2 PPs, namely the Hyogo Framework and Decree No. 308/2016, which were the basis of PPs already in force: the Sendai Framework and Decree No. 1478/2022 respectively.

In the review of the administrative acts, we consider gray literature and the authors' experience, which contributes to details about the context of the PPs. In Table 2, we present the implementation of Table 1 with the 21 items (Figure 2).

The approach based on processes of the DRM PPs allows continuing traceability and visibility of a DRM based on knowledge and prevention rather than response/recovery. Thus, we can identify the DRM process of risk knowledge, risk reduction and disaster management in all the analyzed PPs.

### Risk transfer public policies at the international level

The Hyogo Framework for Action highlighted the need for extending insurance coverage to the low-income sectors of society at all territorial levels (UNDRR, 2005). Although this framework fostered the insurance culture in low-income countries, it holds an ex-post approach to insurance, principally for reconstruction after disasters. The Sendai Framework for Action establishes priority 3 (investment in disaster risk reduction for the resilient) and promotes the risk transfer mechanisms from the international level through governmental institutions and donors. It must be carried out at the national and local levels by the subnational governments and (re)insurance companies (UNDRR, 2015, p. 18-19). In this framework, risk transfer is more developed than with the Hyogo Framework since it incorporates risk transfer in the ex-ante actions and not just in the ex-post activities.


**Figure 2. Types of public policies related to climate risk transfer at the international and (sub)national levels**
Source: Authors, 2023.

| **Hyogo Framework for Action 2005-2015** | | | | | |
|---|---|---|---|---|---|
| **Reference variables** | | **Contexts variables** | | **Content variables** | |
| **1. General topic** | Disaster risk management (DRM). | **8. Common elements** | Sustainable development. | **15. Application instruments** | Regional and national plans. |
| **2. Specific topic** | DRM. | **9. Milestones** | Yokohama Strategy for a Safer World. | **16. Topic** | Reduction of the vulnerability. |
| **3. Name** | Hyogo Framework. | **10. Scope** | International. | **17. Goal** | Reduction of vulnerability, promote disasters reduction. |
| **4. Act** | International agreement. | **11. International context** | Yokohama Strategy for a Safer World. | **18. Objectives** | |
| **5. Start year** | 2005. | **12. Participatory process** | International agreement. | **19. Users** | The 193-member states. |
| **6. Ending year** | 2015. | **13. Stakeholders** | International and community organizations, private sector. | **20. Indicators** | Total six. Specific indicators for risk reduction. |
| **7. Leading org.** | UNDRR. | **14. Modifications** | No. Continued by the Sendai Framework. | **21. Funding** | Member states. The United Nations Trust Fund for DRM. |
| **Sendai Framework for Action 2015-2030** | | | | | |
| **Reference variables** | | **Contexts variables** | | **Content variables** | |
| **1.** | Disaster risk reduction. | **8.** | Disaster reduction. | **15.** | Regional and national plans. |
| **2.** | Governance, resilience. | **9.** | Yokohama Strategy. | **16.** | Risk reduction for vulnerable population groups. |
| **3.** | Sendai Framework. | **10.** | International. | **17.** | To prevent new disasters risk and reduce the existent (…). |
| **4.** | Guidelines. | **11.** | Yokohama Strategy, Hyogo Framework. | **18.** | |
| **5.** | 2015. | **12.** | Intergovernmental negotiations. | **19.** | The United Nations member states. |
| **6.** | 2030. | **13.** | Public and private institutions. | **20.** | Annual reports. |
| **7.** | UNDRR. | **14.** | No modifications. | **21.** | Member states. |

**Table 2. Variables for reference, context and content of the international public policies related to disaster risk transfer in Colombia**
Source: Authors, 2023.

As presented in the international frameworks above, a more comprehensive DRM has been promoted through international guidelines. For instance, enhancing the effectiveness of risk transfer requires the gender approach, whose aims (among others) are to reduce social inequality by closing the insurance gap. Consequently, the systematic production of data by gender is due to the creation in 2014 of the Lima Work Program on Gender (as stated by the Conference of the Parties -COP-) through the decision 18/CP20 (UNFCCC, 2014) of the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC was extended to COP 22 (2016) and COP 23 (2017), before establishing the Gender Action Plan (UNFCCC, 2019). Such conventions contained the Hyogo and Sendai Framework for Action guidelines.

### Risk transfer public policies at the national level

Act No. 1523/2012 considers risk transfer while describing the risk reduction process. The Act determines financial protection as one of the three sub-processes (prospective, corrective intervention and financial protection). The Act's description does not refer to the risk transfer

approach (ex-ante or ex-post). We highlighted Article 22 of the National Committee for Disaster Risk Reduction, in which one of the members is a representative of the Federation of Colombian Insurers (FASECOLDA). One of their objectives is to orientate the implementation of financial protection mechanisms (insurance, credits, reserve funds, CAT bonds, etc.).

Act No. 1931/2018 is closely related to risk transfer due to it being considered a risk reduction measure for climate-related hazards. Although this act represents a considerable advance for climate change management in Colombia, in terms of climate change adaptation the PP is general and does not provide sufficient conceptual and methodological elements for a clear and non-speculative articulation with DRM. We observe that this PP addresses climate change mitigation to a greater extent than it does adaptation. Consequently, the act prioritizes the actors of the National System of Climate Change Management with regard to the mitigation component. Such a fact is determinant for the PPs derived from it, which would not address the complexity of the action that demands climate change adaptation. This act does not mention risk transfer, even though risk transfer is currently one of the most widely used measures internationally for mitigating the current and future impacts of extreme climate- related events (DRFIP, 2020).

Act No. 1955/2019 (period 2018-2022) includes Transversal Pacts, which are the strategies for carrying out the goals. We underlined two Transversal Pacts concerning DRM: sustainability and equity of opportunities for ethnic groups. This act includes risk transfer through Article 269 (Reduction of the state's fiscal vulnerability to disasters), which empowers the Ministry of Financing and Public Credit to design a strategy for financial management, insurance and DRM. As a consequence, the ministry is able to manage risk transfer instruments for the (re)insurance markets and capital markets. Table 3 and 4 present the application of the matrix to the national PPs. Through to November 2022, a new National Development Plan is being formulated for the incoming government (period 2022-2026).

| ACT No. 1523, 2012 | | | | | |
|---|---|---|---|---|---|
| **Reference variables** | | **Contexts variables** | | **Content variables** | |
| **1.** | DRM | **8.** | Sustainable development. | **15.** | DRM and financial protection strategies. |
| **2.** | Risk knowledge, reduction. | **9.** | Law 919 of 1999 and La Niña phenomenon 2010-2011. | **16.** | DRM by processes approach. |
| **3.** | National Policy for DRM. | **10.** | National. | **17.** | Sustainable development. |
| **4.** | Law. | **11.** | Sendai Framework. | **18.** | To implement the DRM. |
| **5.** | 2012. | **12.** | Through a diagnosis and baseline. | **19.** | Civil society, public and private institutions. |
| **6.** | No expiration. | **13.** | Ministries and public institutions. | **20.** | The State. |
| **7.** | UNGRD. | **14.** | No modification processes. | **21.** | National Fund for the DRM. Nation's budget. |
| **ACT No. 1931, 2018** | | | | | |
| **Reference. variables** | | **Context. variables** | | **Content variables** | |
| **1.** | Climate Change (CC). | **8.** | DRM and climate change adaptation. | **15.** | CC adaptation plans. |
| **2.** | CC adaptation/mitigation. | **9.** | United Nations Framework Convention on climate change. | **16.** | National guidelines for CC management. |
| **3.** | CC National guidelines. | **10.** | National. | **17.** | To reduce the vulnerability to the effects of CC. |
| **4.** | Law. | **11.** | United Nations CC Conference. | **18.** | |
| **5.** | 2018. | **12.** | There are no records of a participatory process. | **19.** | National governments, territorial units and the private sector. |
| **6.** | No expiration dates. | **13.** | CC National System. | **20.** | Indicators refer to the mitigation emissions. |
| **7.** | Planning Department. | **14.** | No modification processes. | **21.** | Greenhouse gas tradable emission quotas, Environmental Fund. |
| **ACT No. 1955, 2019** | | | | | |
| **Reference. variables** | | **Context. variables** | | **Content variables** | |
| **1.** | Development. | **8.** | DRM. | **15.** | National development plans. |
| **2.** | Development. | **9.** | Act 152, 1994. Development plan act. | **16.** | DRM. |
| **3.** | Development Plan. | **10.** | National. | **17.** | Legality, entrepreneurship and equity. |
| **4.** | Law. | **11.** | Sustainable Development Goals 2030: Sendai Framework. | **18.** | |
| **5.** | 2019. | **12.** | Regional workshops. | **19.** | Territorial and sectoral institutions. |
| **6.** | 2022. | **13.** | Territorial and sectoral institutions. | **20.** | To increase the GDP from 3.3% to 4.1%. |
| **7.** | Planning Department. | **14.** | No modification. | **21.** | General Nation's Budget, General Participation System and territorial units (DNP, 2020). |

**Table 3. Variables for reference, context and content of the national acts related to disaster risk transfer in Colombia**
Source: Authors, 2023.

| DECREE No. 308, 2016: Updated by Decree No. 1478 of August 3 2022 | | | | | |
|---|---|---|---|---|---|
| **Reference variables** | | **Contexts variables** | | **Content variables** | |
| **1. General topic** | DRM. | **8. Common elements** | Sustainable development. | **15. Application instr.** | Territorial and sectoral plans for DRM. |
| **2. Specific topic** | DRM. | **9. Milestones** | Act No. 1523, 2012 (Article 34) | **16. Topic** | Sustainable development. |
| **3. Name** | DRM plan. | **10. Scope** | National. | **17. Goal** | To improve sustainable development. |
| **4. Act** | Decree. | **11. International context** | Sendai Framework. | **18. Objectives** | To guide the actions of the State on DRM. |
| **5. Start year** | 2015. | **12. Participatory process** | Multisectoral agreement. | **19. Users** | Territorial/sectoral organizations, community organizations. |
| **6. Ending year** | 2025. | **13. Stakeholders** | National System for DRM. | **20. Indicators** | Current Situation, Risk Scenario, Governance. |
| **7. Leading organization** | UNGRD. | **14. Modification** | Modifications in projects and goals through Decree 1478/2022. | **21. Funding** | Public/private resources. DRM Fund. |
| **Policy Strategy for Public Financial Disaster Risk Management** | | | | | |
| **Ref. variables** | | **Cont. variables** | | **Content variables** | |
| **1.** | DRM | **8.** | DRM and sustainable development. | **15.** | Financial protection strategies. |
| **2.** | Financial protection. | **9.** | La Niña (2010-2011). | **16.** | Risk reduction. Financial protection. |
| **3.** | Risk Financing. | **10.** | National. | **17.** | To improve the capacity to respond. |
| **4.** | Law. | **11.** | Sendai Framework. | **18.** | Understanding risk; Financing DRM. |
| **5.** | 2018. | **12.** | No records of participatory processes. | **19.** | Public institutions at the national level. |
| **6.** | | **13.** | Ministry of Finance. | **20.** | No indicators. |
| **7.** | Ministry of Finance | **14.** | No modification. | **21.** | Ministry of Finance. Nation's budget. |

**Table 4. Variables for reference, context and content of the national instruments related to disaster risk transfer in Colombia**
Source: Authors, 2023.

### Mechanisms for implementing risk transfer PPs at the subnational level

In objective 3 of Decree No. 308/2016 (Presidencia de la República de Colombia, 2016) risk transfer (financial protection) is included as a goal: municipalities prioritized by the national government with financial protection strategy implemented. According to the plans baseline, the slow advance of risk transfer in Colombia is due to the insufficient information provided to the sectors and civil society at large about risk transfer benefits/alternatives as well as the lack of regulatory frameworks. Decree No. 308/2016 was updated by Decree No. 1478/2022 through the processes of consultation, systematization, analysis and validation carried out by the UNGRD. The first update of the National Plan for Disaster Risk Management of Colombia (2015-2030) includes the specific program (3.4) on financial management and disaster risk insurance, utilizing a general budget of USD 150 million (2022). The program includes four projects: 3.4.1. Financial protection of the state against disasters. 3.4.2. Financial protection strategy design for the transport sector. 3.4.3. Insurance instruments design for public, private and community sectors and public services against disasters. 3.4.4. Financial protection for the agricultural sector, forestry, fishing and rural development (UNGRD, 2022, p.76). The first three projects aim to formulate financial protection strategies at the territorial –subnational– and sectoral levels. The last project refers to the implementation of financial protection strategies.

In December 2021, the Ministry of Finance and Public Credit of Colombia launched the National Strategy for Disaster Risk Financial Protection for Epidemics and Pandemics as a consequence of the covid-19 global pandemic. The strategy contains the same structure and approach as that of the Policy Strategy for Public Financial Disaster Management, which is the reference for formulating subnational strategies.

Since all departmental strategies (including the departments of Huila, Tolima, San Andrés, Valle de Aburrá, Putumayo and Cundinamarca) follow the same structure, we have adopted the strategy of the archipelago of San Andrés, Providencia and Santa Catalina as a case study. This department is particularly exposed to climate-related hazards (UNGRD, 2018), presents a low climate change adaptation (IDEAM et al. 2015) and harbours special conditions relating to ethnic

groups and socioeconomic vulnerability to disasters (DANE, 2019). The archipelago has prioritized DRM for climate-related hazards (floods, tropical cyclones and droughts, among others), which are the topic of this study. This department is among the most susceptible territorial units in Colombia to implement an inclusive climate risk transfer mechanism (Fernández et al. 2022a).

The DRM financial protection strategy of the San Andrés department was established in 2019. The strategy does not have an end date or modifications. The milestones are Act 1523/2012 and the Policy Strategy for Public Financial Disaster Risk Management (GFDRR et al. 2014). Its goal is to support the disaster risk financial management programs of the development plan. Likewise, it aims to reduce the state's fiscal vulnerability to disasters. The strategy has three specific objectives: 1) Identification and understanding of the financial disaster risk. 2) Optimal combination of financial instruments for the financial protection of the private and public sectors – including the fishing and hotel sectors. 3) Insuring catastrophic risk of assets (GFDRR & Gobernación de San Andrés, 2019). There are no indicators for monitoring and evaluation. The DRM departmental fund and the General Participation System are the financial sources. The departmental Decree 0738 of December 10th, 2019 established the strategy (Gobernación de San Andrés, 2019).

The principal sustainable development PPs in Colombia are related directly to risk transfer, which means there are significant potentialities for implementing mechanisms at the local level. Concordance between the PPs at the (sub)national levels and the DRM international frameworks can be observed. Likewise, the acts with reduced hierarchical patterns, as with decrees and strategies, are in line with the requirements of the National Policy for DRM (Act No. 1523/2012). The acts identify financial protection as a relevant component for DRM and facilitate instruments for its application through risk retention and risk transfer. The acts expressed by plans, programs and projects articulate risk transfer, linking the climate-related events mitigation activities through risk transfer (Figure 3).


**Figure 3. Articulation between the risk transfer public policies of Colombia**
Source: Authors, 2023.

Parametric insurance is regulated exclusively by Act No. 69/1993 (Congreso de Colombia, 1993) and specifically by Decree No. 211/2020 (MinAgricultura, 2020). In Colombia, the Ministry of Economics is the institution authorized to manage financial instruments that transfer the risk to the (re)insurance markets.

There are no signs of inclusive approaches in climate risk transfer PPs as an international or national guideline for reducing socioeconomic vulnerability to climate-related hazards as well as for supporting the transition to a long-term adaptation mechanism. On the other hand, despite

the relationship between the topics of the PPs, we can identify a relevant articulation gap between Act No. 1931/2018 (on climate change management) and the DRM and risk transfer strategies. The gap refers to the fact that there is no clear statement on practical instruments for addressing climate- related risks differentially from the National DRM System and the National Climate Change System. In the same way, the climate change mitigation component is more developed than the adaptation component in the national guidelines for climate change. This fact appears as a negative aspect of such a policy because adaptation presupposes higher challenges from the societal arena in terms of disaster prevention.

In reviewing the background and contextual documentation on the construction of the PPs, there are no signs that the local authorities and civil society organizations identify risk transfer as a need or a relevant component of DRM.

It should also be noted that the PPs which include risk transfer fail to mention when and how risk transfer could benefit the local needs. The terms of both risk transfer and risk retention appear suddenly without any context for implementation. This could affect the understanding of risk transfer advantages and limitations as it does with both the basis risk of parametric insurance and moral hazard. As such, there are relevant challenges for the national authorities in terms of their articulation with the private sector. The actions for overcoming the challenges must preserve the priorities at the subnational level, identifying regulatory and data gaps.

## DISCUSSION

### Approaches, articulation and gaps of the risk transfer public policies in Colombia

The DRM approach via processes is easily identified throughout the PPs analysis matrix. This approach appears in the national acts and considers risk knowledge, risk reduction and disaster management. Hence, the national acts include the three processes of DRM as a theoretical and methodological framework. This means that Colombia has adopted the LAC region approach rather than the North American or European DRM approaches (IRG, 2017). This approach, based on the processes of the DRM PPs, allows continuing traceability and visibility of a DRM based on knowledge and prevention rather than response/recovery (Narvaez, 2009). Thus, we can identify the DRM process of risk knowledge, risk reduction and disaster management in all the PPs. This approach translates into operationality, facilitating the application of international and national PPs through local contexts. The inclusion of risk retention and risk transfer within the financial protection component facilitate the consideration of more diverse schemes and only put at risk retention or insurance products. This fact allows for disaster risk finance management at the local level (where capabilities are usually low) when identifying the most suitable financial protection instrument.

Inclusive risk transfer is effective in reducing socioeconomic vulnerability to climate-related hazards (Fernández et al. 2022b). However, it has not been included in the climate change PP as a guideline for helping the transition to a long-term adaptation mechanism. The exclusion of risk transfer from the national climate change PP may imply a limited perception of the national and subnational authorities about the feasibility and effectiveness of climate risk transfer as a risk mitigation component in the future. In this sense, Cardona, 2019 argues that the representativeness of financial protection at the subnational level depends on the dissemination of information and incentives that allow the national authorities to pursue DRM. Regarding the national development plan Act No. 1955/2019, despite no risk transfer actions being specifically described, the plan includes risk transfer as a financial protection component.

The review of the background and contextual documentation on the construction of the PPs demonstrates that there are no signs that the local authorities and civil society organizations identified risk transfer as a need or a relevant component for a comprehensive DRM. In this sense, the risk transfer PP is an initiative that originates through a top-down approach, starting at the international level with the Sendai Framework, through Act 1523/2012 and finally the subnational level. This fact corresponds with the reality experienced throughout the LAC region, in which, according to Trejo-Rangel et al. (2022, p.32), in general, DRM practices and studies have a top-down approach and lack participatory methods.

The challenges concerning articulation between the (sub)national authorities and the private sector correspond to the situation witnessed throughout the LAC region (Fernández, 2020). The actions for overcoming the challenges must preserve the priorities at the subnational level,

identifying regulatory and data gaps, by aiming not to 'sell solutions' but rather promote risk transfer as a complement for reducing the risk. Hence, after the PPs analysis, we present the territorial challenges and national priorities for strengthening risk transfer in Colombia. Such challenges translate into recommendations for the Colombian government and as a reference for guiding new DRM and risk transfer PPs in the region.

**National Challenges and Recommendations**

We identified challenges in addressing the three objectives of the Policy Strategy for Public Financial Disaster Risk Management:

The first challenge is presented in objective 1 (understanding risk), which is associated with information depuration, analysis and systematization. The information and data gap are related to the hazards, exposition, vulnerability (physical, institutional and socioeconomic), losses and regulatory frameworks.

The second one refers to the absence of official communication processes for financial protection in the national PPs. These include the compilation of data, integration into the national systems, and consistent communication/dissemination. Activities should consider platforms with a defined responsible institution. Despite risk transfer being a relatively old concept worldwide, in Colombia, the penetration level of climate insurance - non-traditional insurance (e.g., hybrid or parametric) - is low (< 10%) (Monterrosa, 2020).

The third challenge is related to the assurance culture. This challenge requires the Colombian risk transfer regulatory framework to promote inclusive and differential risk transfer mechanisms (Fernández et al. 2022b) with the aim of being transversal to other social protection PPs. Our recommendation is to build capacities within the DRM institutions to promote the benefits of climate risk transfer at the subnational level.

During the formulation of the DRM and climate change PPs, we suggest disseminating both the benefits and limitations of risk transfer while avoiding 'selling' risk transfer as a 'solution' since risk transfer requires complementary risk reduction and management activities to be effective. We recommend sharing with the subnational level the pros and cons of risk transfer mechanisms for addressing real expectations. Thus, international donors and national institutions can help to reduce the risk of dependency on the insurance payouts and to articulate risk transfer activities to other DRM actions, for instance, DRM plans, nature-based infrastructure, early warning systems and education/communication.

**Departmental and local challenges and recommendations:**

The challenges at the subnational level emerge from the exclusion of the national financial instruments in supporting local risk transfer activities. The challenges look similar to the national level but present greater complexity due to the low technical and financial capacities. Linked to this challenge, we seek to highlight the absence of political will and continuity of technical staff following a change of government. The lack of political will represents a limitation since, despite the availability of economic resources, the decision makers fail to understand what risk transfer is, ignoring the ex-ante and ex-post benefits of risk transfer. The absence of continuity of staff severs the processes and capacities gained during the design and implementation of the mechanism, resulting in a loss of context as well as the institutional and personal synergies. As a recommendation, we suggest Public-Private Partnerships (PPP) that enhance the continuity of the risk transfer process at the local level.

The Colombian economic, political and sociocultural diversity (as is the case within the LAC region) requires innovative approaches that differentiate between the potentialities and gaps of the local stakeholders. Thus, to overcome such challenges, we recommend the differential risk transfer approach (Fernández et al. 2022b) that includes gender, ethnicity and life-cycle approaches when designing/implementing risk transfer mechanisms. We also recommend the tools provided by InsuResilicence (2022) to ensure comprehensive climate risk transfer PPs.

## CONCLUSIONS

The analysis matrix used throughout this study permits the examination of details not described in the studied PPs. The components of this tool provide a specific characterization of the contexts, scope, stakeholders, milestones and gaps that facilitate understanding of the risk transfer context.

At international level, the Sendai Framework for Action promotes risk transfer for reducing socioeconomic vulnerability to disasters. All the analyzed (sub)national PPs are in accord with the Sendai framework. The approach of DRM through process allows traceability and visibility of DRM and risk transfer. Furthermore, the inclusion of risk retention and risk transfer within the component of financial protection facilitates the consideration of more diverse schemes.

DRM is widely regulated in Colombia, displaying an integral approach that includes risk transfer. Risk transfer in terms of PPs presents relevant progress at the subnational level, for instance, the decree for the financial protection of the departments of Putumayo, San Andrés- Providencia-Santa Catalina. Such acts, implemented through plans and projects, include risk transfer. In the country, the four sub-national strategies for financial protection are aligned with the DRM National Policy of Colombia, and the participatory processes of its formulation and the prioritization of climate-related hazards should be highlighted. We failed to find evidence of these strategies in other countries of the LAC region. As such, Colombia could be a reference for other LAC countries in formulating subnational risk transfer strategies.

Despite the PPs being well articulated, there is no clear distinction between the actions corresponding to DRM and those relevant to climate change adaptation as well as the responsibilities of each national system. In the same way, the climate change national policy does not include climate risk transfer and focuses more on mitigation rather than adaptation.

There is a shortfall with regard to presenting the pros and cons of risk transfer as a DRM action and its limitations in the risk reduction process. We highlight the necessity of not presenting risk transfer as a solution but as a complementary action for addressing residual risks. In the same context, the national challenges are related to insufficient information (hazards, vulnerability and local regulation) and an absence of loss assessment models for climate-related events, as well as the need for a multisectoral structure and political will.

There is no parametric insurance regulation for activities beyond agriculture. This fact represents a limitation for implementing climate risk transfer schemes at the municipal level since the legal framework is not clear regarding both public institutions and private (re)insurance companies. We highlight the absence of background information about the PPs (e.g., information on the formulation process – consultancy and participation) alongside indicators for monitoring and evaluation.

Both the challenges and recommendations presented in this study are references for the risk transfer PPs in the LAC region since they could be considered by stakeholders when designing DRM, climate change adaptation and climate risk transfer PPs. The challenges concerning articulation between the (sub)national authorities and the private sector correspond to the situation in the LAC region (Fernández, 2020). In the same way, the national challenges on promoting a more participatory approach reflect the LAC region trend regarding the predominance of the top-down approach when designing DRM PPs.

All the PPs analyzed have a top-down approach. We can conclude that there are no indications that the local authorities and civil society organizations have participated in the design of the PPs or identified risk transfer as a necessary component. In this sense, the risk transfer PP is an initiative that comes from a top-down approach. To compensate for this situation, we would encourage academics and practitioners from private, public and community organizations jointly to analyze and critically discuss the real needs of the territory and select the most accurate DRM alternative without 'forcing' the implementation of risk transfer mechanisms, thus, promoting a bottom-up approach for a comprehensive risk transfer PPs framework.

It is imperative that new studies determine the perceptiveness and willingness of the local authorities in developing the risk transfer PPs framework and assess whether risk transfer is conceived as a feasible DRM component in reducing vulnerability to climate-related hazards.

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