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Index of Governance and Public Policy in Disaster Risk Management (iGOPP)

Main Technical Document

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Environment, Rural Development and Disaster Risk Management Division

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Acronyms and Abbreviations

BBR	Budget by Results
CCA	Climate Change Adaptation
CENEPRED	National Center for Disaster Risk Estimation, Prevention and Reduction
CONRED	National Coordinator for Disaster Reduction
DIPRENA	National Budget Directorate
DP	Disaster Preparedness
DRM	Disaster Risk Management
ECLAC	Economic Commission for Latin America and the Caribbean
FOPREDEN	Fund for Natural Disaster Prevention
FORSUR	Fund for the Reconstruction of the South
FP	Financial Protection
GF	General Framework
GPP	Government Performance Project
HDI	Human Development Index
IDB	Inter-American Development Bank
iGOPP	Index of Governance and Public Policy in Disaster Risk Management
IPCC	Intergovernmental Panel on Climate Change
LAC	Latin America and the Caribbean
MIVIOT	Ministry of Housing and Territorial Planning
NGO	Non-Governmental Organization
PBL	Policy Based Loans
PLANGRACC-A	National Plan for Risk Management and Climate Change Adaptation
PNGIRD	National Comprehensive Disaster Risk Management Policy
POT	Plans for Territorial Planning
RC	Post-Disaster Recovery Planning
RI	Risk Identification and Knowledge
RMI	Inter-American Development Bank Risk Management System
RR	Risk Reduction
SINA	National Environmental System
SINAGERD	National Disaster Risk Management System
SMART	Specific, Measurable, Accurate, Realistic and Timely
SREX	Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation
TEU	Treaty on European Union
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
WB	World Bank

Executive Summary

This document describes the general methodology of the Index of Governance and Public Policy in Disaster Risk Management (iGOPP) and presents the main concepts that support both disaster risk management and governance, defining their fundamental characteristics. It also includes a series of good practices for appropriate disaster risk management governance identified in several countries in the Region as well as a detailed description of the iGOPP design, formulation and application process. Lastly, the document describes the data collection process carried out in the national applications of the Index and presents a list of the 241 indicators that constitutes the Index.

Developing and strengthening the governance of risks and disasters (and the adverse effects of climate change) are essential conditions for protecting development and investments and for achieving governmental objectives and goals. This has been one of the objectives and commitments taken on globally within the Hyogo Framework for Action[1], in which a series of advances can be empirically observed. Nevertheless, the true impact of public policies surrounding the topic of risk has not yet been measured. Moreover, the criteria or characteristics of a suitable framework of governance for risk management have not been clearly established either. This situation creates a confusing space for observing, monitoring and evaluating compliance with such policies and more importantly, their real impact on the problem they seek to address.

The iGOPP has been designed to reduce these gaps. The index evaluates the formal, and therefore provable, existence of a series of legal, institutional and budgetary conditions that are considered fundamental in order for the processes of Disaster Risk Management to be effectively implemented in a particular country. Only that which can be understood and to some extent measured can then be planned. Thus, as governance comes to be understood, decisions can be taken on making disaster risk management a concrete reality in the Region.

Although the iGOPP does not evaluate the "performance" of risk management, in the sense of verifying the concrete enforcement of the regulations supporting this management, the organized and systematic manner in which the conditions of governance are analyzed is very useful for the design of modern programs and projects in the regulatory and institutional framework that upholds the processes of DRM as a development strategy. In this regard the iGOPP don’t replace or substitute other indicators related to the topic, on the contrary, it complements the different existing methodologies for holistic risk assessment and disaster risk management.

The design of the iGOPP is a response to the understanding that disaster risk is essentially a problem related to development. As such, the index not only includes the verification of the existence of explicit regulations in the public administration for disaster risk, but those for the

[1] Hyogo Framework for Action 2005-2015: "Building the resilience of nations and communities to disasters," is the most important instrument for implementing disaster risk reduction, adopted by the member States of the United Nations in 2005.

areas of development, decentralization, land use planning, public investment and monitoring, among other essential aspects of risk governance.
After the first implementation of a pilot in Peru and Panama, followed by a series of subsequent adjustments, the iGOPP has been applied in 11 other countries: Argentina, Bolivia, Chile, Colombia, Costa Rica, Guatemala, Haiti, Jamaica, Mexico, Dominican Republic and Uruguay.

In general, findings on the conditions of governance in countries where the iGOPP has been applied show a level of incipient progress in most of the countries, which indicates the need for strengthening and consolidating governance in order to have effective disaster risk management in the Region.

1. Background

In Latin America and the Caribbean (LAC) there is significant experience with reform processes of public policies aimed at generating conditions for disaster risk governance. The 1986 "Civil Protection" Act approved in Mexico after the 1985 earthquake and the 1988 "National System for Disaster Prevention and Assistance" Act, approved in Colombia after the 1985 Armero tragedy, were pioneering experiences worldwide in promoting a comprehensive approach to risk governance. This approach was based on the important conceptual developments existing in the Region, many of which were contained in the Hyogo Framework for Action in 2005. More recently, Ecuador (2008), Peru (2011) and Colombia and Mexico (2012) have carried out major reforms of their legal frameworks for disaster risk management (DRM), while numerous other countries, such as Costa Rica, Nicaragua and Panama, have developed and approved comprehensive plans for DRM. All these regulatory processes have drawn on the lessons learned during these almost 30 years of practice and reflection in LAC, in the search for institutional schema and technical tools that contribute to creating the conditions for appropriate risk governance.

Several countries in the Region, such as Colombia, Panama and Peru, have requested support from the Inter-American Development Bank (IDB) to assess and enhance these policy reform processes. The support and consultation has been provided within the framework of Policy Based Loans (PBL), which are based on a matrix of reform commitments that the country has defined as its objectives. As a foundation for advising countries on the design of the commitment matrices, the Bank's Risk Management Index (RMI), one of the Indicators of Disaster Risk and Risk Management developed by the IDB in 2005 to measure a country's performance in the implementation of DRM policy, was initially used. Notwithstanding, the experience of assisting countries in these reform processes demonstrated the need for a specific indicator that could record a country's progress in creating DRM governance conditions.

This was the scenario in which the initiative to develop an index of DRM governance conditions arose, and in 2011 the Regional Technical Cooperation (TC) RG-T2064 was designed and approved. This TC was financed by the IDB's Multi-donor Disaster Prevention Trust Fund, with contributions from Japan, Spain, Korea and Canada. As initial requirements, it was proposed that

the Index should: (i) capture the best practices and most advanced conceptual developments from the Region and worldwide in the area of risk governance, (ii) serve to monitor and evaluate the effectiveness of the regulatory, institutional and public policy reform processes in DRM, (iii) be based on SMART (Specific, Measurable, Accurate, Realistic and Timely) Indicators, with the aim of promoting objectivity, clarity, trustworthiness and transparency in measuring each indicator, (iv) be comparable among countries and limited in time (v), draw on the lessons learned during the applications of the Risk Management Index (RMI) as an indicator for monitoring and evaluating the Bank programmatic loans and, (vi) take into consideration aspects related to Climate Change Adaptation (CCA).

Based on these requirements, development of the Index began, under the leadership of a group of 11 specialists and DRM champions from eight (8) countries of the Region (Argentina, Chile, Colombia, Costa Rica, Guatemala, Jamaica, Mexico and Peru) and in consultation with the Institute of Government and Public Policy of Universidad Autónoma of Barcelona. Given the innovative nature of this initiative, which was developed step-by-step, a work group schema was chosen, which allowed for an ongoing discussion and exchange of ideas on the new Index.

The Index of Governance and Public Policy for Disaster Risk Management (iGOPP) was developed as a result of this process. The Index has been designed to evaluate the formal, and therefore provable, existence of a series of legal, institutional and budgetary conditions that are fundamental so that DRM processes can be implemented in a specific country.

This technical note summarizes the methodology used to construct the iGOPP, including the conceptual framework that supports the development process and index. Furthermore, we have developed documents that summarize the results of the applications for each of the countries and a regional summary.

2. General Description of the Methodology

The iGOPP has been designed to evaluate the formal, and therefore provable, existence of a series of legal, institutional and budgetary conditions that are considered fundamental in order for the processes of DRM to be implemented in a particular country.

The iGOPP does not replace or substitute other indicators related to the subject, but rather complements the different methodologies that exist for the comprehensive evaluation of risk and disaster risk management.

The practical use of the iGOPP lies in the identification of the gaps in the legal, institutional and budgetary framework that may exist in a particular country. It helps to focus a country's efforts (and the IDB's support, when applicable) on relevant aspects of governance aimed at strengthening the DRM public policy options in the countries of LAC.

The iGOPP is a composite or synthetic indicator that allows for verifying whether a particular country possesses the appropriate governance conditions (in legal, institutional and budgetary terms) for implementing a public policy for comprehensive DRM. The Index makes it possible to quantify to what extent the actions, policies and reforms of the government and its institutions are consistent with the objectives, results and processes of DRM.

The iGOPP prioritizes the explicit, rather than "perceived," compliance of the indicators. The iGOPP methodology determines compliance with the indicators when there are clear and explicit verifiable documents on the condition being measured. On the other hand, according to this methodology, those indicators that are sustained by verifiable documents in which compliance is "perceived" are considered non-compliant. That is to say, the iGOPP prioritizes explicit compliance, and not one that is merely "perceived."

The design of the iGOPP is based on two conceptual pillars:

- The Disaster Risk Management conceptual framework and its main processes
- The Governance conceptual framework and public policy phases

Disaster Risk Management (DRM) refers to all the processes to design, apply and evaluate strategies, policies and measures aimed at improving the understanding of disaster risk, to foment the reduction and financial protection of disaster risk, and to promote the continuous improvement of preparedness, response and recovery practices for disaster cases, with the explicit objective of increasing human safety, well-being, quality of life, resilience and sustainable development. It includes prospective, corrective and reactive risk management. DRM constitutes an indispensable development policy for ensuring sustainability and territorial security and collective rights and interests, and therefore is intrinsically associated with the planning of safe development and sustainable territorial environmental management in all levels of government.

Within the conceptual framework of the iGOPP, DRM is approached as a set of processes aimed at adopting and implementing policies, strategies and practices to reduce risk and its potential effects, and is analyzed on the basis of six (6) components that are necessary in order for DRM to be effectively implemented. The selection of these components is based on the experience of the political reform processes supported by the Bank:

1. General Framework of Governance for DRM (GF): This refers to the regulatory foundation suitable for the organization and coordination of DRM in each country. This includes both the specific regulations in DRM and the enabling territorial and sectorial regulations that guarantee their viability. In addition, it includes the availability of resources to implement the DRM processes, and the establishment of adequate data and citizen participation mechanisms, as well as mechanisms for the monitoring, evaluation and follow-up of said processes.

2. Risk Identification and Knowledge (RI): This is the process of DRM focused on the knowledge of the origins, causes, scope, frequency and possible evolution, among other aspects, of the potentially dangerous phenomena, as well as of the location, causes, evolution and resistance and recovery capacity of the exposed socioeconomic elements. This process includes the preliminary analysis of the consequences and contains both objective and scientific interpretation as well as social and individual perception

interpretations. The conceptual framework of the iGOPP references the existence of a regulatory, institutional and budgetary framework that facilitates the continuous development of risk analysis, a tool that makes it possible to identify risk factors and causes and evaluate the probable damages and losses to be caused by natural events.

3. Risk Reduction (RR): This is the DRM process focused on minimizing vulnerabilities and risks in a society, to avoid (prevention) or limit (mitigation) the adverse impact of hazards, within the broad context of sustainable development. This process includes the prospective and corrective interventions of DRM, and in order for it to be appropriately implemented it is necessary to have a good foundation of data on the risk conditions. The conceptual framework of the iGOPP references the existence of a regulatory, institutional and budgetary framework that enables the timely and appropriate intervention in the causes that generate the conditions of vulnerability.

4. Disaster Preparedness (DP): This is the DRM process whose objective is to plan, organize and test the society's response procedures and protocols in the event of a disaster, guaranteeing appropriate and timely assistance to affected persons, facilitating the normalization of the essential activities in the zone affected by the disaster. Preparedness is carried out through the monitoring of events and the definition of risk scenarios, the planning, organization, training, resources and simulation for actions of alert, evacuation, search, rescue, aid, and humanitarian assistance that must be made in case of an emergency. The conceptual framework of the iGOPP references the existence of a regulatory, institutional and budgetary framework that enables the implementation of mechanisms for a quick and appropriate response to an event or imminent event of an emergency situation.

5. Post-Disaster Recovery Planning (RC): Ex-ante process focused on preparation for a quick and appropriate reestablishment of acceptable and sustainable life conditions through the rehabilitation, repair or reconstruction of infrastructure, goods and services that was destroyed, interrupted or deteriorated in the affected area, and the reactivation or impulse of the economic and social development of the community under conditions of lower risk

than that which existed before the disaster. The conceptual framework of the iGOPP refers to the existence of a regulatory, institutional and budgetary framework that enables the implementation of mechanisms to reestablish means to life, basic services and infrastructure in such a way that reduces the improvisation, inefficiency and ineffectiveness in the post-disaster recovery processes.

6. Financial Protection (FP): This is the DRM process that seeks the optimal combination of financial mechanisms or instruments for the retention and transfer of risk in order to have ex-post access to timely economic resources, which improves the response capacity to disasters (smaller and recurrent events and large infrequent disasters) and protects the fiscal balance of the State (Ghesquiere and Mahul, 2010). The conceptual framework of the iGOPP refers to the existence of a regulatory, institutional and budgetary framework that enables the design and implementation of a suitable structure for the retention and transfer of disaster risk.

On the other hand, **Governance** (Ballart, 2013) refers to the capacity to govern a public problem. This capacity manifests itself in the ongoing and stable management on behalf of the governments and administrations but also of the sectorial and private stakeholders of a country. As the capacity to govern a public problem increases, there should be an observable increase in the effectiveness of the adopted decisions and implemented policies, thus helping to prevent a greater number of negative consequences that result in the event of a disaster.

Within the conceptual framework of the iGOPP, governance is approached from the perspective of the three phases of the policy reform process, which include the following:

A. Inclusion on the Governmental Agenda and Policy-Making

Being included on the agenda of Government demonstrates the level of recognition and acceptance of the public problem and the commitment to finding a solution at the level of the political and social pressure that institutions receive. In order for the political leadership and social and economic pressure to give rise to substantive action it may be

necessary for the political realm to make significant progress toward defining the responsibilities of the different stakeholders involved in the analysis process. The iGOPP analyzes the inclusion on Government's agenda by verifying the existence of appropriate legal frameworks for DRM, or the inclusion of the subject in sectorial and territorial regulations. The iGOPP analyzes the inclusion on the agenda and formulation of public policy at three levels: (i) Central Policy Coordination and Articulation; (ii) Definition of Sectorial Responsibilities; and (iii) Definition of Territorial Responsibilities.

B. Policy Implementation

The iGOPP analyzes evidence of implementation by verifying the actions taken or the availability of resources allocated to the parties responsible for implementing the DRM policy, in its different components and governmental levels.

C. Policy Evaluation

The iGOPP analyzes the public policy evaluation from the perspective of the existence of monitoring and accountability mechanisms, as well as data and citizen participation mechanisms.

Both dimensions (DRM and Governance/Public Policy) are shown on the iGOPP matrix structure, in five (5) columns that analyze the public policy phases, and on six (6) rows that analyze the components characterizing the reform processes of a suitable public policy for DRM. This matrix structure is expressed in 30 cells that make up a variable number of binary indicators.

The index scoring ranges from 0 to 100 and uses the following classification system:

Table 1. iGOPP Classification System

%	Level of Favorable Governance Conditions for the DRM
91 - 100%	Outstanding
71 - 90%	Very good
41 - 70%	Good
21 - 40%	Incipient
0 - 20%	Low

Table 2. Classification and Codification of the iGOPP

Public Policy Phases / Components of Public Policy Reform in DRM	**1. Inclusion on the Government Agenda and Policy Formulation**			**2. Policy Implementation**	**3. Policy Evaluation**
	Central policy coordination and articulation	Definition of Sectorial Responsibilities	Definition of Territorial Responsibilities	Evidence of Progress in Implementation	Monitoring, Accountability and Participation
General Framework of Governance for DRM (GF)	GF-1A	GF-1B	GF-1C	GF-2	GF-3
Risk Identification and Knowledge (RI)	RI-1A	RI-1B	RI-1C	RI-2	RI-3
Risk Reduction (RR)	RR-1A	RR-1B	RR-1C	RR-2	RR-3
Disaster Preparedness (DP)	DP-1A	DP-1B	DP-1C	DP-2	DP-3
Post-Disaster Recovery Planning (RC)	RC-1A	RC-1B	RC-1C	RC-2	RC-3
Financial Protection (FP)	FP-1A	FP-1B	FP-1C	FP-2	FP-3

3. Theoretical Foundations for Design of the Index

3.1 Concepts of Disaster Risk Management

Traditionally, a society's response to earthquakes, hurricanes, floods, landslides, volcanic eruptions, among other dangerous natural disasters, has been focused mainly on ex-post actions; on providing aid to the affected population and its livelihood after the territory has suffered damages and losses.

This response-based approach has been conceptually dominated by a view of disasters as unpredictable and uncontrollable situations that affect society, and therefore government responses have mainly come in the form of disaster preparedness and response.

An alternative and complementary vision that has taken hold in the Region during the last 20 years, driven by academia and NGO, and particularly by the Latin American Network of Social Studies in Disaster Prevention[2], sets forth a fundamental difference between the natural hazard events and their associated effects. In this sense, although natural events can be unpredictable and uncontrollable, their effects, in terms of damages and losses, are not always so. In fact, evidence in the Region indicates that disasters always have social antecedents that cause such effects. That is to say, it is not simply the occurrence of a natural event that leads to losses and damages, which are precisely what we hope to avoid or at least minimize.

Viewing the problem of disasters as the result of nonexistent or poor handling of preexisting risk conditions facilitates dialogue in favor of public policies that are oriented toward the prevention and mitigation of risk, i.e. before the natural or socio-natural phenomena trigger the potential losses and damages.

[2] http://desenredando.org/

Consequently, determining disaster risk involves a social process in which it is verified that at a specific place and time, there is a probable occurrence of potentially dangerous phenomena in a social context that is predisposed to suffering damages and losses. This predisposition is what it is referred to as vulnerability, and is determined by political, social and economic processes[3].

Disasters turn out to be the direct consequence of a preexisting risk that was not able to be reduced in time; and therefore natural events act as detonators or triggers of the losses, but do not directly cause them. An earthquake, for example, does not determine the poor construction of a building, but it does reveal it.

This alternative vision, known as the "social character of risk," permits the inclusion of key social stakeholders such as those who promote development, given that development problems are the true causes of the damages and losses that become manifest when a natural event occurs with enough intensity to make the preexisting risk evident.

The social character of disaster risk is not exclusive to the processes of humanitarian aid, response and recovery that have been carried out in the Region; rather they are complementary. That is to say, it does not exclude the preparedness and response processes and their fundamental stakeholders, but complements them with other essentially ex-ante processes that are focused on risk prevention and reduction, including the financial management of disaster risk.

If the matter of disaster risk is approached as a social process, the most concerning ex-ante issues surrounding risk management would then be those that reveal structural problems of development, such as poor building construction, poor location of public and private infrastructure, disorganized growth of cities, lack of economic resilience and financial risk management strategies, degradation of the urban and rural environment, destruction of the natural ecosystems that provide protection and livelihood to populations, occupation of mountainside regions and valleys subject to flooding, among other problems that characterize the

[3] See Blaikie, et al. (1996)

Latin American and Caribbean Region, and that result in a large part of the population living in risk.

These problems of development are precisely those underlying factors of disaster risk that ought to be considered as part of the agenda to follow in the governance of DRM.

Governing essentially implies making anticipated decisions in order to obtain a certain objective, and in the Region decision-making on development cannot ignore the territorial context that supports and determines it, and therefore disaster risk (and its ever-changing dynamics) must be included as one of development's fundamental elements. This is why DRM must be seen as a permanent development and transformation strategy and not as an activity or project carried out in isolation from the policies and instruments of development and territorial planning.

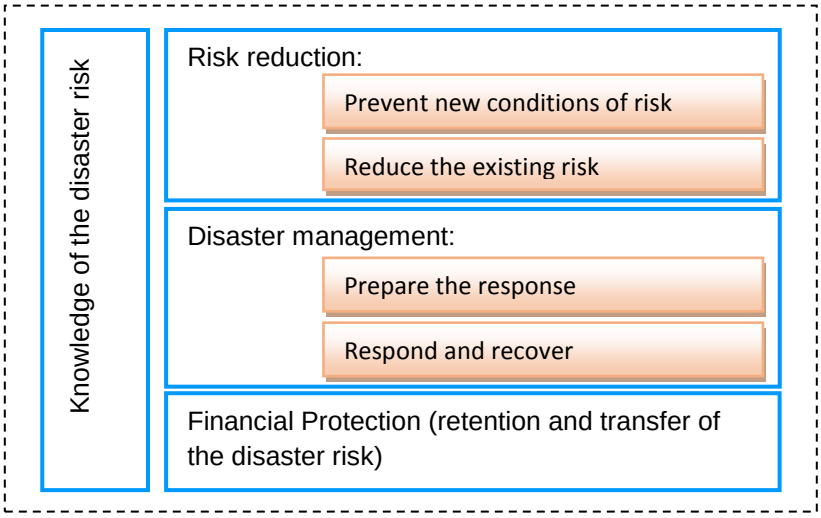
Risk management constitutes a development policy that is indispensable for assuring territorial sustainability and security and collective rights and interests, and is therefore intrinsically associated with safe development planning and sustainable territorial environmental management in all levels of government.

Insofar as the risk already exists, as a latent condition, announcing and anticipating a future disaster, intervention would be corrective or mitigating (that is, it would reduce the already-existing risk), subject to actions that epitomize what has come to be called "corrective risk management," disaster preparedness (Narváez, Lavell and Pérez, 2009).

As long as the risk has not yet been expressed, developed or established in the territory, we are in a position to anticipate it and take actions aimed at assuring that new development processes, projects and actions do not create new risk factors. In this case, we are faced with what is known as "prospective risk management."

According to the conceptual model of process-based disaster risk management (Narváez, Lavell y Pérez, 2009), a system of comprehensive intervention would, at the very minimum, include the following macro-processes or goal-based processes:

Figure I. Macro Processes of a System of Comprehensive Intervention



The iGOPP includes governance in disaster risk management, based on six (6) fundamental components of reform: (i) General Framework of Governance for DRM, (ii) Risk Identification and Knowledge, (iii) Risk Reduction, (iv) Disaster Preparedness, (v) Post-Disaster Recovery Planning; and (vi) Financial Protection. These components are alienated with this conceptual model of process-based disaster risk management.

3.2 Concepts of Governance and Public Policy in the Context of DRM

3.2.1. What do we mean by Governance?

3.2.1.1. The Concept of Governance

Governance refers to *"the capacity to govern a public problem. This capacity to govern manifests itself in the continuous and stable management not only by successive governments and administrations in a country but also by the stakeholders in the public and private sectors (Ballart, 2013)."* As the capacity to govern a public problem increases, there should be an observable increase in the effectiveness of the adopted decisions and implemented policies, thus helping to prevent a greater number of negative consequences that result in the event of a disaster.

In literature, governability and governance are linked. Governability depends on governance, understood as a form of government characterized by a greater degree of interaction and cooperation between stakeholders in the public and private sectors in a group of decision-making and intervention networks. From this perspective, governability depends on the degree to which an entire nation, and not only its central government, assumes the responsibility of implementing public decisions.

Although the origins of both concepts (Governability and Governance) are different (Crozier, Huntington y Watanuki, 1975; World Bank, 1992), in Latin American countries they are used interchangeably, which is why the methodology of the Index presented in this document uses both terms in the same manner.

3.2.1.2. Change of Governmental Roles in Public Matters

The use of the term governance implies a change of perspective, by giving much greater relevance to the market as an instance of economic and social regulation, to the non-state stakeholders and to a multiplicity of instances, levels and networks in the international, national

and local arena. Public management literature highlights the crossing of activities of a variety of players - "the resulting pattern that emerges from governing activities of social, political and administrative stakeholders when they act altogether" (Kooiman, 2003) - and with it the possibility of involving many more resources in the solution of a problem, and not only the resources of a country's central administration: "mobilize resources in situations where these resources are widely dispersed between public and private actors" (Börzel, 1998).

This change of perspective also supposes a change in the role of governments and public administrations insofar as certain roles gain importance, namely, those of facilitator, coordinator, regulator, promoter, and finder of resources or partners in a joint project in which the public administration may or may not occupy a central position.

The process of broadening the perspective of governance hides a certain dissatisfaction for what the word *government* can mean in the contemporary world. The difference between both concepts is simple: *Governance* refers to the act (the action) of governing and therefore to the set of formal and informal institutions that are used in the act of governing. *Government* is, however, an instrument of governance. In fact, the governance systems almost always contemplate the presence of multiple governments.

3.2.1.3. Principles and Foundations of Good Governance

The term governance is almost always accompanied by some qualification attempting to more accurately define the contents of the term. The term good governance arises in the late eighties, proposed by the World Bank as a precondition for growth and development. The concept is broad and is centered on strengthening the formal institutions of countries with specific attention to the internal processes of decentralization. All this implies the transparent management of public affairs, the promoting of stakeholder participation, trust in the rule of law and the establishment of solid mechanisms of checks and balances among state institutions.

There are six (6) dimensions of good governance (*Voice and accountability; Effectiveness of the public sector; Lack of regulatory burden; Rule of Law; Independence of the judiciary; and*

Control of corruption). Good governance has come to mean both an atmosphere that is stable and favorable for investments and a political system and public administration capable of channeling and responding to citizen demands in a democratic, participatory and transparent manner.

At almost the same time European governance was introduced with the publication of the European Commission's White Paper in 2001, constituting an important turning point in the debate, in that it proposes governance as a strategic goal. In less than one decade, the Committee of the Regions, another formal institution of the European Union, revived the debate with its 2009 publication of the White Paper on Multi-level Governance.

Five principles constitute the foundations of European governance: openness, participation, accountability, effectiveness and coherence.

- Openness: the institutions should attach more importance to the transparency and communication of their decisions;
- Participation: citizens must be systematically involved in the drafting and implementation of policies;
- Accountability: the role of each party in the decision-making process needs to be clarified so that each actor involved should then assume responsibility for the role given to them;
- Effectiveness: decisions need to be taken at the appropriate level and time, and deliver what is needed;
- Coherence: the policies that are carried out are extremely diverse and need to be pursued coherently.

In the rhetoric of the European Community, these principles are not only the foundation of the democracies, but they ought to be applied at all levels of government: worldwide, European, national, regional and local.

The European approach demonstrates a clear relation to the idea of multi-level governance. The joint reading of the five principles leads to the conclusion that good governance is precisely a

model that incorporates the participation of a diversity of actors from all levels, each one given responsibility, autonomy and administrative and executive capacities that allows for decision-making that is transparent, participatory and consistent with the diversity of interests present in society.

Two pre-existing principles ought to be added to the five aforementioned principles: the principles of subsidiarity and proportionality (Article 5 of the Treaty on European Union (TEU)).

- Subsidiarity: this principle seeks to organize the distribution of the different responsibilities among the political authorities from different levels. It guarantees that decisions are taken as close to the citizens as possible and that the actions undertaken at the higher levels are constantly being verified for their justification with regard to the possibilities available at the lower levels.
- Proportionality: this principle also regulates the exercise of the competencies at the different levels of government. In the European context, its purpose is to establish the actions of European Union institutions within specific limits, so that the actions of such institutions are limited to those necessary for achieving the Treaties' objectives.

3.2.2. What do we mean by Public Policy?

In general terms, "policy" refers to the general direction of an action whereas "programs" and "projects" infer a higher level of precision, to the effect that they specify not only a philosophy behind the action but the regulations and benefits related thereto (namely, the people, activities, materials, equipment, etc.) as well as the changes anticipated as a result of the public intervention. If we examine governmental plans and budgets, there is often a hierarchy, the foundations of which include the actions and projects, followed by the programs, and all together they constitute the principal sectorial policies, understood as the major lines of intervention in the social reality. In practice, however, the political and administrative language does not perfectly discriminate between policies and programs unless a particular government or administration has used one of the two terms to refer to a concrete intervention.

3.2.2.1. Characteristic Elements of Public Policies

With the aim of identifying a country's policies, it is necessary to indicate some characteristic elements:

- Normally, policies or programs have a population or territorial focus, in the sense of providing a service (or regulating an activity) to groups of people, companies or territories. Policies are evaluated based on whether or not they provide a suitable response to the social problem or need, whether they contribute to mitigating the problem.
- Any group of professionals, resources or materials and users with a fairly clear purpose that gives rise to an observable activity can be considered to be a policy or a program, whether these are small and low-budget interventions or large interventions involving substantial public and private expenditure.
- Policies and programs may be identified with well-known activities that have been part of public administrations for a long time or with new activities that constitute innovative forms of intervening in an area or problem.
- Although it is possible for a policy or program to be developed through a sole organization whose mission is in line with the policy's aim, an organization may be the driving force behind several policies, and conversely, a policy may require the backing of a group of organizations that interact as part of a network.

In order to implement a policy, it must be institutionalized; there is a need for structures designed for and adapted to regulations and processes that clearly and effectively assign responsibilities, competencies and resources to the different institutional, territorial, sectorial, private and public actors. From this perspective, public interventions are the result of a complex process of mediation and negotiation among a plurality of actors who form networks and that participate in processes that affect the governability of the problem.

3.2.2.2. Phases in the Development of Public Policies

Public policy literature often distinguishes the different phases of the public policy process: agenda setting, formulation and decision, implementation and evaluation. Each one of these

phases entails a distinct perspective on analyzing a policy. Furthermore, each phase may have different actors and networks insofar as the processes of inclusion on the national agenda, formulation of policies or implementation are carried out in different arenas.

1. Inclusion on the Agenda

The inclusion on the policy agenda is largely a response to the degree of the public problem and to the political and level of political and social pressure exerted on the institutions. Often a determining factor is a crisis, which thrusts the issue into the limelight of the media and politicians. However, it is also possible that the matter disappears from the media and from political debates as time passes and another "crisis" occurs and replaces the previous one. As indicated in the literature (Kingdon, 1995), the objective measurement of a problem by public administrations or independent monitors can help to change the population's perception while crises are not occurring. In this sense, the systems of indicators are a tool that can influence whether a public problem is included on the governmental agenda, that is, the list of issues that receives governmental attention, time and public funds. Therefore, administrations have an opportunity to alter the perception of the problem and reorient the policy if they are able to evaluate the capacity to not only respond to the problem but to reduce it.

2. Formulation and Decision

The formulation of policies by national governments can require important doses of some of the factors indicated by diverse authors (Corfee-Morlot, et al. 2009; Smith y Larimer, 2009), such as: (1) political leadership and high levels of political commitment by the governments; (2) social pressure due to the perception of facing a public problem that needs to be taken into consideration; (3) networks of experts and professionals who propose alternatives and contribute data and analysis to the discussion; and (4) economic pressure by the private sector, motivated by business incentives.

In order for the political leadership and social and economic pressure to result in substantive action it may be necessary for politicians to progress significantly toward creating some type of

organization, inter-ministerial commission or working group that can lead the responsible politicians, experts and stakeholders toward initiating the processes that diagnose a problem and formulate plans. Such plans ought to permit some form of participation of both the social and private sectors, including the industrial world and academic and research sector. In the measurement that through organized discussions and document elaboration is able to increase the debate and the interchange of ideas are more probable the advance in the collective learning on intervention alternatives.

One of the main obstacles to formulating a policy can be the lack of a minimal political and administrative structure that has the capacity to propel and coordinate, to turn concerns and desires into concrete projects; hence the importance of having the necessary institutional mechanisms, including the participation of the governmental departments with the most authority. The inability to approve a perfectly articulated plan through explicit laws developed from the central government can be palliated by the creation of a policy through a series of less articulate actions, that address concrete problems and that are approved in accordance to calendars from other sectorial priorities.

3. Implementation

Policies begin with declarations of a government's intentions but they must be translated into reality. Implementation is the intermediate phase between "what should be done" and what "has been done" in a reasonable time period. Implementation is often the hardest stage because even when regulation is clear and precise, it usually does not include a complete description of what should be done and how. Public administrations are responsible for filling in "the details" through guidelines that specify actions. Carrying out this phase requires listening to and receiving pressure, negotiating and solving problems, defining processes and establishing procedures that can be followed by government officials, companies or other stakeholders. The ideal circumstances for avoiding problems in the implementation phase are not the most standard ones. It is the norm to have ambiguous laws, shared competencies, unmet demands and competition from other issues and concerns to hold the position of "high-priority matter," which implementation tends to relegate.

It is for this reason that policy developers and their associated capacity for coordinating with other departments, administrations and organizations are so important. Consequently, it is also necessary to have a structure of governance adapted to the regional, provincial and local levels (Lavell, 2003;Skelcher, 2004; UNISDR, 2011). This is especially so in DRM, where problems tend to be multifactorial and their reduction requires taking into account both the interdependence among territories - causes are produced in one place but the effects occur in another - as well as the causality associated to the life conditions of the population and even more so of the poor population.

4. Evaluation

Policy evaluation consists in measuring the intermediate or final impacts (*outcomes*), which is not an easy task, in fact, given that rigorous impact evaluation requires creating a counterfactual scenario. This makes it possible to determine the effects that would have taken place if the policy did not exist, i.e., if nothing had been done with regard to a series of problems that pose serious hazards to society.

Evaluation can also be viewed as a review or analysis of the government's management processes, namely, all activities put forth by the public administrations, including problem identification, data management and the response and recovery activities. This type of evaluation is simpler and consists in verifying the activities performed and, when applicable, quantifying the products of these activities (*outputs*), relating these activities to their cost (efficiency) and measuring and comparing the timeframes in order to have an idea of the operational efficiency.

3.2.3. What implications are derived from the Perspective of Governance and Public Policies?

The main implication of the concept of governance is overcoming the state-centered perspective and substituting it with another perspective that includes dividing up competencies among a greater number of players from the public and private sectors, where the central government no

longer has the monopoly. This new context signifies a rupture with the traditional structures of the hierarchy, order and command of the nation-state.

The concept's relevance lies in this last aspect and in the fact that governance is proposed as a new form of 'doing politics' and 'making public policies,' in an open alternative or substitution to the vertical hierarchy model. Normally, there is a distinction between both models. A vertical dimension implies the recognition that national governments can neither formulate nor implement policies without working jointly with the other levels of government (subnational, Regional, departmental, provincial, local) as actors of change. And a horizontal dimension implies recognition of the importance of including actors from civil society and those who are non-public, among which citizens associations, companies and NGOs hold a prominent role. At the local level, horizontal coordination focuses attention on the necessary coordination among jurisdictions that operate in the same territory (region, department, state, province, metropolitan area, municipality).

Hence governance evokes a decision-making scenario that is open, vertically and horizontally integrated, and in which diverse actors from the public and private sectors participate. A scenario where decentralization plays an important role and in which local and regional governments increase their capacity to formulate and implement policies. This factor complicates governance of public policies insofar as it is necessary to reframe how the central and subnational governments can collaborate. In this sense it is essential to take the following challenges into consideration: a) in the absence of local agents with institutional and administrative training it is highly likely that the new multilevel scenario will be faced with significant implementation obstacles; b) the institutional energy and creativity that, in some cases, local governments have shown could be hindered by the lack of political will in the upper levels of government; and c) a pluralistic scenario with a variety of actors can notably increase the coordination costs.

3.2.4. How are these concepts reflected in the Index of Governance and Public Policy in Disaster Risk Management?

As is explained in greater detail in the section with a general description of this document's methodology (Section 2), the indicators that constitute the iGOPP make it possible to assess both the progress in the matter of governance for the different components of DRM policy reform (rows in Table 1), and the aspects related to the different phases of DRM public policy (columns in Table 1).

3.2.4.1. Justification from the Perspective of the Components of Risk Management

As described in Section 2 of this report, the iGOPP is structured in six (6) components: the General Framework of Governance for DRM (GF), Risk Identification and Knowledge (RI), Risk reduction (RR), Disaster Preparedness (DP), Post-disaster Recovery Planning (RC) and Financial Protection (FP). These six subsystems form the nucleus of the management function. The management capacity is derived from the synergy among the subsystems, although it is possible for a government to centralize its management strategy, focusing on one or more of these subsystems. Given the difficulties in evaluating a government's performance at a specific moment in time, the indicators used are created to verify whether a country has introduced reforms, either through explicit disaster risk management regulation or any other non-explicit sectorial, financial or monitoring regulations.

This approach is consistent with the IDB programs[4] that seek to create favorable conditions for governance, in this case in disaster risk management, and they do so through different financial instruments that are linked to the adoption of reforms that are seen as able to improve the conditions that facilitate governance. On previous occasions, the IDB has adopted evaluation mechanisms using indicators grouped in indexes developed from the assessment of national experts[5]. This methodology based on the subjective perception of individuals who understand the

[4] "Policy-Based Loans" are operations that support public policy reform processes.

[5] The Risk Management Index (RMI) is an index comprised of 24 indicators that measure a country's performance in key components of DRM, such as risk identification, risk reduction, disaster management and Financial Protection.

reality of a country and the progress made in a certain policy area presents, notwithstanding, some problems given the difficulty in assessing policies such as DRM that involve a group of interventions in multiple directions and in which a great number of public and private players take part. For example, even someone who has in-depth knowledge of construction in a country may find it difficult to evaluate the progress made in implementing earthquake-resistant measures, particularly if a large portion of the country's construction is not formalized.

The iGOPP Index is based on the hypothesis that regulatory reforms will translate into improvements in the management capacity, which will in turn translate into improvements in the final performance. One of the main difficulties of this vision consists in measuring both the "capacity" and the "performance," in the sense that it is extremely complex to establish the relationship between a political decision, a particular action or investment and the change in a problem that is fueled by multiple variables not included in the analysis. Nevertheless, it is certainly possible to empirically prove whether new regulations have been introduced and if these have led to better management practices that, in turn, appear to bring about the desired impacts. This type of reasoning is primarily what was used as the foundation of the *Government Performance Project* (GPP), a research project funded by the Pew Charitable Trust and conducted by the Maxwell School of Citizenship and Public Affairs at Syracuse University. Over the span of 10 years the GPP evaluated how well different levels of government in the U.S. performed their basic management functions. The GPP assessed the management capacity of all 50 states (1999, 2001 and 2005), the 35 largest cities (2000) and 40 of the largest county governments (2002). The GPP analyzes these management practices based on four (4) areas (financial management, human resource management, information technology management, and capital or infrastructure management) and takes into consideration several cross-sectional elements and one that is all-encompassing, i.e. management by results.

Similarly, the iGOPP measures the development of management "capacity" pursuant to the progress made in the set of six components. Another especially relevant feature of the iGOPP is that each indicator represents a benchmark of what a good practice would be for the particular subject, according to the criteria of experts (achieving the ideal situation is measured in terms of

conditions of governance for each aspect). The aforementioned is in line with what could be the aim of a public policy reform process or program in the area of DRM.

In order to endorse compliance with each indicator there must be a way to verify this. The results of the project make it possible to make an assessment using the components and a comparison of the aggregate results among countries, which offers opportunities for detecting to what extent particular reforms are more effective than others.

3.2.4.2. Justification from the Perspective of the Phases of Public Policy

Inclusion on the government agenda, formulation and public policy decisions. In the first place, the approval of explicit regulations (whose objective and contents are the definition of the approach, structure, responsibilities and functions, as well as the specific DRM instruments), of sectorial laws (that include regulatory elements that directly address the sector risk and enable its approach, from the area of the competencies of regulations themselves), and of financial regulations related to DRM, reflects the extent to which DRM policies have come to form part of the governmental agenda of a country.

Approval of an explicit piece of regulation may be a clear sign of political recognition and commitment to intervene in a problem and this entails the formulation of a policy in accordance with an intervention logic that has been the object of a previous process of reflection and negotiation.

The promotion of sectorial laws that take DRM into consideration on behalf of the central ministries and autonomous or decentralized public entities also implies including the problem on the public agendas of not only the institutions responsible for risk management but of other sectorial bodies that recognize and accept that the matter corresponds to its management and attributions, and that it be included in their own regulations and activities.

The sum of both types of regulation signifies a greater probability that the DRM policies will be effective and achieve better outcomes (Lossa and Zodrow, 2011). Certainly, this approach does

not measure the final outcome but rather is limited to determining if the problem creates a gap in the institutions and if they consequently adopt a series of reforms that are considered desirable.

Implementation of public policy. Secondly, the availability of financial resources for concrete actions permits an assessment of the **progress in the implementation** and therefore an evaluation of whether a country moves beyond policy formulation and regulation approval to the phase of effective implementation with actions and programs that obtain funding. The intersection of this funding with the DRM components laid out in the rows (see Table 1) therefore makes it possible to contrast the way in which the legislative task has continuity in management, and the way in which it comes down to the level of micro politics and therefore of the details on the basis of a clear and precise allocation of resources. This approach also entails bringing the empirical work beyond solely verifying whether laws or other regulations in order to develop some indicators of the financial environment based on factual findings of the progress of some actions.

Evaluation of the public policy. Thirdly, the existence of **monitoring and accountability mechanisms**, on the one hand, and of **data and citizen participation** mechanisms, on the other hand, all constitute means of evaluating the policy and adding a greater dimension of quality to the policy. This implies that beyond the contents of the regulation and evidence of its implementation, there are also mechanisms for taking action in the event that it is not complied with, and for correcting and enforcing responsibilities. The institutions can impose regulations in order to improve the management of system accountability or facilitate citizen participation or, in its absence, citizens' access to information. Citizens who are prepared and aware of the risk, on the other hand, can boost the demand for public policies in DRM that contribute to identifying and implementing alternative solutions. Insofar as vulnerability and risk more intensely affect the poorest segments of the population, it is important that these mechanisms be delivered to this population through the local administration. Similar to the case of resource availability, in this case the empirical work requires some indicators that are not limited to merely the approval of laws and regulations but that also make it possible to have factual proof of some actions.

Implication of the sectors, social and private stakeholders and levels of territorial government. As previously mentioned, the adoption of reforms through explicit, sectorial, territorial and financial regulations related to DRM largely reflects the improvements made in the governance of the problem. Insofar as this implies the notion of balance between state, civil society and market, the crossover of actions from a plurality of actors and the allocation of resources beyond those contributed by the public authorities through their budgets, the strengthening of the central institutions in charge of DRM, the effective decentralization and involvement of companies and social organizations give the impression that there has been progress in the vertical and horizontal dimensions, intergovernmental and intersectorial, in the governance of disaster risk in the countries being studied.

Firstly, it is evident that for the governance of the problem, suitable political and administrative structures at the central level must be created. From this perspective, the strength and dynamism of the central institutions is clearly a positive factor.

Secondly, the development of sectorial policies is equally important given that a DRM policy that does not encompass risk analysis in the regulation of other sectors will be less likely to be effective. As indicated by the DRM literature (Lavell, 2003; GAR, 2011), the human practices related to mobility, economics, industry, agriculture, urbanization and land use, and the energy, water and environmental resources, all have direct repercussions on DRM. In this sense, the policy's penetration in society, beyond the central bodies in charge of its management, is a key factor of its success.

Thirdly, a DRM policy that does not include the participation of all levels of government and its administrations (from the national, regional, provincial and local levels) diminishes its probabilities of success, because although the risk is expressed in the micro-social and territorial levels, its causes and management are the result of processes and players from the extra-local, regional, national and sometimes international levels. When there is no overlap of political-administrative and territorial levels vulnerable to risk, territorial organization of risk management is essential. This may require assigning responsibilities to the existing territorial management bodies or creating new specific territorial agencies for this purpose, according to the local

context. From this perspective, risk management by local stakeholders is fundamental. But at the same time, the DRM policy cannot only be local because it cannot disregard relationships of agreement, coordination and management that exist with other territorial levels such as hydrographic basins, economic regions and administrative regions.

In summary, the different components of the iGOPP (as reflected in the rows and columns of Table 1) reflect the degree to which a best practice risk management policy is developed in each national society. In countries with greater advances, DRM would be institutionalized based on multiple reforms, proof of high political-legislative dynamism, and would become "mainstream" in the sense that it would come to be a strategic goal that would cross several sectors (or at least those that are key for DRM outcomes) and various levels of government. The DRM literature (Lavell, 2003; UNISDR, 2011) considers this matter when referring to the problem surrounding the lack of institutional commitments and of a systemic and preventive vision in the national governments. This refers to the need to act horizontally and through the territorial administrations, being conscious, however, of the difficulty in intersectorial and intergovernmental coordination of the processes.

It could then be argued that those countries with the highest levels on the index are advancing toward a change in paradigm by moving away from a policy traditionally oriented at the reserve of resources to respond to disasters, to a preventive policy for disaster risk, including the effects of climate change. In the terms applicable to so many other spheres of public action, this is a move away from a reactive policy to a prospective and corrective policy of risk that is based on public impetus but also on social, private and local participation.

3.3 Good Practices for Suitable Disaster Risk Governance

As is mentioned in the Background and General Description of the Methodology of this document (i.e. Sections 1 and 2), the indicators that constitute the iGOPP reflect benchmarks of good practices, organized into six (6) components of DRM and three (3) phases of public policy. These benchmarks reflect the lessons learned and the most current conceptual proposals, which could all serve as the foundation of an appropriate approach to DRM Governance. Further ahead,

there is a description of some of these elements that could form a theoretical framework for the best DRM practices, using some central concepts for the analysis. In addition to this summarized description, the document entitled "Application Protocol of iGOPP" can be consulted for greater detail. It includes a description of good practices for each of the 241 indicators that constitute the index.

3.3.1. Central Policy Coordination and Articulation

Assign the Responsibility of Coordinating the National DRM System at the Highest Political Level

It is important for DRM coordination to be carried out at a suitable political level that can facilitate intersectorial coordination and that has sufficient capacity for enlisting support. A fundamental function of the body in charge of coordinating the system is to promote the internalization of DRM in the different sectorial, intersectorial and territorial frameworks and this requires a political capacity for intersectorial dialogue.

Several countries in the Region see problems arise when the governing or coordinating entity of the system is unable to influence the other line Ministries to incorporate DRM into their respective spheres of action. Although the coordinating body may initially have a certain impact (when there is post-disaster political momentum, since disasters tend to be the impetus to the legal reforms that create the systems), with the passage of time, and until a new disaster hits, it is common for the entity to increasingly lose its ability to exert influence.

As a result of this limited influence of the entities coordinating the systems in LAC, the application of the iGOPP has shown that incorporating DRM into Ministries that are key to development is still in its early stages in the Region. This is especially true of the Ministries responsible for the sectors that suffer the most losses from disasters, such as Agriculture and above all, Public Works, a particularly important sector due to the large portion of public investment it receives (in agriculture, the state's role has come to be mostly regulatory). In response to this situation, the national risk management systems in LAC have been gradually transitioning from being coordinating bodies that fall under civil defense, to technical entities

under the line Ministries, and processing to becoming bodies with higher levels of influence that directly depend on the Presidency of the Republic (as is the case with Colombia's National Unit for DRM [6] and Peru's National Secretariat for DRM in the Office of the President of the Council of Ministers). The iGOPP gives a positive assessment to these national efforts to elevate the political level of the bodies that coordinate the national DRM systems.

Separation of Ex-post and Ex-ante Functions

A learned lesson consists in the institutional separation of the responsibilities of emergency management from the responsibilities of coordinating disaster risk identification and reduction. When the system's coordinating body is in charge of all of these aspects, disaster management tends to absorb most of its resources and time. In order to avoid this, some countries in the Region have made reforms of their laws in order to obtain a clearer definition of responsibilities. For example, the recent regulatory reform in Peru (Law N° 29664, of February 8, 2011[7]) designated one technical entity with the responsibility for risk identification and reduction processes and another technical entity for preparation and response processes, both of which are coordinated by the Office of the President of the Council of Ministers through the National Secretariat for DRM.

Clear and Explicit Designation of Functions and Responsibilities

"The designation of functions and responsibilities is one of the most important functions of DRM framework regulation to ensure coordinated action and accountability[8]." The iGOPP positively values countries whose regulatory framework explicitly defines the inherent designations and responsibilities of all the State players at all levels of government (sectorial, territorial, decentralized and autonomous) and for all of the risk management processes. Likewise, the legal framework ought to define institutional schema based on principles of coordination, systemic

[6] See iGOPP Colombia and Peru, GM-1A-3a

[7] See iGOPP Peru, verifiers GF-1A-1a, RI-1A-1a, RP-1A-1a

[8] Llosa and Zodrow, 2011.

articulation, participation, subsidiarity and gradualism. An example of regulation that fulfils these conditions is Colombia's Law 1523 of April 24, 2012, by which the National Policy on Disaster Risk Management is adopted and the National System of Disaster Risk Management is established. Another example is Mexico's General Law of Civil Defense, published on June 6, 2012 in the Diario Oficial de la Federación, Article 3 and Article 4 (section III) of this law specify the level of intervention that corresponds to the three (3) orders of government: the federation, the states or federal entities and the municipalities (or boroughs in the case of the Federal District[9]).

Vision Connected to Related Subjects (e.g. adaptation to climate change, environmental management)

The iGOPP values the existence of a vision of DRM regulation that is linked to that of CCA, integrated water resources management, environmental management, public investment and territorial planning. There is hence a set of proposed indicators to measure this connection.

An example of this regulatory connection can be found in the National Comprehensive Disaster Risk Management Policy (PNGIRD) of Panama, approved by means of Decree No. 1101 of December 30, 2010, which establishes within sub-axis B.2. "Housing and Territorial Planning," that the Ministry of Housing and Territorial Planning (MIVIOT) should promote comprehensive DRM in its policies and strategies of human settlement and territorial development. Also, the "Environment and Climate Change" axis establishes shared responsibilities for the coordination of the framework of policies and strategies on "Risk - Water - Environment," that should lead to an "Incorporation of the DRM approach in the Climate Change policies." In the case of Jamaica, the National Development Plan (Vision 2030), approved in 2009, includes “hazard risk reduction and adaptation to climate change” as a single national outcome.

[9] See iGOPP Colombia and Mexico, verifiers GF-1A-1a

Enabling Regulation

The index values the existence of enabling national regulation that helps ensure that the specific DRM regulations can be implemented. National enabling regulation refers to the sectorial or regulating regulation of other horizontal processes that directly handle matters of risk, hazard or vulnerability and that permit this handling from the scope of the competencies defined in the regulation itself. This type of regulation constitutes the primary source of regulation and control at the level of causes and contributes to a decentralization of responsibilities and balanced territorial development. This regulation includes regulations on transparency, territorial planning, environmental impact evaluation, construction codes, decentralization, and those that promote citizen participation, among others.

In Colombia, Law 400 of 1997, by which regulation was adopted on Earthquake-Resistant Construction and particularly its latest modification (Decree Nº 926 of 2010) by means of which the Colombian Regulation of Earthquake-Resistant Construction NSR-10 was modernized, constitutes an enabling law for DRM insofar as it substantially contributes to the prevention of risks associated with earthquakes in the country.

From the perspective of Territorial Planning, Law 388 of July, 18 1997 in Colombia, which establishes the obligation to zone and regulate in the Plan for Territorial Organization Plans (POT, in Spanish), the "not for building" areas that pose risks from natural hazards due to the location of human settlements. This is considered an example of enabling regulation since by integrating risk into the determinants of land use zoning, prospective intervention is made possible, in the sense of preventing new conditions of risk in the territory.

3.3.2. Definition of Sectorial Responsibilities

Sectorial Regulations Integrates Responsibilities in DRM

Risk management is a responsibility that must be assumed by the different sectors of development. Because risk is the result of development's own processes, risk management

should be included as an inherent action of sectorial development planning. Those are likewise the sectors that are most aware of their risk exposure and vulnerability and of what would be the most appropriate risk management measures. Therefore it is imperative that the sectorial regulations integrate all DRM components. The iGOPP values such integration through the line Ministries. This is carried out by explicitly analyzing the integration of these components in a number of sectors where the majority of disaster-generated losses are concentrated. The selected sectors are: Agriculture, Water and Sanitation, Education, Energy, Environment, Health, Telecommunications, Transportation, Tourism and Housing.

An example of this type of sectorial regulation is Ministerial Resolution N° 265-2012-AG, of August 6, 2012 of the Ministry of Agriculture of Peru, by means of which the National Risk Management and Climate Change Adaptation Plan in the Agricultural sector ("PLANGRACC-A") was approved. This plan establishes a series of sectorial responsibilities, goals and indicators relating to the "Prevention and Reduction of Risks from climate-related events" (Strategic Axis N° 3), which should receive investments through the year 2021.

On the other hand, in the case of the Environmental sector, Law 99 of December 22, 1993, by which the National Environmental System (SINA) in Colombia is organized, designates *disaster prevention* as one of the "General Environmental Principles," which would be a "matter of collective interest and obligatory fulfilment." This same Law also defines specific responsibilities of the Ministry of Environment[10] in the area of Disaster Prevention and Assistance[11].

[10] Today the Ministry of Environment and Sustainable Development

[11] Today Disaster Risk Management

3.3.3. Definition of Territorial Responsibilities

Territorial Regulations Integrate Responsibilities in DRM

Disasters are the result of unsustainable development processes[12], materialized in the form of damages and losses that affect social groups and territories in a different manner and that are likewise the result of different conditions of hazard and vulnerability (Lavell et al, 2003). Given the heterogeneous nature of the problem, the local approach and decentralization are key for effective DRM. Against this background, the iGOPP values the existence of a definition of clear competencies for DRM in the different territorial management entities, according to the distinct structures of decentralization that countries adopt. The iGOPP does not support a particular decentralization scheme for DRM, but values the existence of defined responsibilities in the whole nation for all the DRM processes. The matter of decentralization and DRM is still a topic of debate in the Region, with not one answer, as is analyzed in the 2011 GAR report, where it states that "several Latin American countries that have invested in decentralized national systems of DRM for more than a decade, such as Colombia and Nicaragua, still struggle with inadequate local government capacity and resources.[13]"

The Organic Law of Municipalities of Peru (Law Nº 27972, of May 26, 2003) constitutes an example of regulation that integrates DRM responsibilities in local planning. Specifically, this Law mandates that municipalities must exercise the function of approving the Urban Territorial Land Use Plans in which they also must identify areas of protection and security from natural risks (Article 79. Point 1.1). Additionally, in article 82, points 10 and 13, municipal competencies in "disaster risk prevention" are established.

[12] Report from the 2005 World Conference on Disaster Risk Reduction, Kobe, Japan.

[13] In Chapter 7: Reforming risk governance, quoting von Hesse et al., 2008 and Hardoy, 2010.

3.3.4. Evidence of Progress in Implementation

3.3.4.1. Tracking Investments in DRM in the National Budget

Having an adequate budget is a key aspect for implementing DRM policy (GAR, 2011). But in order for this policy to be implemented effectively there needs to be mechanisms that allow the different sectors and territories to budget resources for DRM and monitor this budgetary allocation. To this end, the iGOPP has a number of indicators that analyze whether: (i) there is an object of expenditure or equivalent instrument that permits the allocation of resources to DRM, (ii) there are development funds whose scope includes the financing of ex-ante DRM activities; and (iii) it is possible to verify effective budgetary allocations to development sectors for the different components of DRM.

Object of Expenditure or Equivalent Instrument that Permits the Allocation of DRM Resources in the National Budget

The availability of resources is a determining factor for the financing of ex-ante DRM activities, such as disaster risk identification, disaster risk reduction and preparedness. The iGOPP values the existence of an object of expenditure, budgetary label or equivalent budgetary mechanism that makes it possible to allocate and monitor public expenditure in DRM and CCA. The lack of this type of mechanism obstructs a clear view of how the State allocates resources to implement the country's risk management policies and impedes an effective evaluation of such policies.

An example of a good practice in monitoring investments in DRM is found in Peru, where a specific budgetary program for vulnerability reduction and emergency assistance is integrated into the National Budget under the "Budget by Results" (BBR) method. This program, known as the "068 Budgetary Program - Vulnerability Reduction and Emergency Disaster Assistance" (Supreme Decree N° 304-2012-EF of December 29, 2012), permits the allocation of resources to different ex-ante DRM activities in different sectors and regions of the country.

Additionally, in Panama there is Administrative Resolution No. 030 of the 28 of March of 2013, by which the Ministry of Economy and Finance amended the Manual of Budget Classifications and created the "Object of Expenditure in Disaster Risk Management." This object of expenditure is intended to be used by the institutions that plan *ex-ante* DRM investment activities in their budgetary proposals that are presented before the National Budget Directorate (DIPRENA).

Development Funds Whose Scope Includes the Financing of ex-ante DRM Activities.

It is essential to have equivalent funds or mechanisms for financing or co-financing DRM so that the line Ministries and territories can possess the necessary resources for fulfilling their responsibilities in this area. The iGOPP not only values the Fund's creation be stipulated by law, but also that it be authorized to fulfill its task, that is to say, that it be operative. It also values the Fund's capacity to accrue resources over time.

An example of good practice is found in Colombia, with Law 1523 of April 24, 2012, by which the National Disaster Risk Management Policy was adopted and the National Disaster Risk Management System was established. This Law created the "National Disaster Risk Management Fund" with the objective of obtaining, collecting, administering, investing and managing the financial resources needed for the implementation and continuity of the DRM policy in the country, which includes the processes of disaster risk knowledge and reduction and disaster management.

In the case of Mexico, the 2012 General Law of Civil Protection establishes the responsibility of the Executive Power for the *Fund for Disaster Prevention* (FOPREDEN). This fund is aimed at "prevention activities," primarily those regarding risk reduction, in the sense of avoiding or diminishing the effects of the destructive impact of "disturbing natural phenomena."

Effective Allocation of Resources in the Development Sectors for the Different DRM Components

The iGOPP values the existence of proof of resource allocation (in the last fiscal period) to the different sectors for performing ex-ante DRM activities, in the form of an object of expenditure or budgetary label or another equivalent instrument of budgetary classification. Such evidence that progress is being made in the implementation of a DRM policy may include a budgetary structure that permits monitoring DRM expenditure and that the structure is used by the different sectors to make ex-ante investments in DRM.

All investments in risk reduction are effectively investments in development, but not all investments traditionally made in development entail risk reduction as such. For example, financing housing construction is not necessarily the same as financing "safe" housing. In fact, some investments in "development" can lead to the creation or increase of conditions of risk.
In some sectors, there may be investments that partially contribute to disaster risk reduction, for example through programs for maintenance or improvement of the sector's infrastructure. These investments, nevertheless, are not considered substantive for risk reduction as they do not guarantee a considerable reduction in damages and losses from potentially dangerous physical phenomena. For example, performing "preventive" maintenance of a school does not assure that it is earthquake-resistant.

In this sense, the iGOPP only considers investments in ex-ante risk management actions, that is to say, in risk "knowledge" and "reduction", when such investments can be verified through budgetary instruments.

In the case of Peru, for example, Law Nº 29951 of December 4, 2012, approving the distribution of the public budget for the year 2013, made it possible to identify the *specific* allocation of resources to finance "risk identification" activities for the environment, health, housing, and water and sanitation sectors. Furthermore, the same Law also verifies resources specifically classified for financing risk reduction activities in the agriculture, health, housing, education and transportation sectors.

3.3.4.2. The Ex-ante Formulation of Emergency, Contingency, Continuity of Operations and Recovery Plans

As part of the proof of progress in the implementation of the legal and regulatory framework of DRM, the iGOPP values the existence of response, continuity of operations and recovery plans that have been formally approved. In the case of plans for continuity of operations, it values their existence not only in public bodies but also in the private lending entities that provide basic public services (business continuity), because the no interruption, minimal interruption or fast restoration of these services in disaster situations is fundamental.

In the case of recovery plans, their ex-ante existence is valued, even if these plans do not constitute a common practice in the Region. Their importance is owed to the fact that recovery processes need to be flexible, planned and efficient so that they can help reduce the prolongation of the effects of disasters. Therefore, the national -- or central -- level, as well as the different sectors, must have ex-ante recovery plans that include elements such as: (i) the analysis of scenarios of potential damages, losses and recovery needs for each sector, (ii) a plan of capacity development (based on the capacity deficits identified in the analysis of recovery scenarios), (iii) identification of existing inter-institutional agreements that must be developed for recovery (including agreements with the private sector), (iv) a plan of recovery financing (that shall include Financial Protection tools, among others, and that may also include options for reorienting the budget and programs) and (v) an operational guide for recovery that establishes general protocols of action for recovery and specific protocols for the scenes anticipated scenarios. These protocols shall include a basic schema that facilitates, at the time of emergency, rapid identification and organize implementation of the essential actions to be undertaken.

3.3.5. Monitoring, Accountability and Participation

The Importance of Having Entities that Are Impartial and External to DRM Evaluate its Effectiveness

As part of the public policy phases, it is essential that national monitoring authorities monitor, audit and evaluate ex-post and ex-ante DRM processes. . In numerous cases in the Region, reports on this type of evaluation have been catalytic to substantial processes of DRM policy reform. The iGOPP particularly values the participation of the national control body in each of the components of DRM.

The following three cases are examples of this best practice: (i) In July 2012 the General Controller of the Republic of Colombia published a report on the state of natural resources and environment for the period 2011-2012, in which the performance of the national and territorial DRM entities were evaluated for the indicated period; (ii) In Peru, in the context of the August 2007 "earthquake of the south" disaster, the General Controller of the Republic provided guidelines for the "exercise of preventive control of the national monitoring system during a declaration of a state of emergency due to a natural disaster." (iii) In 2010 these guidelines were applied to the case of the August 2007 earthquake, and the analysis of their application included oversight of the Fund for the Reconstruction of the South (FORSUR) and the social programs in the context of the subsequent disaster recovery. Important recommendations arose from this oversight, one of which was directed to the President of the Council of Ministers requesting they "review the country's DRM regulations," which led to, among other things, the modernization of Peru's regulatory framework through the enactment of the law creating SINAGERD in 2011.

It is important to mention that also in Peru, in 2013, several departmental controllers (pertaining to the National System of Monitoring), issued the first "warnings" to municipal governors and mayors in light of supposed breaches of the responsibilities stipulated in the Disaster Risk Management Law approved in April 2012, responsibilities that include ex-ante risk knowledge and risk reduction processes.

Directives for Broad Participation of Civil Society in DRM Processes

The iGOPP values that regulations include social participation mechanisms (such as round tables, national dialogues or consultation tables) for all DRM processes and that these mechanisms have actually been used in practice. The participation mechanisms could have been created from the express DRM regulations or through other general regulations on civil society participation, in which case it is essential that these mechanisms are fit for the scope of DRM and that there is evidence of their application in concrete cases, for example in post-disaster recovery processes.

An example of social participation mechanisms in DRM is the National Comprehensive DRM Policy (PNGIRD) of Panama, approved by Decree N° 1101 of December 30, 2010. This Policy establishes, in its chapter on "Monitoring and Follow-up," the organization of an open Forum with the participation of the public sector, civil society, private sector, academia and media, as a consultation mechanism for the implementation of the PNGIRD. In line with this mandate, the first Forum on the National Comprehensive Disaster Risk Management Policy was held on May 16, 2013, with broad participation from civil society and where the country's advances in relation to the objectives and goals of the PNGIRD were addressed.

3.3.6. Dynamic Evaluation of Risk Identification

Definition of Responsibilities for Disaster Risk Analysis in all Sectorial and Territorial Levels in the Country

"The starting point for disaster risk reduction and for the promotion of a culture of resilience consists in the knowledge of disaster risk, of all the physical, social, economic and environmental vulnerabilities that most societies face, and of the way in which the risks and vulnerabilities change in the short and long term" (IDB, 2007; Llosa and Zodrow, 2011). Nevertheless, the reality is that while some countries try to gather and store data on hazards and risks, these efforts are generally "inconsistent or insufficient," and in those countries that do manage to gather data, it is "not always shared," even despite the fact that the importance of

making information on risk "available is not smaller" (WB, 2010). Several studies show the high cost/benefit ratio of generating and disseminating information on disaster risk, even reaching ratios of up to US$15 dollars of benefit for each dollar invested (WB, 2010).

The responsibility of risk evaluation at the national, sectorial and territorial levels must be clearly established. This designation of responsibilities ought to include the generation of basic data on the matter on behalf of the technical-scientific bodies (such as the degree of solution, temporality, scientific rigor, type of studies, geographic area, instrumentation and monitoring of phenomena, etc.) as well as the mechanisms for sharing this information with other data generators, such as the aforementioned, and with users (e.g. information systems, infrastructure of spatial data, inter-institutional agreements). Furthermore, it should be required by law to have one or more bodies that explicitly promote disaster risk analysis. Many countries do not clearly define this latter responsibility, leaving a void on the matter, given that the generation of data and information on dangerous phenomena is not in itself sufficient to characterize and estimate risk.

Given its condition as a foundational process of DRM, the iGOPP extensively analyzes the definition of these responsibilities for risk identification at the sectorial and territorial levels, as well as the technical features of risk analysis.

Peru is an example of a country that has a designated national body responsible for the coordination, promotion and provision of technical assistance at the sectorial and territorial levels in the matter of disaster risk knowledge and identification. Law Nº 29664 was issued on February 8, 2011, creating the National Disaster Risk Management System (SINAGERD) and establishing the "National Center of Disaster Risk Estimation, Prevention and Reduction (CENEPRED)," whose functions are: "to consult on the development of actions and procedures that permit the identification of hazards of natural origin or those induced by man, to analyze the vulnerabilities and to establish the levels of risk which enable decision-making in Disaster Risk Management."

Probabilistic Analysis of Risk and Databases of Historical Disasters

In order for the risk identification process, including the characterization of climate scenarios and their potential effects, to be viable, there must be a regulatory and institutional framework that regulates it, including the obligation to periodically update the data that is generated (specifying a maximum range of years for this purpose). Additionally, the regulatory framework must regulate the generation, systematization and updating of data on historical disasters, as well as access to such information and its dissemination. It is important for risk identification and evaluation to be based on data on hazardous events and historical disasters and on the physical characteristics of the phenomena and for methodologies of analysis and probabilistic evaluation of hazard and risk to be implemented[14].

Probabilistic analysis and evaluation of risk is a technique considered internationally to be a good practice because it enables better decision-making on risk reduction and financial protection, given that it not only establishes the scenarios of damages and losses but also determines the probability that these scenarios will occur within a certain time frame. Decisions on risk prevention and reduction will therefore be better informed. For example, the decision to invest in a development project could be based on a better cost-benefit analysis derived from information on disaster risk that could affect the investment during its useful life period and the balance between the anticipated benefits and the costs in terms of security and protection.

An example of regulations that address the probabilistic approach is Decree 36721-MP-PLAN (Gaceta 159 of August 19, 2011) in Costa Rica, which thereby created "the model to assess vulnerability to the risk of disasters, applicable to natural hazards." This Decree states that, "given the complex nature of the behavior of natural hazards and their implication in catastrophic events, the use of stochastic or probabilistic models, that nowadays summarize the state of human knowledge on the matter, is required."

[14] Probabilistic risk analysis is based on the construction of the curve rate or annual probability of excessive losses for the different hazards.

The Socialization of Information on Disaster Risk as the Foundation of Social Participation in DRM

The iGOPP furthermore values that the information on risks be socialized with the community in general, especially with the at-risk populations and with decision-makers; it is essential to adequately communicate the risk. The socialization of information is considered the basis of all social participation processes provided for in the iGOPP.

Informing communities on the risk of disasters and enabling and facilitating access to decision-making must be a permanent activity and not just a temporary one to be carried out at the moment an emergency occurs. Likewise, the information must follow quality standards and its fundamental objective must be to encourage participation and involvement in the risk management processes, recognizing that the at-risk communities are social groups that contribute to building knowledge on disaster risk.

The following cases are examples of regulations that establish responsibilities for the socialization of DRM information: In Guatemala, the Regulations of Law Nº 109-96, National Coordination for Disaster Reduction of Guatemala (CONRED), adopted by Governmental Agreement Nº 49-2012, of March 14, 2012, establish that it is to: "Inform the population in the jurisdiction on the possible risks, as well as on the state of the situation in the event of an emergency or disaster.[15]" In Colombia, Law 1523 of April 24, 2012, by which the National Disaster Risk Management Policy was adopted and the National Disaster Risk Management System was established, stipulates that "timely information" is one of the general principles to guide DRM in the country. The law specifically orders that: "For all the effects of this law, it is the obligation of the authorities of the National Disaster Risk Management System to duly inform all people and businesses on: risk possibilities, disaster management, rehabilitation and construction actions as well as on the donations received, administered and delivered."[16]

[15] See iGOPP Guatemala, RI-3-6a

[16] See iGOPP Colombia, RI-3-6a

3.4 Disaster Risk Management and Climate Change Adaptation

3.4.1. A Common Conceptual Framework for Risk Management and Climate Change Adaptation: A report by the IPCC

In early 2012, the Intergovernmental Panel on Climate Change (IPCC[17]) issued its most recent publication entitled *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (SREX)[18]. The SREX integrates knowledge on climate science, DRM and CCA with the objective of informing discussions on how to reduce the risks associated with extreme phenomena and disasters in the context of a changing climate. In general, the SREX provides information on the following: (i) how natural climate variation and climate change generated by human beings influence the frequency, intensity, spatial expansion and duration of some extreme meteorological and climate phenomena; (ii) how the vulnerability of society and the exposed ecosystems influences the impact and the probability that disasters will occur; (iii) how the development models can make future communities more or less vulnerable to extreme events; (iv) how the experience with climate extremes and CCA offers lessons on the way to manage current and new risks related to extreme meteorological and climate phenomena; and (v) how populations can become more resilient before disasters hit.

3.4.2. Principal Claims from the SREX Regarding the Determinants of Disaster Risk, Future Tendencies, Risk Management and Climate Events

In general, as a result of the literature evaluation, the SREX, unlike the previous reports from the IPCC, does not only focus on highlighting the observations on extreme climate phenomena and their associated hazards, but rather mainly focuses on the weight that exposure and vulnerability have in risk determination. The first fundamental declaration or general conclusion of the SREX states that "exposure and vulnerability are the main determinants of disaster risk and of the

[17] Intergovernmental Panel on Climate Change, IPCC.

[18] Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.

impacts when the risk materializes.[19]" This claim eliminates the prevalence and emphasis that the previous IPCC reports gave to physical hydrometeorological phenomena and at the same time establishes that impacts or disasters are the result of the materialization of a latent situation, which is exactly what risk is, as it primarily stems from those other underlying causes.

On the other hand, it states that "the extreme impacts on the human, ecological or physical systems can be the result of an individual extreme climate event, but also of the occurrence of non-extreme events when there is a high level of exposure and vulnerability or when there is a grouping of multiple events or of their effects." It is paramount, therefore, to emphasize that importance is not only given to "extreme phenomena," as the climate change community has been doing for a long time, but also to the smaller events, which frequently occur despite being less notable, and which can have especially significant cumulative or piggyback effects as a result of the elevated vulnerability of the exposed elements.

The SREX also indicates that the "Extreme and non-extreme meteorological events and climates affect the vulnerability to future extreme events, modifying the resilience and response and adaptation capacity" of the exposed communities. In this claim, the SREX recognizes that not only extreme events, but also smaller-scale and more frequently-occurring disasters, cause effects that are translated into a diminished capacity to handle new events and therefore lead to greater vulnerability. It states that "the cumulative effects of local or subnational disasters can substantially affect the options of subsistence and the resources and capacity of societies and communities to prepare themselves and respond to future disasters." From the perspective of development, this estimation has very significant implications for the main risk-generating factors to which special relevance must be given in the development of risk intervention and adaptation policies.

With regard to the physical phenomena, the SREX emphasizes that "climate change leads to changes in the frequency, intensity, area of influence and duration of meteorological and climate

[19] The underlined portions of the SREX report quotations do not appear in the original text.

phenomena and can lead to unprecedented extreme weather and climate phenomena." This means that there are likely to be abrupt changes and that the processes should not to be gradual and slow. The report states that these "changes in the extremes can be related to changes in the medium, the variance or the forms of probability distributions or all of them. Some extreme climate phenomena can be the result of an accumulation of climate or meteorological phenomena that are not extreme when viewed independently."

On the other hand, the SREX states that "many extreme meteorological and climate events are the result of the natural variability of the climate. In the future, natural variability will be an important factor in the formation of extreme phenomena, in addition to the effects of the climate changes caused by mankind." This claim is very important as it clarifies the fact that extreme events are not only caused by climate change but also by natural climate variability; an aspect that the risk management community has been putting special emphasis on for a long time. Throughout the years there have been hydrometeorological phenomena that have triggered great -- but also small and recurrent -- disasters. The importance of such events does not lie in whether or not they are the result of anthropogenic climate change but in the effects that they have caused and will continue to cause in the population due to the exposure of vulnerable human settlements in areas prone to dangerous phenomena. This aspect is of particular political sensitivity for those seeking to establish the origin of extreme climate events, as they try to determine if a disaster is the result of greenhouse gas emissions, which is clearly impossible to distinguish.

3.4.3. Reflections for the Joint Action of the CCA and DRM Communities

In accordance with the aforementioned discussion, adaptation has become an ally of DRM insofar as it emphasizes the need to anticipate future events that are expected to be more adverse, through ambitious processes of transformation that transcend the current capacity to address present risks and the current emergency preparedness and response capacity, which has been difficult for decision-makers to adequately understand. Consequently, risk management now has a new opportunity for being implemented in a more resolute manner to address a global problem, in a world where there is widespread acceptance of the idea that certain countries have caused or are causing a greater impact due to the effects of their greenhouse gas emissions. And according

to the objectives of the United Nations Framework Conference on Climate Change (UNFCCC), these emissions should be reduced (or mitigated, to use the terminology of the climate change community) or offset.

The SREX makes a clear contribution to directing attention to what is essential and most relevant. Perhaps by identifying that the causes of disasters are owed to the social construction of risk -- not only to greenhouse gas emissions but also to natural climate variability and mainly to exposure and vulnerability -- there can be a more impartial and pragmatic vision that makes it possible to give priority to intervention in the main determinants of disaster risk. There is no doubt that a review of history and tendencies, the change in extreme and non-extreme climate events, full of uncertainty, can not be compared with the evidence on the change in exposure and vulnerability, which is both notable and wholly undeniable. And disaster risk is undoubtedly the primary way in which global climate change manifests itself at the local level. That is to say, it is now necessary to accept that a fundamentally technical-scientific matter with a focus on hazards has become a subject more of concern in areas of politics and development.

The SREX is an impartial, pragmatic and proactive document in terms of public policy. Its emphasis on exposure and vulnerability as principal determinants of risk due to extreme phenomena resulting from climate change could leave detractors of the IPCC bereft of arguments, as they would have no choice but to accept the consistency, transparency and honesty in its assertions. However, they are still many subjects that need to be delved into in order to make a joint vision of the problem more coherent, from the perspective of two communities that are in fact not two unified schools of thought. In fact, risk management has biases and diverse conflicting and competing visions, that range from humanitarian aid, emergency preparedness and assistance to the territorial and development planning. The conceptual evolution with different positions and emphases is far from being a unified vision, illustrating that the meaning of DRM has not always been the same. There has been a debate in the climate change community between groups of those convinced and skeptical about the results of meteorological and climate extremes and those who focus is on improving resilience and creating adaptive capacities, with very little experience in practice, until now. This is all manifested when countries develop national systems of civil defense, risk management, climate change, the

environment or adaptation funds that do not have any inter-institutional connection or coordination among them, as if these issues did not fundamentally have the same objectives.

3.4.4. Climate Change and Adaptation in the iGOPP

Disaster risk is the main way in which climate change manifests itself at the local level. Therefore, and in line with that indicated in the SREX, it can be concluded that DRM activities are CCA activities when the risk is the result of hydrometeorological or climate events. This is fortunate for the establishment of a public policy on adaptation, because it means that to the extent that DRM actions have been carried out in the past or are currently being carried out, CCA actions are also being conducted. Strictly speaking, this means that within the iGOPP framework it is unnecessary to reference CCA, given that the concept of DRM incorporates all type of strategies and actions aimed at reducing risk with no distinction for the type of natural hazard. Nevertheless, the iGOPP does contain explicit mentions of CCA to join or emphasize, in some cases, actions that are promoted only as being related to CCA but that also fall under the scope of DRM. This occurs for several reasons, which range from novel references to the need for resources whose access is contingent upon the denomination used to identify a problem. Mostly this is owed to the fact that climate change is a global matter, and as such, countries have signed express commitments on climate change and adaptation, through ministries of foreign relations and by way of international agreements. This is exemplified by the international call for and promotion of establishing new national CCA systems that differ from the institutional framework or existing environmental and risk management systems. This tendency gives rise to, at times, uncoordinated and duplicate institutional efforts that the iGOPP framework aims to identify. Another example is that despite the iGOPP framework considering DRM and CCA as part of the same process, some countries have prioritized the integration of one of these processes in development planning, making it therefore necessary to ask if there are CCA strategies in the National Development Plan or sectorial actions. It is generally necessary to accept that, in some cases, countries have established different ways of doing things and one of the objectives of the iGOPP is to link and include such initiatives when they impact DRM, regardless of whether they are referred to by different names such as environmental management, sustainability management and particularly, as CCA. The aim is to find a certain amount of flexibility that can

be beneficial, and so on some occasions it is advisable to ask two questions regarding DRM and CCA rather than one, which is not a conceptual error but a pertinent association and consideration.

It is, however, important to point out that the aforementioned does not ignore the particularity of hydrometeorological hazards, as climate change does have an impact on the frequency, intensity, size and duration of some extreme meteorological and climate events. Any DRM policy ought to consider this tendency toward such events, insofar as they can be reasonably estimated. Prospective risk reduction implies the anticipation of new risks similar to those resulting from the increased hazard, for example in the context of a changing climate. Due to this, in the iGOPP, there are references to CCA in the portion on the *Central Policy Coordination and Articulation* in order to explore the existence, development and advances in regulatory or basic legal, institutional, and organizational frameworks that enable a national or subnational system to manage the implementation of DRM processes, taking the possible impacts of climate change into consideration. Likewise, when viewing DRM as an issue that is horizontally linked to development, it ought to incorporate CCA. At the same time, with respect to the *Definition of Sectorial Responsibilities* and the *Definition of Territorial Responsibilities* of the iGOPP, it is essential to integrate DRM in all CCA regulations that are being developed or promoted. In the *Central Policy Coordination and Articulation* section of the iGOPP it is wise to also refer to CCA, because, as the SREX states in its Chapter 5 on national systems for disaster risk management and climate extremes, national systems constitute a country's principal capacity to address the challenges generated by the observed and projected tendencies on exposure, vulnerability and extreme climate events. That is to say, this recommendation refers to the importance for CCA players to recognize the relevance of national risk management systems. The *Risk Identification and Knowledge* portion of the iGOPP not only incorporates the CCA approach to the change that the hazards could undergo, but rather -- as the SREX does in its Chapter 2 on Determinants of risk: exposure and vulnerability -- it states that DRM needs to generate public interest, leadership and acceptance to promote appropriate decision-making and policies for the reduction of exposure and vulnerability. These two risk determinants are particularly crucial for having information on the present risk of disasters, and also for analyzing the risk that can be generated in the long term as a result of climate change. Finally, it is

important to indicate that the IPCC AR5 evaluation report puts special emphasis on differentiating between "detection" and "attribution" in the framework of climate change. The detection of anomalies or changes does not mean that they are attributable to climate change. For example, an increase in floods or landslides and their effects may not only be the result of the rise in the frequency or intensity of precipitations, but also of the environmental degradation or deterioration in the hydrographic basins and of problems in land use. In any case it is desirable for risk knowledge to incorporate the impact of climate change, to the extent possible, but it must do so with caution in the sense that the rise in hazards or risk is not always attributable to climate change. Due to this, in the *Risk Reduction* component of the iGOPP, it was important to consider the way in which CCA approaches the design of risk reduction measures, bearing in mind, when possible, the increased hazard due to the effects of climate change. But even when this is not possible, as is stated in Chapter 8 of the SREX regarding advancing toward a sustainable and resilient future, risk reduction strategies, which range from incremental to transformational actions, will always contribute to CCA and promote sustainable and resilient development. Consequently, within the framework of sustainability, the reduction of vulnerability will always be a common basic element and the best pretext of CCA and DRM.

4. Technical Foundations for Calculating the Index

4.1. Introduction to the Theory of Construction and Aggregation of Composite Indexes

The iGOPP is a composite index. A composite index is defined as a simplified representation of a multidimensional concept (Saturno, 2004; DANE, 2006; Schuschny and Soto, 2009). The construction of composite indexes occurs in multiple areas of public management, such as economics and its various sectors (industry, agriculture, services, etc.), in social development, and in the integrated analysis of the environment and its interaction with economic, sectorial and social development.

According to ECLAC (2009), composite indexes draw the community's attention and lead debates towards the generation of integrated policies that promote a development approach focused on sustainability. Furthermore, as part of a system of follow-up and evaluation, they serve as a useful tool for assessing the level of fulfillment of the proposed objectives of a certain program, project or policy (DANE, 2006), in this case DRM policies.

Building a composite index requires two basic conditions: a conceptual foundation and validity. First of all, the attribute being measured must be clearly defined, and secondly, there must be reliable information to carry out said measurements (Schuschny and Soto 2009). Both conditions must be validated before considering the methodological aspects of building the composite index.

There are already several examples of the use of composite indexes in Latin America and the Caribbean, mainly in the economic sphere (indexes of productivity, of efficiency, etc.) and social sphere (indexes of poverty, vulnerability, etc.) (Schuschny and Soto 2009). In the early nineties, the first report on Human Development was published, issued by the United Nations Development Programme (UNDP), where a method of measuring development on a country level through a combination of indicators of life expectancy, educational achievement and income were introduced in a Human Development Composite Index: the HDCI (UNDP, 2012). This contribution by UNDP established an important precedent in the creation and improvement

of methodologies that allow for the synthesis of multidimensional data that is relevant for the analysis or evaluation of social programs and projects, even public policy. With regards to DRM, the IDB was a pioneer in 2005 with the development of three composite indexes: the disaster deficit index, the prevailing vulnerability index and the risk management index.

Technical Features of the Composite Index

There are a few technical conditions that must be included in the composite index. (Schuschny and Soto, 2009): existence and determination, thoroughness, monotony, uniqueness, invariability, homogeneity, and transitivity.

Existence and determination indicate that the mathematical function that defines the index must exist and have a perfectly determined solution. The composite index also must be thorough, meaning that it must fully utilize, with no redundancy and in a useful way, the data provided by the indicators and variables therein.

Another feature to consider is monotony, meaning that the composite index must respond positively to the direct change of its components. In some cases it requires the changing of the sign of its variables and whose correlations could be inverted. The uniqueness of the index figures as another technical feature, since it measures the performance of a unit of analysis in a determined area or topic, which can be used as a point of departure to study the situation of this unit[20.]

[20]Usually, the unit of analysis is the country; however, it is possible to construct a composite index based on lower units of analysis if there is available information.

The composite index also must be invariant in the face of changes in the origin or scale of the indicators that make it up. Mathematically speaking, this means that the mathematical function that defines the composite index must be homogenous, such that the following:

$$f(\alpha * x_1, \ldots, \alpha * x_p) = \alpha * f(x_1, \ldots, x_p)$$

where:

$f(.)$	is the mathematical function that defines the composite indicator I.
$x_1, \ldots, x_p$	are the indicators or variables that make up said composite indicator.
α	is a constant.

Lastly, the indicator must be transitive. This means that if (a), (b), and (c) are three different situations that produce three values of an indicator, one must verify that:

If

$$I(a) > I(b) \wedge I(b) > I(c) \rightarrow I(a) > I(c)$$

4.2. Stage of construction of the iGOPP

The construction of the iGOPP was carried out by a group of experts in DRM with several areas of specialization, from several countries in the Region (Argentina, Chile, Colombia, Costa Rica, Guatemala, Jamaica, Mexico and Peru), with consultation by the Institute of Governance and Public Policy of the Universidad Autónoma of Barcelona and experts in the design of composite indicators, as well as the leadership of IDB specialists in several areas, including risk management, finance, evaluation and climate change. The index was built over three (3) years (2012-2014), when a series of methodological steps were carried out in phases, which are described below and which included the carrying out of several pilot tests in countries of the Region. The phases were: (i) phase 1- design of the conceptual framework, phase 2- selection of indicators, phase 3- examine the data, phase 4- gathering of data and phase 5-analysis of robustness and sensitivity.

PHASE 1: Design of the Conceptual Framework

The design of a composite index requires a conceptual framework that establishes the selection of indicators and the way they combine among themselves. The more detailed the methodological framework is, the better designed the composite index will be, since the links between the indicators will be clearly defined. Towards this end, it is necessary to categorize the context of analysis and understand the phenomenon to be measured. Finally, in this stage it is necessary to clearly define the criteria that will be used to choose the indicators to be summarized by the index.

Application of the iGOPP

In the case of the iGOPP, in Section 3 the conceptual framework is described, which includes elements of the conceptual framework of risk management, governance, and public policy.

PHASE 2: Selection of Indicators

The strength (or weakness) of a composite index rests on the quality of the indicators of which it is comprised. For this reason, the selection of each indicator must be done based on its relevance, quality, variability, and availability to the public domain. Often the choice of indicators is limited by the scarcity of statistical data and the impossibility of available information being reconciled to international standards that allow for comparison between units of analysis.

An important point to consider in the process of selecting indicators is the objective or use given to the composite index, since the selection could be focused in a different way, whether the objective is diagnostic, performance evaluation or forecast of future scenarios.

It is also important to point out the great limits that are placed on the design of the composite index and that consist in the likely absence of basic statistical data. Even though there are

methods for attributing lost data, it is highly likely that some variables will not have the necessary minimum basic information.

Application of the iGOPP

Since the Index should be used to compare advances among countries and by time period in the same country, it was necessary to adjust the scales of the indicators and use relative measures that could be expressed in units of common use. In the case of the iGOPP, binary SMART indicators were chosen: specific, measurable, accurate, realistic and timely:

- Specific: The indicator must specifically and explicitly represent the subject being measured or observed such that it can be interpreted intuitively and conceptually, with no ambiguities.
- Measurable: Two different people that measure the same indicator using the same data must be able to reach the same result. The data should be accessible and the sources for verification should be transparent.
- Accurate/Appropriate: Each indicator must relate logically to the general and specific objectives, and with the components of the program or policy, responding to the horizontal and vertical logic of the matrix of the logical framework.
- Realistic: The gathering of necessary information for the calculation of the indicator must be feasible, economically viable, and possible to carry out in a reasonable amount of time, according to the technical experience of the field team.
- Timely: The definition of the indicator and its calculation method must specify a realistic period (start and end time) when defining the methods for verifying the indicators. This period should be defined by taking into account the lapse of time between the action and the expected change.

The system of indicators used in the construction of iGOPP is based on a matrix that crosses the six components of DRM reform and the public policy phases. In total, 241 distributed indicators were evaluated, according to Table 3.

Table 3. Distribution of the System of Indicators by Type

COMPONENTS/PHASES		Code	PUBLIC POLICY PHASES				
			Central Policy Coordination and Articulation	Definition of Sectorial Responsibilities	Definition of Territorial Responsibilities	Evidence of Progress in Implementation	Monitoring, Accountability and Participation
			1A	1B	1C	2	3
REFORM COMPONENTS	General framework of Governance for DRM	GF	1 - 8	1 - 3	1 - 4	1 - 10	1 - 5
	Risk Identification and Knowledge	RI	1 - 4	1 - 18	1 - 3	1 - 15	1 - 6
	Risk Reduction	RR	1 - 5	1 - 19	1 - 5	1 - 13	1 - 5
	Disaster Preparedness	DP	1 - 8	1 - 17	1 - 5	1 - 15	1 - 6
	Post-Disaster Recovery Planning	RC	1 - 8	1 - 10	1 - 2	1 - 10	1 - 4
	Financial Protection	FP	1 - 6	1 - 4	1 - 5	1 - 15	1 - 3

Each cross between components of reform and phases of public policy make up 30 dimensions (corresponding to cells), which should be added to obtain the iGOPP.

PHASE 3: Weighting of Information

This involves defining the weights that the indicators will have in the actual composite index. The way in which available information is weighted will be the determining factor in defining the final value of the composite index. For this reason, aggregation methodology must be clearly explained, and it must be able to be reproduced easily and transparently.

There are several aggregation guidelines that use various techniques, each with specific data. However, it should not be forgotten that, regardless of the methodology adopted, weighting a set of indicators to construct composite indexes oftentimes entails passing a value judgment. This is due to the fact that, in general, it is not possible to implement objective methodologies to establish the weights that will be used to aggregate the indicators. For this reason, besides working within a consistent conceptual framework, it is customary to rely on expert opinion and seek consensus among stakeholders who are involved in the phenomenon to be measured, and who synthesize the political priorities and viewpoints surrounding it.

There are various methodologies for establishing the weights of the indicators that will constitute the final index. Among the most utilized are analysis of the main components, factor analysis, and multiple regression analysis. However, as previously mentioned, when the sample of information is small (less than 30), or when the information (data) simply does not exist, employing statistical or econometrics-based methodologies is not feasible. In those cases, it is advisable to use qualitative participatory methodologies such as the Delphi method, the analytic hierarchy process, or the budget allocation approach on the part of groups of experts.

Application to the iGOPP

With the iGOPP, given the nature of the indicators (the majority related to the existence and quality of the regulatory framework for DRM), it is not possible to utilize quantitative or statistical methods in the defining of weights. Given this context, using a methodology that does not require the existence of microdata was proposed, opting for the participatory methodology of **budget allocation in workshops of experts, followed by a pilot application and adjustment of the weights as a function of the results of the pilot test[21].** This methodology was applied

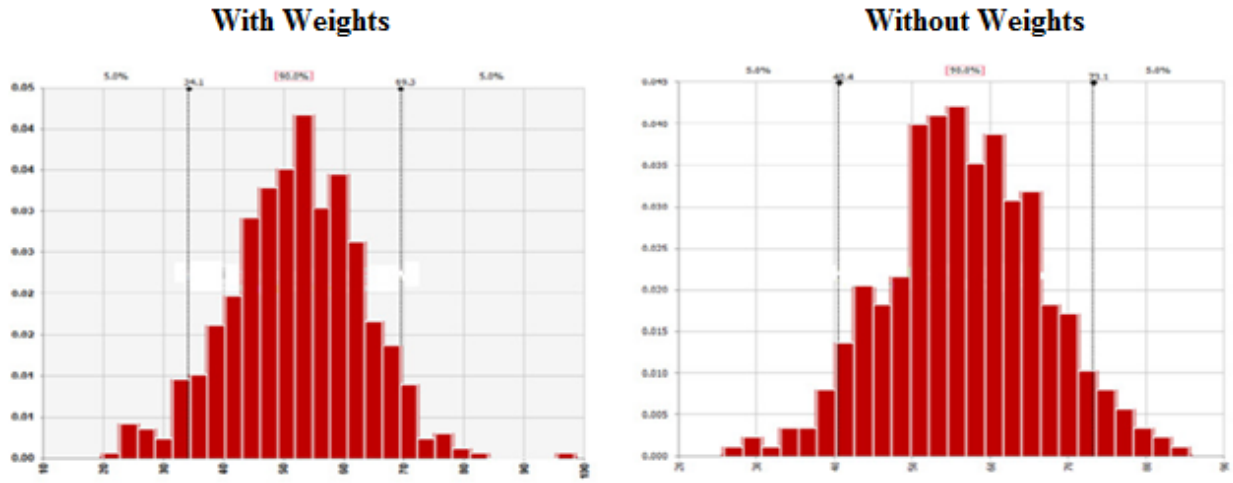
[21] Two participatory workshops were held in Washington DC with a panel of experts to present the methodologies and discuss the criteria for allocation of weights. This expert panel was made up of specialists who have worked in areas related to DRM in Latin America, specifically in public policy reform processes (some of whom also participated in defining the indicators that constitute the iGOPP). After the workshops and allocation of weights the pilot tests were carried out in Panama and Peru and the conclusions from these tests were later used to adjust the final version of the weights.

both to define the weights, or the relative importance of each indicator within each cell, and to the different sub-indices.

Budget allocation is a qualitative participatory technique to assign weights to the indicators that compose a synthetic index. It is based on seeking consensus about the weighting in a visible, non-anonymous, manner. The technique is employed when the number of stakeholders involved in the allocation of weights is small, when the objective of the index is clear, or when the index's sphere of use is limited to certain areas represented by those participating in the workshops. Each workshop participant issues an opinion on the value of the weights. To this end, each participant is asked to allocate a "budget" among the indicators according to their importance. Then the results from all the experts are aggregated, and a weighting structure representing the opinion of all the participants is obtained. The findings are discussed among the group to end up with weights reflecting the greatest consensus within the group.

Once the weights had been defined, pilot applications of the iGOPP were initiated in two countries (Peru and Panama), with the objective of validating the weighting and observing the robustness and sensitivity of the index (for more details, see PHASE 5, located below within Section 4.2). Upon carrying out the pilot applications, it was observed that the differences in the value of the iGOPP were not significant when using differentiated or similar weights at the indicator or sub-index level. This was in contrast to sensitivity tests (see Figure I). Based on this finding, the decision was made not to consider differentiated weights for the indicators and sub-indexes in this first version of the iGOPP. It is also important to note that a research agenda for the future has been established regarding new iGOPP developments in areas related to governance of DRM, and it is important to continue working on it. In particular, it is very important to generate microdata which allow for the establishment of a weighting system based on empirical evidence from several countries showing which elements of public policy contribute more to risk management.

Figure II. iGOPP Sensitivity Test



A thousand (1000) distinct scenarios were simulated, with weights (see chart on the left) and without weights (see chart on the right) for the indicators, in a pilot test with the values obtained for the Peru application. When weights were not considered, in 90% of the cases, the value of the iGOPP was between 34.1 and 69.3 points, and when weights were considered, 90% were valued between 40.4 and 73.1 points, which shows that the variability in values due to weights is limited.

PHASE 4: Aggregation of Information

As occurs in the weighting phase, the aggregation of information can be performed using several methodologies, from simply calculating the indicators to using methodologies which take several criteria into account when aggregating the information, corresponding to a multiple criteria approach. The main methods applied are: (1) calculation of rankings, (2) counting of variables that exceed a given reference, (3) weighted arithmetic mean, (4) weighted geometric mean, and (5) Analytic Hierarchy Process (AHP) - Multiple Criteria Analysis.

Application to the iGOPP

Consideration of the dependence among indicators in indicator aggregation.

A preliminary step in the aggregation of the composite index is that related to the issue of independence among indicators, given that there are some indicators which are not independent of each other, that is, the value that one indicator has determines the value of another or others. This occurs primarily within one individual cell when the existence of one condition in one indicator is sought and then when some aspect related to that condition is sought.

This interdependence must be taken into account when aggregating indicators so as not to artificially reduce or increase the value of the indicator. For this, it is necessary to normalize the aggregated value of interdependent indicators before adding them to the final index.

So, in order to formalize the aggregation in constructing the iGOPP, the following formula was considered:

- There are k cells, indexed with the sub-index s, where $k = 1, \dots, T$ (in this case $T = 23$).
- The weight of each cell or subcomponent k, is given by p_k, such that $\sum_k p_k = 1$.
- In each cell or subcomponent, there is a number of indicators I_k, which is variable (that is, the number of indicators per subcomponent varies), such that they can have values from zero to one.
- Of these I_k indicators, a number of indicators D_k can be dependent, where D_k is also variable, such that $D_k < I_k$. Let ind_{dk} be defined as the value of the indicator *d*, which belongs to the set of interdependent indicators of the subset *k*. Likewise, let ind_{ik} be defined as the value of the indicator *i*, which belongs to the set of interdependent indicators of the subcomponent *k*.
- Let $p_{i \in k}$ be the weights of each indicator of the subcomponent *k* for all of the indicators that are independent *(*I_k-D_k*)*, normalized such that $\sum_i p_{i \in k} = 1$
- Let $p_{d \in k}$ be the weights of each indicator of the subcomponent *s* for all of the indicators that are interdependent *(*D_k*), normalized such that* $\sum_d p_{d \in k} = 1$

The value of the subcomponent t, taking into account the aforementioned conditions and definitions, is given by:

$$v_k = \sum_i \frac{p_{i \in k}}{I_k - D_k} * ind_i + \sum_i \frac{p_{d \in k}}{D_k} * ind_d$$

In this formula, the first summation represents the aggregated value of the independent indicators of the cell k, while the second summation represents the aggregated value of the interdependent indicators. Given that in both elements the weights are normalized so that they add up to one, it is necessary to adjust them by the number of indicators that are independent in this subcomponent (I_k-D_k), and the number of interdependent indicators (D_k).

In this way, even when there is interdependence among indicators, the final result in each cell remains normalized between zero and one. This form of aggregation takes into account that it is necessary to correct the weights of interdependent indicators before adding them to the value of the cell (or subcomponent), so that the value of the subcomponent is not artificially reduced or increased.

PHASE 5: Analysis of Robustness and Sensitivity

If the composite index has been designed deficiently, interpretation errors could occur and the results generated might not be very robust. All steps in the development of a composite index must be subjected to scrutiny by experts, and an attempt must be made to avoid the presence of sources of subjectivity. For that reason, a combination of uncertainty and sensitivity analysis must be undertaken to ensure that small changes in the structure of the indicator do not give rise to large distortions in the values obtained. Robustness and sensitivity analysis consists in testing several configurations of the composite index, from the selection of indicators to normalization and weighting strategies. To do so, different visual tools can be used, such as tabulations, mobile media, and lists of rankings, among others.

In general, the uncertainty associated with the design of composite indexes can be linked to a number of factors, including: (i) the choice of model to estimate data measuring errors; (ii) the

mechanism and methodological framework used to include or exclude indicators in the composite index; (iii) the way in which sub indicators are transformed; (iv) the type of normalization or standardization scheme employed for the purpose of eliminating scale effects that could exist; (v) the amount of missing data and the choice of imputation method used to fill those gaps; (vi) the method for determining weight factors; (vii) the levels of information aggregation, if there are several complementary or overlapping levels; and (viii) the choice of system for aggregating the sub indicators and variables.

Application to the iGOPP

In the case of the iGOPP, two pilot tests of robustness and sensitivity were carried out in Peru and Panama. The results of the pilot test showed that the iGOPP functions adequately; it appropriately reflects the differences in advances in governance for DRM in Panama and Peru. Specifically, advances in governance for DRM are greater in Peru than in Panama. According to the results of the iGOPP, there have been advances in both countries in relation to the General Framework of Governance for DRM , but in Peru, regulatory advances have been greater regarding other reform components, such as Risk Identification and Knowledge, Risk Reduction, Disaster Preparedness, and Post-Disaster Recovery Planning. However, according to the results of the pilot test, the regulatory framework for Financial Protection for DRM is more favorable in Panama than in Peru. These results are consistent with the evaluations of DRM specialists with knowledge of the situation in both countries.

4.3. iGOPP Structure

Table 4 shows the final structure of the iGOPP. It shows that the iGOPP is a composite index made up of 5 sub-indexes pertaining to the DRM reform components: General Framework of Governance for DRM Sub-index (GF Sub-index in the illustration), Risk Identification and Knowledge (RI Sub-index), Risk Reduction Sub-index (RR Sub-index), Disaster Preparedness Sub-index (DP Sub-index), Post-Disaster Recovery Planning Sub-index (RC Sub-index), and Financial Protection Sub-index (FP Sub-index). Additionally, the iGOPP can be broken down into five sub-indexes related to the phases of public policy: Central Policy Coordination and

Articulation Sub-index (Sub-index 1 in the illustration), Definition of Sectorial Responsibilities Sub-index (Sub-index 2), Definition of Territorial Responsibilities Sub-index (Sub-index 3), Evidence of Progress in Implementation Sub-index (Sub-index 4), and Monitoring, Accountability, and Participation Sub-index (Sub-index 5).

Finally, the iGOPP (and each sub-index) can be divided into cells, which, as previously mentioned, are the result of the interaction between DRM reform components and public policy phases. For example, in Table 4, cells GF-1A and GF-2 correspond to the respective interaction between the Central Policy Coordination and Articulation and Evidence of Progress in Implementation phases, with the General Framework of Governance for DRM.

Table 4. Final Structure of the iGOPP

COMPONENTS/ PHASES		Code	PUBLIC POLICY PHASES					
			Central Policy Coordination and Articulation	Definition of Sectorial Responsibilities	Definition of Territorial Responsibilities	Evidence of Progress in Implementation	Monitoring, Accountability and Participation	
			1A	1B	1C	2	3	
COMPONENTS OF REFORM	General Framework of Governance for DRM	GF	Cell GF-1A	GF-1B	GF-1C	GF-2	GF-3	Aggregation of the cells in the GF row sub-index GF of the General Framework of Governance for DRM
	Risk Identification and Knowledge	RI	Cell RI-1A	RI-1B	RI-1C	RI-2	RI-3	Aggregation of the cells in the RI row sub-index RI of Risk Identification and Knowledge
	Risk Reduction	RR	Cell RR-1A	RR-1B	RR-1C	RR-2	RR-3	Aggregation of the cells in the RR row sub-index RR of Risk Reduction
	Disaster Preparedness	DP	Cell DP-1A	DP-1B	DP-1C	DP-2	DP-3	Aggregation of the cells of row DP sub-index DP of Disaster Preparedness
	Post-Disaster Recovery Planning	RC	Cell RC-1A	RC-1B	RC-1C	RC-2	RC-3	Aggregation of the cells of row RC sub-index RC of Post-Disaster Recovery Planning
	Financial Protection	FP	Cell FP-1A	FP-1B	FP-1C	FP-2	FP-3	Aggregation of the cells from row FP sub-index FP of Financial Protection
			Aggregation of the cells from column 1A sub-index 1A of Central Policy Coordination and Articulation	Aggregation of the cells from column 1B sub-index 1B of Definition of Sectorial Responsibilities	Aggregation of the cells from column 1C sub-index 1C of Definition of Territorial Responsibilities	Aggregation of the cells from column 2 sub-index 2 of Evidence of Progress in Implementation	Aggregation of the cells from column 3 sub-index 3 of Accountability and Participation	

5. Data Collection

The verification of the iGOPP indicators requires a meticulous process of data identification, collection and analysis in order to prove the existence of each of the conditions included in the index. Each step of this process is described in detail below.

Identification and collection of relevant data for the iGOPP:

The data required by the iGOPP can be classified into the following main categories:

- Current regulation on DRM and disaster prevention and assistance, or equivalent national regulation (for example Defense, Civil Defense, Emergency Management, among others).
- Basic enabling regulation of the iGOPP, for example: (i) National Development Plan or the equivalent, (ii) Environmental Regulation, (iii) Regulation on Land Planning or Zoning, (iv) Regulation on Climate Change or adaptation, (v) codes on building design and construction and urban planning, and (vi) regulations for the improvement of neighborhoods or human settlements.
- Regulatory framework that governs risk knowledge in the country, including regulation on geological and hydrometeorological studies; in addition to regulatory framework on information systems and formal procedures for information exchange (for example through spatial data infrastructures).
- Regulatory framework that governs the preparation and response processes in the event of disasters or emergencies.
- Regulatory framework on the territorial responsibilities in the country and on the distribution of competencies at the different levels of government, based on the effective decentralization schema in the country.
- Regulatory framework that defines the functions and competencies of each of the 10 sectors considered in the iGOPP: Environment, Agriculture, Health, Housing, Education, Tourism, Transport, Water and Sanitation, Telecommunications and Energy.

- Regulatory framework that governs the public budget, the national public investments system (or its equivalent), the insurance sector and the financial protection mechanisms in the event of disasters (if these exist).
- Regulatory framework that governs public service providers, specifically Water and Sanitation, Telecommunications and Power.
- Regulatory framework that governs the national monitoring or accountability system, the processes of community participation and the public information mechanisms.
- Documentation on the public budget.
- Documentation on emergency and contingency plans or on business continuity plans in the event of disasters.

It is necessary to verify that the regulation is in force at the time the iGOPP is applied. Some countries enact a lot of regulation and therefore trustworthy sources should be consulted and "validity notes" should be analyzed, if they exist[22].

The most common sources of information on regulatory frameworks are the websites of the entities involved in the different DRM processes, as the current regulation governing the institution's activities is often published on these sites. Additionally, many countries have a website of their "Official Journal," where it is possible to access an extensive database of information on regulation relevant to the iGOPP.

Analysis of collected data

Once the data sources have been identified and consulted, the next step involves the respective analysis using the "iGOPP Application Protocol," which is used to determine whether the condition is satisfied or not, based on the regulation analysis. The Application Protocol also

[22] Validity notes provide information on whether a certain piece of regulation is currently in force. The following webpage "Consulta la Norma" ["Check a Law"] is an example from the Bogota Mayor's Office, where the regulation is described, including its history and any modifications it may have undergone to date: (http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=7261)

offers a detailed explanation of each indicator and of the characteristics of the verifier, that is to say, of the law that would satisfy a positive condition with examples of each case.

In this analysis phase, a complete and exhaustive reading of the collected data is performed, and in the event that this leads to the conclusion that the condition is indeed satisfied, notes on the respective article must be taken and then used to fill out the iGOPP Application Form. For example, indicator GF-1A-1: "*Is there national regulation that establishes a framework of responsibilities in disaster risk management for all levels of government*?" Law 1523 of 2012 explicitly defines these responsibilities; consequently, the application form should be filled out in the following way:

Table 5. Example of Information Required to Support the Fulfillment of an Indicator

Yes/No Colombia	Year Colombia	Explanation of the Verifiers	Verifiers and Course
1	2012	Law 1523 of April 24, 2012, by which the national disaster risk management policy is adopted, the National Disaster Risk Management System is established and other regulations were passed (GF-1A-1a), establishes in its Article 2 that "Risk management is the responsibility of all the authorities and inhabitants of the Colombian territory… In compliance with this responsibility, the public, private and community entities will develop and carry out the risk management processes, namely: risk knowledge, risk reduction and disaster management, within the framework of their competencies, scope of action and jurisdiction, as components of the National Disaster Risk Management System."	Law 1523 of the April 24, 2012, by which the national disaster risk management policy was adopted, the National Disaster Risk Management System was established and other regulations were passed: GF-1A-1a.pdf

In the "Yes/No" column, a number 1 (one) is written when the condition is satisfied (positive answer) and a number 0 (zero) is written when it is unsatisfied. In the "Year" column, the year in which the regulation entered into force is written (in some cases laws are approved on one date but do not enter into force until subsequent dates).

In the "Explanation of the Verifiers" column, an explanation of the law(s) upholding the positive condition is written, meaning an explanation of how the specific law effectively complies with the indicator (see example).

Lastly, in the "Verifiers and Course" column, the complete name of the regulation and date it entered into force is written, and a PDF file is then created with the relevant regulation, the name of which ought to correspond to the indicator code.

Even in cases in which the regulation associated to each indicator is identified, but the positive condition is not verified, all columns must be filled out, except the "Year" and "Verifiers and Course" columns, which should be filled out using the "N/A" code, indicating that the year and the PDF file are "not applicable" because the condition is unsatisfied. For example, with regard to indicator RC-1B-1 "*Do regulations from the environmental sector define the responsibility to carry out preparation and post-disaster recovery activities in the scope of its competencies?*" In the case of Colombia the following response was obtained:

Table 6. Example of Information Required to Support the Failure to Comply of an Indicator

Yes/No Colombia	Year Colombia	Explanation of the Verifiers	Verifiers and Course
0	N/A	The Environmental Law of Colombia: Law 99 of 1993, "created the Ministry of Environment, rearranged the Public Sector in charge of the management and conservation of the environment and renewable natural resources, organized the National Environmental System (SINA), and passed other regulations." In Article Nº 31, numeral 23, it defines the responsibility of the Regional Autonomous Corporations: "To carry out disaster analysis, follow-up, prevention and monitoring activities, in coordination with the other competent authorities, and to aid them in environmental aspects in emergency and disaster prevention and assistance; to further develop, together with the municipal or district administrations, adaptation programs for urban areas in high-risk areas, such as programs on erosion control, riverbed management and reforestation." Notwithstanding the foregoing, there is no express regulation from the environmental sector that defines responsibilities for post-disaster recovery preparation within the scope of its competencies (yet there is for disaster prevention and assistance). Therefore the condition is unsatisfied.	N/A

Interviews with officers and expert personnel in the country

In some cases the data that can be obtained from secondary sources (such as Internet searches of the websites of the entities or Official Journals) may not be sufficient for reliably establishing whether or not a particular condition is satisfied.

This is especially critical with the indicators that require the formal existence of policy instruments in some institutions (for example emergency plans from public service providers, which are usually not published to the general public). In these cases, an interview should be requested with expert personnel from each entity in order to find out whether or not the condition is satisfied.

During such interviews, the same recommendations should be followed as those defined in the application protocol, meaning that there needs to be confirmation that the regulation is in force and an analysis of whether it indeed satisfies the condition; the iGOPP form can then be filled out based on this analysis.

Database of verifiers

Lastly, all the positive conditions must be backed by complete documents (regulation) to have as a support in a database. The database must have the following characteristics:

- All files must be in PDF format.
- The name of each file must correspond to the indicator code. Example: "RC-1A-3a.pdf" would be the name corresponding to the regulation that backs the positive condition of indicator RC-1A-3 (reconstruction preparation, national responsibilities, third indicator).
- When the condition is satisfied with more than one verifier, all files should be named with the same initial name but listing each file alphabetically. Example: RR-1B-3a.pdf; RR-1B-3b.pdf, etc.

6. Glossary:

1. **Adaptation (Climatic Change Adaptation)[+]:** In human systems, the process of adjustment to the real or projected climate and its effects, in order to mitigate the damages or take advantage of the beneficial opportunities. In natural systems, the process of adjustment to real climate and its effects; human intervention can facilitate adjustment to the projected climate.

NOTE: In the case of hydrometeorological events "*Climate Change Adaptation* corresponds to disaster risk management insofar as it is aimed at reducing vulnerability or improving resilience in response to the observed or anticipated changes in the climate and its variability." (See the section on basic guidelines, relationship between DRM and CCA).

2. **Hazard[++]:** Latent danger represented by the probable manifestation of a physical phenomenon of natural, socio-natural or anthropogenic origin, that is anticipated to generate adverse effects on people, production, infrastructure and assets and services. It is a factor of external physical risk to an element or group of exposed social elements, which is expressed as the probability that an event will occur with a certain intensity, in a specific location and within a defined period of time[23].

3. **Risk Analysis (Evaluation)[++]:** In its simplest form, it is the hypothesis that risk is a combination of the hazard and the vulnerability of the exposed elements, with the aim of determining the possible social, economic and environmental effects and consequences associated with one or several dangerous phenomena in a territory and with reference to specific social and economic groups or units. Changes in one or more of these parameters modify the risk itself, that is to say, the total anticipated losses and consequences in a certain area. The analysis of hazards and vulnerabilities constitute facets of risk analysis and ought to be articulated with this purpose and not comprise separate and independent activities.

[23] This document only considers hazards of natural origin, including slow-onset events.

4. **Assets of the State's Fiscal Responsibility**[++++++]**:** A portfolio of exposed elements that includes public assets and in some cases the assets of the low-income population[24], that is to say, the assets the government would cover or pay to replace.

5. **Climate Change**[+]**:** A change in the state of the climate that can be identified (for example, through statistical tests) by changes in the average value of its properties and/or by their variability, and that persists for long periods of time, generally for decades or longer periods. Climate change can be due to natural internal processes, external forces or persistent anthropogenic changes in the composition of the Earth's atmosphere or in land use.

6. **Loss Exceedance Curve (LEC)**[++++++]**:** The LEC represents the annual frequency whereupon a determined economic loss will be exceeded. It is the most important and strongest measurement of risk, since it provides basic information for the planning and appropriation of the resources necessary to fulfil particular management objectives. The LEC can be calculated based on the greatest probable event of a year or uniformly for all possible events, based on their recurrence interval. The latter approach is preferred, given that it allows for considering more than one disaster event per year.

7. **Disaster**[++]**:** A situation or social process triggered by the manifestation of a phenomenon of natural, socio-natural or anthropic origin that, when combined with conditions of vulnerability in a population and its productive structure and infrastructure, causes an intense, serious and extended disruption of the normal functioning of the affected country, region, area or community, which, in many cases, cannot be addressed or solved independently using the resources available to the directly-affected social unit. These disruptions take on diverse and differentiated forms, and are represented by the loss of life and health of the population; the total or partial destruction, loss or disablement of assets of the community or individuals; and by severe environmental damages; requiring an immediate response by the authorities and the

[24] The assets of the low-income population are often implicitly included as assets of the state's fiscal responsibility, however certain countries may exclude these assets or may explicitly include them.

population to help the affected community and restore acceptable thresholds of well-being and life opportunities.

8. **Emergency[++]:** The state directly related to the occurrence of a dangerous physical phenomenon or the imminence of one, which requires an immediate reaction and the assistance of the State institutions, the media and the general community. When an event is imminent, there may be confusion, chaos, uncertainty and disorientation among the population. The phase immediately following the impact is characterized by the intense and severe alteration or interruption of the normal functioning or operating of a community, area or region and the minimum conditions necessary for the survival and functioning of the affected social unit. It constitutes a phase or component of a disaster but is not, per se, a substitute notion of disaster. There may be emergency conditions without having a disaster.

9. **Exposure[+]:** The presence of people; livelihoods; environmental services and resources; infrastructure; or economic, social or cultural assets in areas that could be negatively affected.

10. **Disaster Risk Management[+]:** Processes to design, apply and evaluate strategies, policies and measures aimed at: improving the understanding of disaster risks, fostering risk reduction and financial protection from disaster risks, and promoting the continuous improvement of preparedness, response and recovery practices, with the explicit objective of increasing human security, well-being, quality of life, resilience and sustainable development.

NOTE: Risk management constitutes a development policy that is indispensable for ensuring territorial sustainability and security and collective rights and interests, and is therefore intrinsically associated to safe development planning and sustainable territorial environmental management in all levels of government.

11. **Emergency Management (Disaster Management)[++]:** The organization and management of resources and responsibilities for handling all aspects of emergencies, particularly preparedness, response and rehabilitation. Emergency management includes plans, structures and agreements that involve the efforts of the government and volunteer and private

organizations in a coordinated and comprehensive manner in order to respond to all the needs associated with an emergency. The concept of emergency management is also known as "disaster management."

12. **Governance:** the capacity of societies to guide and organize their public and social institutions so that they can provide the people with more and better opportunities for living the lives they value, including them in the decisions that affect them (UNDP).

13. **Disaster Risk Identification:** The disaster risk management process focused on the knowledge of the origins, causes, scope, frequency and possible evolution, among other aspects, of the potentially dangerous phenomena, as well as of the location, causes, evolution and resistance and recovery capacity of the exposed socioeconomic elements. This process includes the preliminary analysis of consequences and contains both objective and scientific interpretations as well as social and individual perceptions.

14. **Vital Facilities**[++++]**:** The physical structures, technical facilities and main systems that are socially, economically or operationally essential for the functioning of a society or community, both in normal circumstances and during extreme circumstances due to an emergency. Comment: Vital facilities are elements of the infrastructure that support a society's essential services. They include transportation systems; airports and maritime ports; electric, water supply and communications systems; hospitals and health clinics; fire and police department services; and public administration services.

15. **Critical Infrastructure**: See Vital Facilities.

16. **Financial Protection Instruments**[+++]**:** Financial instruments for the occurrence of disasters; they are classified as ex-ante instruments, such as reserves, contingent credits and ex-post risk transfer instruments, such as budgetary reassignment, tax increases and debt contracting.

17. **Financial Instruments/Financial Products**[++++++++]**:** Fund transfer instruments between economic agents characterized by their liquidity, risk and profit. It is a way to conserve wealth for those who have it (investors) and a liability for those who generate them. These assets can be transmitted from some economic units to others, and there are even derived financial products.

18. **Corrective Management (Intervention)**[++]**:** A process aimed at reducing the existing risk levels in a society or subcomponent of society, the product of historical processes of territorial occupation, of heightened production and of the construction of infrastructure and buildings, among other things. It is a reacts to, and compensates for, pre-existing risk in the society. Examples of corrective management actions or instruments include the construction of dams to protect populations located in flood zones; the structural reinforcement of buildings to equip them with adequate levels of protection against earthquakes or hurricanes; changes in the pattern of crop adaptation to adverse environmental conditions; reforestation; or recovery of basins to diminish processes of erosion, landslides and flooding.

NOTE: The concept of risk mitigation (reduction) is related to corrective management (intervention).

19. **Prospective Management (Intervention)**[++]: A process used to anticipate (forecast) a risk that could occur in association with new processes of development and investment, taking measures to guarantee that new risk conditions do not arise with location, construction, production, circulation and commercialization initiatives, among others. The prospective management should be viewed as an integral component of development planning and of the planning cycle of new projects, whether developed by the government, private sector or civil society. The last objective of this type of management is to avoid new risks, guarantee adequate levels of investment sustainability, and as a result, avoid having to apply expensive corrective management measures in the future.

20. **Disaster Handling**: See Emergency Management or Disaster Management

21. **Medium-Term Expenditure Framework**[++++++]**:** It contains the projections of the main sectorial priorities and the maximum levels of expenditure, distributed by sectors and expenditure components from the National General Budget for the period of government and is reviewed annually.

22. **Levels of Government:** It includes central government, autonomous and decentralized entities, state companies, local and regional governments, and the sectors and ministries.

23. **Territorial Levels:** It includes the local, municipal, cantonal, parochial, district, departmental, regional, state or provincial, depending on the administrative political divisions of each country.

24. **Contingent Liability**[+++++++++]**:** Traditional liabilities are characterized because the conditions that determine the value of the contracted obligations are known, unlike contingent liabilities whose value is dependent on the occurrence of future and uncertain events

25. **Parameters and Guidelines**: This refers to the instructions that may or may not be obligatory and that establish standards on the best practices for performing an activity that falls under the responsibility of a specific organization or institution.

26. **Annualized Loss Expectancy (ALE)**[+++++]**:** The ALE is calculated as the product of the anticipated losses for a determined event and the rate of occurrence of said event in a period of one year and for all stochastic events considered. In probabilistic terms, the ALE is the mathematical anticipation of annual loss.

27. **Probable Maximum Loss (PML)**[+++++]**:** The PML represents a level of loss for an anticipated exceedance. Depending on the capacity of a country, region or entity for risk management, it is possible to choose to intervene in the potential losses until an appropriate determined return period.

28. **Risk Management Plan**[++]: Coherent and organized set of strategies, programs and projects that are developed to guide the risk reduction (mitigation), prevention, forecast and monitoring activities, as well as the recovery in the event of disaster. It offers the global and integrated framework, the details of global policies and the existing hierarchical and coordination levels for the development of specific, sectorial, thematic or territorial plans related to the different aspects of risk and disaster. By guaranteeing adequate conditions of security in the face of the diverse existing risks and by diminishing the potential material losses and social consequences that derived from disasters, the population's quality of life is maintained and sustainability is increased.

29. **Emergency Plan**[++]**:** Determination of the general functions, responsibilities and procedures for institutional response and alert, resource inventory, coordination of operational activities and simulation for training, with the aim of safeguarding life, protecting assets and returning normalcy to society as soon as possible after a dangerous phenomenon occurs. It involves a regulatory proposal for the organization of assets, people, services and resources available for handling the disaster, based on risk evaluation, the availability of material and human resources, community preparedness, local and international response capacity, etc. It determines the hierarchical and functional structure of the authorities and bodies called to intervene and it establishes the coordination system among the public and private institutions, resources and media needed to fulfill the proposed objective.

30. **Contingency Plan:** These are alternative procedures of immediate response, whose aim is to enable a company's normal operations, even though some of its functions have been damaged by an internal or external accident.

31. **Business Continuity Plan**[++++++++]**:** Its aim is to analyze the entity's vulnerabilities in order to create and validate logistics plans to prepare the organization to recover and restore its critical functions that have been partially or totally interrupted after a disaster, in such a way that its mission is not endangered and the resilience of the organization is improved. A Business Continuity Plan, unlike a Contingency Plan, is aimed at maintaining the business of the organization, with which it will prioritize the business operations that are necessary in order to continue after an unplanned incident. A Business Continuity Plan includes a Contingency Plan.

32. **Disaster Preparedness (Preparations):** A disaster risk management process whose objective is to plan, organize and test a society's response procedures and protocols in the event of disaster, guaranteeing adequate and timely assistance to the people affected, as well as the re-establishment of the indispensable basic services, thus normalizing activities in the area affected by the disaster. Preparation is achieved through the monitoring of events and determination of risk scenarios, as well as the planning, organization, training, resources and simulation for alert, evacuation, search, rescue, aid, and humanitarian assistance activities that must be performed in the event of emergency and the subsequent physical, economic and social recovery activities.

33. **Risk Prevention**[++]**:** Measures and actions taken in advance in order to prevent new risks or impede their development and strengthening. This means working around latent hazards and vulnerabilities. Viewed in this way, risk prevention falls under Prospective Risk Management. Since absolute prevention is rarely possible, prevention has a semi-utopic connotation and should be viewed in the light of what is considered to be acceptable risk, which is socially determined at its levels.

34. **Pure Risk Premium (PRP)**[++++++]**:** The PRP corresponds to the value of the ALE divided by the replacement value of the asset. It indicates the cost that must be paid annually to cover the losses anticipated in the future.

35. **Financial Protection**[+++]**:** This is the optimal combination of financial mechanisms or instruments for risk retention and transfer in order to have ex-post access to timely economic resources, which improves the response capacity in the event of disasters (smaller and recurrent events and large infrequent disasters) and protects the fiscal balance of the State.

36. **Recovery**[++]**:** Process to re-establish acceptable and sustainable life conditions through the rehabilitation, repair or reconstruction of infrastructure, assets and services that were destroyed, interrupted or deteriorated in the affected area, and the reactivation of or boost to the economic and social development of the community under conditions of lower risk than their pre-disaster levels.

37. **Disaster Risk Reduction[+]:** The disaster risk management process focused on minimizing vulnerabilities and risks in a society, to avoid (prevention) or limit (mitigation) the adverse impact of hazards, within the broad context of sustainable development.

38. **Re-establishment:** Stage of recovery that corresponds to the re-establishment of the indispensable vital services that have been interrupted or deteriorated by the disaster. It is a temporary stage or situation in which the population is still being aided, but during which there is a re-establishment of the vital lines, such as energy, water, roads and communications, and other basic services like health and the provision of food and supplies.

39. **Reconstruction:** Stage of recovery that corresponds to the process of restitution and reinforcement of the constructions affected and to the repair of the physical damage to buildings, infrastructure and production centers after a disaster.

40. **Resilience[+]:** The ability of a system and its components to anticipate, absorb, adapt or recover from the effects of a dangerous phenomenon, in a timely and efficient manner, even safeguarding the conservation, restoration or improvement of its essential basic structures and functions.

41. **Response[++]**: Stage of assistance that corresponds to the execution of the actions planned in the preparedness stage which, in some cases, have already been preceded by registration and mobilization activities, motivated by the declaration of different states of alert. It corresponds to the immediate reaction for timely assistance to the population.

42. **Disaster Risk[+]:** The probability that, during a specific period of time, serious interruptions of the normal functioning of a community or society due to the dangerous physical phenomena will take place that interact with vulnerable social conditions, hence giving rise to widespread adverse human, material and economic or environmental effects requiring an immediate emergency response in order to satisfy the essential human needs, and which may require external support for recovery.

43. **Subsidiarity (Principle of):** In its broadest definition, it means that a matter must be solved by the (regulatory, political or economic) authority that is closest to the object of the problem.

44. **Vulnerability[++]:** Internal risk factor of an element or group of elements exposed to a hazard. It corresponds to the physical, economic, political or social predisposition or susceptibility of a community to being affected or undergo adverse effects in the event that a dangerous phenomenon of natural, socio-natural or anthropogenic origin occurs. It also represents the conditions that prevent or hinder subsequent autonomous recovery. The differences of vulnerability of the social and material context before a dangerous phenomenon determine the selective character of the severity of their effects. It is a system of conditions and processes resulting from physical, social, economic and environmental factors that increase the susceptibility of a community to the impact of the hazards.

45. **Territorial Management Units**: Local and regional governments in their different forms of administrative political organization.

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Annex: List of Indicators

Index Component: General Framework of Governance for DRM [GF]		
GF-1A Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	**Responses**
GF-1A-1	Are there national regulations which establish a responsibility framework on DRM for all Government levels?	Yes/No
GF-1A-2	Are there Policy tools for the implementation of national regulations on DRM?	Yes/No
GF-1A-3	Do the national regulations on DRM establish that the coordination and articulation of the policy tools be made at a hierarchical level equal or higher than ministerial?	Yes/No
GF-1A-4	Do the national regulations on DRM coordinate with other related standards for climate change adaptation, integrated water resources management or territorial planning and land use?	Yes/No
GF-1A-5	Does the National Development Plan (or equivalent instrument), contain objectives, targets or indicators in Disaster risk management?	Yes/No
GF-1A-6	Does the National Development Plan (or equivalent instrument) contain objectives, targets or indicators in CCA?	Yes/No
GF-1A-7	Are there climate change regulations which contain disaster risk management as a target, aim, purpose or result?	Yes/No
GF-1A-8	Are there regulations which establish a regime of professional career in public administration applicable to the responsible entities in charge of DRM in the country?	Yes/No

GF-1B Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	**Responses**
GF-1B-1	Are there regulations for integrated water resources management which establish disaster risk management as a purpose, aim or result?	Yes/No
GF-1B-2	Are there regulations on integrated water resources management which establish climate change adaptation as a purpose, aim or result?	Yes/No
GF-1B-3	Do the regulations that standardize the carrying out of environmental impact assessment (or equivalent process), integrate disaster risk analysis?	Yes/No

GF-1C Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	**Responses**
GF-1C-1	Are there regulations that decentralize the responsibilities in the matter of development planning or territorial planning and land use to territorial management units?	Yes/No
GF-1C-2	Are there regulations that establish an approach of basin eco-region for environmental management or water resources?	Yes/No
GF-1C-3	re there regulations that empower Territorial Management Units to create networks, agreements, alliances or territorial agreements in DRM?	Yes/No
GF-1C-4	Are there regulations that empower the formation of structures of territorial management for integrated water resources management or ecosystem management?	Yes/No

GF-2 Evidence of Progress in Implementation		
Code	**Closed-Ended Questions**	**Responses**
GF-2-1	Is there an approved document by the Ministry of Economy and Finance (or its agent) which establishes a financial strategy or policy for financial management of disaster risk in the country?	Yes/No
GF-2-2	Has the entity responsible for functions of leadership or coordination or articulation of disaster risk management in the country, received funding for these functions in the last fiscal period?	Yes/No
GF-2-3	Is there an objective or classified spending budget (or equivalent) in the national budget to allocate resources to disaster risk management *"before the event"* activities?	Yes/No
GF-2-4	Is there an objective or classified spending budget (or equivalent) in the national budget to allocate resources to climate change adaptation activities?	Yes/No
GF-2-5	Is there a fund or equivalent mechanism which finances or co-finances *before the event* disaster risk management activities?	Yes/No
GF-2-6	Is there a fund or equivalent mechanism which finances or co-finances climate change adaptation activities?	Yes/No
GF-2-7	Is there a fund or equivalent mechanism at the national level that enables contracting for disaster risk transfer instruments for asset portfolio of actual fiscal responsibility of the state?	Yes/No
GF-2-8	Is at least one of the three national development funds (or equivalent) with the largest allocation of resources used to finance or co-finance disaster risk management before the event activities?	Yes/No
GF-2-9	Is there an incentive budget for territorial management units that are responsible for implementing disaster risk management activities?	Yes/No
GF-2-10	Is there an incentive budget for the different sectors (ministries) responsible for implementing ex ante disaster risk management activities?	Yes/No

GF-3 Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	**Responses**
GF-3-1	Is it stated within the national regulations on Disaster Risk Management that disaster risk management must be subjected to control by the respective authorized organizations?	Yes/No
GF-3-2	Are there regulations regarding transparency of how DRM is publicly managed?	Yes/No
GF-3-3	Has the national controlling entity concluded at least one compliance assessment on the existing regulations in disaster risk management within the last 5 years?	Yes/No
GF-3-4	Has the responsible national coordinating organization along with any other territorial sector conducted an assessment on disaster risk management within the last 3 years?	Yes/No
GF-3-5	Is there at least a mechanism of civil society participation applicable to the disaster risk management?	Yes/No

Index Component: Risk Identification and Knowledge [RI]

RI-1A Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	
RI-1A-1	Are there regulations to designate a responsible national party to provide technical assistance and guidelines at territorial and sectorial levels for the disaster risk analysis?	Yes/No
RI-1A-2	Are there regulations to designate a responsible national party to define methodologies for preparation studies on climate change effects?	Yes/No

RI-1A-3	Are there regulations ordering the creation and maintenance of Information Systems for Disaster Risk Management?	Yes/No
RI-1A-4	Are there regulations that establish the creation, systematization or updating of databases on the effects of disasters?	Yes/No

RI-1B Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	
RI-1B-1	Are there regulations which establish that studies on the threat by geological events should consider the frequency of occurrence of such event and their associated levels and intensities?	Yes/No
RI-1B-2	Are there regulations which establish that threat by climate or hydrological events should consider the frequency and occurrence of such event along with the associated levels and intensities?	Yes/No
RI-1B-3	Do the National Disaster Risk Management regulations stipulate that each sector is responsible to carry out disaster risk analysis in the sectorial scope of its powers?	Yes/No
RI-1B-4	Do the National Disaster Risk Management regulations mandates that public service providers are responsible to carry out disaster risk analysis in the scope of their operations?	Yes/No
RI-1B-5	Do the science, technology and innovation regulations (or equivalent) include the promotion of knowledge on disaster risk in the country?	Yes/No
RI-1B-6	Do the science, technology and innovation regulations (or equivalent) include the promotion of knowledge on climate change in the country?	Yes/No
RI-1B-7	Are there regulations to continue development and maintenance of observation and monitoring networks of at least two natural hazards in the country?	Yes/No
RI-1B-8	Do the environmental sector regulations define the responsibility to carry out disaster risk analysis or adverse effects of climate change in the scope of its powers?	Yes/No
RI-1B-9	Do the agriculture sector regulations define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-10	Do the health sector regulations define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-11	Do the housing sector regulations define the responsibility to carry out disaster risk analysis in the scope of its powers?	Yes/No
RI-1B-12	Do the education sector regulations define the responsibility to carry out disaster risk analysis in the scope of its powers?	Yes/No
RI-1B-13	Do the tourism industry regulations define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-14	Do the transport sector regulations (or equivalent) define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-15	Do the water or sanitation sector regulations (or equivalent) define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-16	Do the telecommunications industry regulations (or equivalent) define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-17	Do the energy sector regulations (or equivalent), define the responsibility to carry out disaster risk or adverse effects analysis of climate change in the scope of its powers?	Yes/No
RI-1B-18	Is there at least one rule that defines which buildings are essential, indispensable or critical infrastructure of the country?	Yes/No

RI-1C Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	
RI-1C-1	Do the National Disaster Risk Management regulations establish that territorial management units are responsible for disaster risk assessment in their respective territories?	Yes/No
RI-1C-2	Are there regulations to appoint national stakeholders responsible to define the scale or resolution in which risk analysis should be carried out at different government levels?	Yes/No
RI-1C-3	Are there regulations that establish the obligation to zone threatened cities?	Yes/No

RI-2 Evidence of Progress in Implementation		
Code	**Closed-Ended Questions**	
RI-2-1	Is the subject of disaster risk integrated into educational curricular programmes at least at the primary or secondary levels?	Yes/No
RI-2-2	Is the subject of climate change integrated into educational curricular programmes at least at the primary or secondary levels?	Yes/No
RI-2-3	In the last fiscal period, were funds assigned to the Ministry of Environment to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-4	In the last fiscal period, were funds assigned to the Ministry of Agriculture to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-5	In the last fiscal period, were funds assigned to the Ministry of Health to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-6	In the last fiscal period, were funds assigned to the Ministry of Housing to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-7	In the last fiscal period, were funds assigned to the Ministry of Education to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-8	In the last fiscal period, were funds assigned to the Ministry of Tourism to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-9	In the last fiscal period, were funds assigned to the Ministry of Transport to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-10	In the last fiscal period, were funds assigned to the national entity responsible for water and sanitation to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-11	In the last fiscal period, were funds assigned to the national entity responsible for telecommunications to perform disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-12	In the last fiscal period, were funds assigned to the national entity responsible for energy to carry out disaster risk analysis which could be verified through instruments of budget classification?	Yes/No
RI-2-13	Has the country's largest water or sanitation supplier performed at least one disaster risk analysis on its infrastructure within the last 5 years?	Yes/No
RI-2-14	Has the country's largest energy (generation, transmission and distribution) company performed at least one disaster risk analysis on its infrastructure within the last 5 years? **(Note: in case they are separate companies, the same questions applies to each)**	Yes/No

RI-2-15	Has the country's largest telecommunication company performed at least one disaster risk analysis on its infrastructure within the last 5 years?	Yes/No

RI-3 Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	
RI-3-1	Are there regulations that mandate the availability of information on risk analysis which also define the mechanisms or tools for their exchange?	Yes/No
RI-3-2	Are there regulations that mandate the availability of information on climate change studies which also define the mechanisms or tools for their exchange?	Yes/No
RI-3-3	Has the national entity responsible to generate information on geological phenomena, performed at least one quality assessment of their research, monitoring and dissemination process in the last 3 years?	Yes/No
RI-3-4	Has the national entity responsible for generating information on hydrological and meteorological phenomena, performed at least one quality assessment of their research, monitoring and dissemination process in the last 3 years?	Yes/No
RI-3-5	Has the national control entity performed at least one verification or assessment on information generation and its availability on disaster risk in the last 5 years?	Yes/No
RI-3-6	Do the national DRM regulations mandate the responsibility to inform the citizens about disaster risk?	Yes/No

Index Component: Disaster Risk Reduction [RR]

RR-1A Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	
RR-1A-1	Are there regulations that establish authority *in an articulated manner* between disaster risk reduction and climate change adaptation for territorial and sectorial entities?	Yes/No
RR-1A-2	Are there regulations that define examples of acceptable risk for at least 2 threats in the country?	Yes/No
RR-1A-3	Is there at least one national standard that mandates public entities to reduce the vulnerability of essential buildings, indispensable or critical infrastructure through measures of reinforcement or replacement?	Yes/No
RR-1A-4	Are there regulations that stipulate specific penalties for the breach of regulations related to the design, construction or location of public and private infrastructure or buildings?	Yes/No
RR-1A-5	Are there regulations that mandate that disaster risk reduction measures are incorporated during the construction of public and private infrastructural projects?	Yes/No

RR-1B Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	
RR-1B-1	Within the National Disaster Risk Management regulations is each sector responsible for reducing disaster risk in the areas of its sectorial competence?	Yes/No
RR-1B-2	Within the National Disaster Risk Management regulations are public service providers responsible to reduce disaster risk in the scope of their operations?	Yes/No
RR-1B-3	Is there at least one national safety standard (code) for earthquake-resistant design of buildings, or similar: (e.g. wind), which is mandatory for public and private projects?	Yes/No
RR-1B-4	Are there regulations that standardize the technical aspects of construction, recommend special design parameters for essential buildings, indispensable or critical infrastructure	Yes/No

	in the country?	
RR-1B-5	Have the earthquake-resistant standards been reviewed at least once in the last 10 years?	Yes/No
RR-1B-6	Are goals or results of disaster risk reduction integrated within the objectives of the standard environmental management regulations?	Yes/No
RR-1B-7	Do the environmental sector regulations define the responsibility to reduce disaster risk within its powers?	Yes/No
RR-1B-8	Do the agriculture sector regulations define the responsibility to reduce disaster risk within its powers?	Yes/No
RR-1B-9	Do the health sector regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-10	Do the housing sector regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-11	Do the education sector regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-12	Do the tourism sector regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-13	Do the transport sector (or equivalent) regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-14	Do the water and sanitation sector (or equivalent) regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-15	Do the telecommunication sector (or equivalent) regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-16	Do the energy sector (or equivalent) regulations define the responsibility to reduce disaster risk within the scope of its powers?	Yes/No
RR-1B-17	Are there regulations that mandate the performing of disaster risk analysis during the pre-investment phase of the project cycle?	Yes/No
RR-1B-18	Are there regulations that mandate the integration of climate change studies during the pre-investment phase of the project cycle?	Yes/No
RR-1B-19	Are there regulations that mandate performing disaster risk analysis during phases of the project cycle other than the pre-investment phase?	Yes/No

RR-1C Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	
RR-1C-1	Do the National Disaster Risk Management regulations establish that territorial management units are responsible for disaster risk reduction in their respective territories?	Yes/No
RR-1C-2	Do the regulations on the functions and competencies of the territorial management units in the country establish disaster risk reduction as one of their powers?	Yes/No
RR-1C-3	Are there regulations on development planning and land use (or equivalent) that establish the zoning of at-risk areas as a determinant factor in the definition of land use and occupation?	Yes/No
RR-1C-4	Are there regulations for the overall improvement of human settlements?	Yes/No
RR-1C-5	Are there regulations for the relocation of human settlements located in risk zones?	Yes/No

RR-2 Evidence of Progress in Implementation		
Code	**Closed-Ended Questions**	
RR-2-1	In the last fiscal period, were funds assigned to the Ministry of Environment to perform disaster risk analysis which could be verified through budget classification instruments?	Yes/No

RR-2-2	In the last fiscal period, were funds assigned to the Ministry of Agriculture to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-3	In the last fiscal period, were funds assigned to the Ministry of Health to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-4	In the last fiscal period, were funds assigned to the Ministry of Housing to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-5	In the last fiscal period, were funds assigned to the Ministry of Education to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-6	In the last fiscal period, were funds assigned to the Ministry of Tourism to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-7	In the last fiscal period, were funds assigned to the Ministry of Transport to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-8	In the last fiscal period, were funds assigned to the national entity responsible for water and sanitation to perform disaster risk reduction activities which could be verified through budget classification tools?	Yes/No
RR-2-9	In the last fiscal period, were funds assigned to the national entity responsible for telecommunications to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-10	In the last fiscal period, were funds assigned to the national entity responsible for energy to perform disaster risk reduction activities which could be verified through budget classification instruments?	Yes/No
RR-2-11	Has the water and sanitation company with the largest portfolio of users in the country, implemented at least one project or program that includes disaster risk reduction activities in its infrastructure in the last 5 years?	Yes/No
RR-2-12	Has the country's largest energy (generation, transmission and distribution) company implemented at least one project or program that includes disaster risk reduction activities in its infrastructure in the last 5 years? (Note: In the event they are separate companies, the same questions applies to each)	Yes/No
RR-2-13	Has the telecommunications company with the largest portfolio of users in the country, implemented at least one project or program that includes disaster risk reduction activities in its infrastructure in the last 5 years?	Yes/No

RR-3 Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	
RR-3-1	Are there regulations that establish a system of penalties to public and private entities when violators cause damage to the environment?	Yes/No
RR-2-13	Has the national controlling entity performed at least one verification or evaluation on the performance of disaster risk reduction actions in the last 5 years?	Yes/No
RR-3-3	Do the regulations that govern the formulation of development planning and land use (or similar), assign responsibilities for monitoring, evaluation and updates?	Yes/No
RR-3-4	Do the regulations that govern watershed planning and management (or equivalent planning tool), assign responsibilities for their monitoring, evaluation and update?	Yes/No

RR-3-5	Has the national controlling entity or sector regulator performed at least one assessment on the implementation of risk reduction measures during the construction phase of infrastructure projects in the last 5 years?	Yes/No

Index Component: Disaster Preparedness [DP]

DP-1A Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	
RP-1A-1	Are there regulations that establish an inter-institutional organization at the national level for the preparedness and response processes?	Yes/No
RP-1A-2	Do the regulations that govern the preparedness and response processes establish a mechanism, body or instrument for crisis management at the highest national political level?	Yes/No
RP-1A-3	Do the regulations that govern the preparedness and response processes establish the development of official protocols for the coordination of operations or incident commands?	Yes/No
RP-1A-4	Are there regulations that govern the implementation of temporary regime measures in the event of disaster, emergency or public calamity?	Yes/No
RP-1A-5	Do the regulations that govern the preparedness and response processes also establish the formulation of emergency or contingency plans at the national level?	Yes/No
RP-1A-6	Do the regulations that govern the preparedness and response processes establish that the response and humanitarian assistance actions should be based on damage assessments and needs analysis?	Yes/No
RP-1A-7	Do the regulations that govern the preparedness and response processes establish the performance of drills and simulations?	Yes/No
RP-1A-8	Are there regulations for the coordination of international assistance and mutual help in the event of disaster?	Yes/No

DP-1B Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	
RP-1B-1	Do the regulations that govern the preparedness and response processes mandate the establishment of emergency or contingency plans in the different sectors or ministries?	Yes/No
RP-1B-2	Do the regulations that govern the preparedness and response processes, foresee the implementation and operation of surveillance or warning systems for natural hazardous phenomena occurs?	Yes/No
RP-1B-3	Do the environmental sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-4	Do the agriculture sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-5	Do the health sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-6	Do the housing sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-7	Do the education sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-8	Do the tourism sector regulations define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-9	Do the transport sector regulations (or equivalent sector) define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No

RP-1B-10	Do the water and sanitation sector regulations (or equivalent) define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-11	Do the telecommunication sector regulations (or equivalent) define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-12	Do the energy sector regulations (or equivalent) define the responsibility to carry out preparedness for disaster response activities in the scope of its powers?	Yes/No
RP-1B-13	Do the regulations that govern public service providers of water and sanitation, require the formulation and implementation of business or operations continuity plans in the event of disaster?	Yes/No
RP-1B-14	Do the regulations that govern public service providers of telecommunications, require the development of business or operations continuity plans in the event of disaster?	Yes/No
RP-1B-15	Do the regulations that govern public service providers of energy require the development of business or operations continuity plans in the event of disaster?	Yes/No
RP-1B-16	Are there regulations that mandate development and implementation of emergency or contingency plans associated with transport, handling or processing of hazardous substances?	Yes/No
RP-1B-17	Are there regulations that mandate the development and implementation of emergency or contingency plans in the event of hydrocarbon spill, combustion or pollution?	Yes/No

DP-1C Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	
RP-1C-1	Do the regulations that govern the preparedness and response processes provide instances of coordination in the territory?	Yes/No
RP-1C-2	Do the regulations that govern the preparedness and response processes establish subsidiary assistance criteria among the different government levels?	Yes/No
RP-1C-3	Do the regulations that govern the preparedness and response processes establish the formulation of emergency or contingency plans at territorial levels?	Yes/No
RP-1C-4	Are there regulations (other than those of DRM or preparedness) that define the preparedness and response competencies for the territorial management units?	Yes/No
RP-1C-5	Are there regulations that enable municipalities to use their own resources outside their jurisdiction in situations of emergency?	Yes/No

DP-2. Evidence of Progress in Implementation		
Code	**Closed-Ended Questions**	
RP-2-1	Has the national entity responsible for preparedness and response coordination received funding for these functions in the last fiscal period?	Yes/No
RP-2-2	Has at least one national firefighter service received funding for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-3	Has the national entity responsible for forest fire prevention and control received funding for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-4	Does the environmental sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years?	Yes/No
RP-2-5	Does the agricultural sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received funding for disaster preparedness activities in the last fiscal period?	Yes/No

RP-2-6	Does the health sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received funding for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-7	Does the housing sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years?	Yes/No
RP-2-8	Does the education sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received funding for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-9	Does the tourism sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years?	Yes/No
RP-2-10	Does the transport sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received resources for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-11	Does the water and sanitation sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received resources for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-12	Does the energy sector have a National Emergency Plan (or any contingency or continuity of operations or equivalent plan) which has been formally approved at least in the last 5 years, and has the coordinator or guiding entity received funding for disaster preparedness activities in the last fiscal period?	Yes/No
RP-2-13	Does the country's largest national water and sanitation company have any emergency, contingency or continuity operation plans in the event of disaster?	Yes/No
RP-2-14	Does the country's largest energy (generation, transmission and distribution) company have any emergency, contingency or continuity operation plans in the event of disaster? (Note: In the event of multiple companies, the same question applies to each)	Yes/No
RP-2-15	Does the country's largest telecommunications company have any emergency, contingency or continuity operation plans in the event of disaster?	Yes/No

DP-3. Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	
RP-3-1	Do the regulations that govern the preparedness and response processes establish mechanisms of civil society participation in all units of territorial management?	Yes/No
RP-3-2	Has the national controlling entity performed at least one assessment on disaster preparedness in the last 5 years?	Yes/No
RP-3-3	Has the national controlling entity carried out at least one ex-post assessment on the government's response performance during one of the last 5 nationally-declared major disasters or during those when international assistance was requested?	Yes/No
RP-3-4	Has the national entity responsible for coordinating disaster preparedness and response carried out at least one assessment on the quality of their process in the last 3 years?	Yes/No
RP-3-5	Has the national entity responsible for preparedness and response adopted quality standards in humanitarian assistance at least in relation to water, sanitation, nutrition and temporary shelter?	Yes/No

RP-3-6	Was any mechanism of community participation activated in response to at least one of the last 5 nationally declared disasters or when international assistance was requested?	Yes/No

Index Component: Post-Disaster Recovery Planning (RC)

RC-1A. Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	
RC-1A-1	Are there regulations on post-disaster recovery which define the responsibility of the State in this process?	Yes/No
RC-1A-2	Are there regulations that establish the recovery of livelihoods as a purpose of post-disaster recovery?	Yes/No
RC-1A-3	Are there regulations that mandate institutional arrangements for coordinating post-disaster reconstruction?	Yes/No
RC-1A-4	Are there regulations that mandate the performing of studies on the causes of disasters to guide recovery in such a way to prevent the return of the pre-existing risk conditions?	Yes/No
RC-1A-5	Are there regulations mandating the development of post-disaster recovery plans that explicitly seek to reduce the pre-existing vulnerability?	Yes/No
RC-1A-6	Are there regulations mandating the *ex-ante* development of post-disaster recovery plans?	Yes/No
RC-1A-7	Are there regulations mandating that post-disaster recovery plans define the duration of the phase that will support the restoration of livelihood, during the transition between the response and reconstruction?	Yes/No
RC-1A-8	Are there regulations mandating that post-disaster recovery plans define the period in which affected homes are repaired or rebuilt?	Yes/No

RC-1B. Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	
RC-1B-1	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the environmental sector regulations?	Yes/No
RC-1B-2	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the agriculture sector regulations?	Yes/No
RC-1B-3	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the health sector regulations?	Yes/No
RC-1B-4	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the housing sector regulations?	Yes/No
RC-1B-5	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the education sector regulations?	Yes/No
RC-1B-6	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the tourism sector regulations?	Yes/No
RC-1B-7	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the transport sector regulations (or equivalent)?	Yes/No
RC-1B-8	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the water and sanitation sector regulations (or equivalent)?	Yes/No
RC-1B-9	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the telecommunication sector regulations (or equivalent)?	Yes/No
RC-1B-10	Are the responsibilities for carrying out post-disaster recovery preparation activities defined under the energy sector regulations (or equivalent)?	Yes/No

RC-1C. Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	
RC-1C-1	Are there regulations that govern the assessment, review or update of development plans after a disaster has affected the territorial management units?	Yes/No
RC-1C-2	Are there regulations that govern the assessment, review or update of land use plans after a disaster has affected the territorial management units?	Yes/No

RC-2. Evidence of Progress in Implementation		
Code	**Closed-Ended Questions**	
RC-2-1	Does the Ministry of Environment (or guiding entity or environmental coordinator) have an *ex-ante* post-disaster recovery plan for the sector, that has been formally approved in at least the last 5 years?	Yes/No
RC-2-2	Does the Ministry of Agriculture (or equivalent) have an *ex-ante* post-disaster recovery plan for the sector, that has been formally approved in at least the last 5 years?	Yes/No
RC-2-3	Does the Ministry of Health (or equivalent) have an *ex-ante* post-disaster recovery plan for the sector, that has been formally approved in at least the last 5 years?	Yes/No
RC-2-4	Does the Ministry of Housing (or equivalent) have an *ex-ante* post-disaster recovery plan for the sector, that has been formally approved in at least the last 5 years?	Yes/No
RC-2-5	Does the Ministry of Education (or equivalent) have an *ex-ante* post-disaster recovery plan for the sector that has been formally approved in at least the last 5 years?	Yes/No
RC-2-6	Does the Ministry of Tourism (or equivalent) have an *ex-ante* post-disaster recovery plan for the sector that has been formally approved in at least the last 5 years?	Yes/No
RC-2-7	Does the Ministry of Transport (or equivalent) have an *ex-ante* post-disaster recovery event plan for the sector that has been formally approved in at least the last 5 years?	Yes/No
RC-2-8	Does the governing entity of the water and sanitation sector have an *ex-ante* post-disaster recovery Plan that has been formally approved in at least the last 5 years?	Yes/No
RC-2-9	Does the governing entity of the telecommunications sector have an *ex-ante* post-disaster recovery Plan that has been formally approved in at least the last 5 years?	Yes/No
RC-2-10	Does the governing entity of the energy sector have an *ex-ante* post-disaster recovery Plan that has been formally approved in at least the last 5 years?	Yes/No

RC-3. Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	
RC-3-1	Are there regulations that establish mechanisms of civil society or social and non-governmental organizations participation in post-disaster recovery?	Yes/No
RC-3-2	Has any national controlling entity carried out at least one assessment on how the government managed the recovery process in at least one of the last 5 major nationally-declared disasters or in those where international assistance was requested?	Yes/No
RC-3-3	Were any population information mechanisms activated during recovery in at least one of the last 5 nationally declared disasters or those in which international assistance was requested?	Yes/No
RC-3-4	Were any community participation mechanisms activated during recovery in at least one of the last 5 nationally-declared disasters or those in which international assistance was requested?	Yes/No

Index Component: Financial Protection [FP]:

FP-1A. Central Policy Coordination and Articulation		
Code	**Closed-Ended Questions**	**YES/NO**
FP-1A-1	Do the national regulations on Disaster Risk Management establish national funds to finance emergent expenses in disaster situations?	Yes/No
FP-1A-2	Do the national regulations on Disaster Risk Management establish the annual percentage of resources to allocate to the national fund for emergent expenses in disaster situations?	Yes/No
FP-1A-3	Are there regulations that establish the creation of a disaster risk retention and transfer structure in the country?	Yes/No
FP-1A-4	Do the regulations governing the technical provisions of the insurance sector mandate that the estimation of catastrophic risk reserves for non-homogenous/special assets be sustained by probabilistic risk assessment models defined or certified by the sector's regulating entity?	Yes/No
FP-1A-5	Do the regulations governing the technical provisions of the insurance sector mandate that the estimation of catastrophic risk reserves for homogenous/uniform assets be sustained by probabilistic risk assessment models defined or certified by the sector's regulating entity?	Yes/No
FP-1A-6	Are there regulations that establish development funds for financing disaster management activities?	Yes/No

FP-1B. Definition of Sectorial Responsibilities		
Code	**Closed-Ended Questions**	**Yes/No**
FP-1B-1	Are there regulations that establish the State's fiscal responsibility surrounding disaster risk?	Yes/No
FP-1B-2	Are there regulations that assign competencies to the Treasury, Finance or Economy sector, for financial protection from disaster risk?	Yes/No
FP-1B-3	Are there regulations that establish that sectorial entities must cover their public assets with insurance policies or another type of equivalent mechanism?	Yes/No
FP-1B-4	Are there regulations on incentives for private housing insurance against disaster risk?	Yes/No

FP-1C. Definition of Territorial Responsibilities		
Code	**Closed-Ended Questions**	
FP-1C-1	Are there regulations that establish that territorial entities must cover their public assets with insurance policies or another type of equivalent mechanism?	Yes/No
FP-1C-2	Are there regulations that mandate the implementation of structures for financial protection from disasters in cities with more than 100,000 inhabitants?	Yes/No
FP-1C-3	Does the country's capital city have a fund or equivalent mechanism for financing or co-financing disaster management activities?	Yes/No
FP-1C-4	Does the capital city's fund or equivalent mechanism for financing or co-financing disaster management activities have the capacity to accumulate resources over time?	Yes/No
FP-1C-5	Is the capital city's fund or equivalent mechanism for financing or co-financing disaster management activities, based on an optimal rule of accumulation and expenditure based on the anticipated annual loss and on the information recorded on the losses from disasters in previous years?	Yes/No

FP-2. Evidence of Progress in Implementation

Code	Closed-Ended Questions	
FP-2-1	Does the country's capital city have a financial protection structure in the event of disaster?	Yes/No
FP-2-2	Has the Ministry of Treasury, Finance or Economy determined the resources needed to cover Probable Maximum Loss (PML) from *catastrophic events* for different return periods?	Yes/No
FP-2-3	Has the Ministry of Treasury, Finance or Economy determined the anticipated resources needed to annually cover the processes of response, rehabilitation and reconstruction caused by *smaller and frequent events*?	Yes/No
FP-2-4	Has the Ministry of Treasury, Finance or Economy (or other competent entity), approved standards for insuring public constructions in the event of disaster?	Yes/No
FP-2-5	Has the Ministry of Treasury, Finance or Economy (or other competent entity), approved standards for insuring the concessions of at least one basic service or critical infrastructure in the event of disaster?	Yes/No
FP-2-6	Has the Ministry of Treasury, Finances or Economy (or other competent entity), approved minimum requisites for the participation of the insuring and reinsuring agents in insurance and reinsurance contracts for at least one asset of the State fiscal responsibility?	Yes/No
FP-2-7	Has the Ministry of Treasury, Finance or Economy (or other competent entity), developed guidelines for the territorial entities for the financial protection against disaster risk?	Yes/No
FP-2-8	Is there a fund or equivalent mechanism in place to finance or co-finance risk management activities?	Yes/No
FP-2-9	Does the fund or equivalent mechanism for financing or co-financing disaster management activities, have the capacity to accumulate resources over time?	Yes/No
FP-2-10	Is the fund or equivalent mechanism for financing or co-financing disaster management activities, based on the golden rule of accumulation and expenditure based on the anticipated annual loss and the recorded information on the losses from disasters in previous years?	Yes/No
FP-2-11	Has the country underwritten at least one contingent credit explicitly tied to the financing of emergent expenses in disaster situations?	Yes/No
FP-2-12	Does at least one municipality of the country's capital city have a current instrument of disaster risk transference for a portfolio of assets of State fiscal responsibility?	Yes/No
FP-2-13	Has at least one risk transference mechanism to collectively cover the portfolio of fiscal assets of at least a sector been implemented?	Yes/No
FP-2-14	Does the Ministry or Secretariat of National Development Planning; or the Ministry of Treasury, Finance or Economy; or the Entity in charge of Disaster Risk Management; or the Agriculture sector; have at least one financial instrument designed *ex-ante* to stimulate economic reactivation in areas affected by disasters?	Yes/No
FP-2-15	Does the Ministry of Agriculture have a structure for the financial protection of the agriculture sector (or equivalent) against disaster risk?	Yes/No

FP-3. Monitoring, Accountability and Participation		
Code	**Closed-Ended Questions**	
FP-3-1	Has the national controlling entity carried out at least one evaluation of compliance with current regulations on financial protection mechanisms in the last 5 years?	Yes/No
FP-3-2	Has the governing body of the insurance sector carried out at least one verification or assessment of the use of the probabilistic evaluation model of the risk for the estimation of catastrophic risk reserves of the insurance companies in the last 3 years?	Yes/No
FP-3-3	Has the Ministry of Treasury, Finance or Economy carried out at least one evaluation of the application of the financial Protection processes in the country in the last 3 years?	Yes/No