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**Back to the roots of socially  
constructed disaster risk**  
**Revisioning and envisioning disaster aid and  
governance**

By

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## Declaration

I hereby declare that, the contents and organization of this dissertation constitute my own original work and does not compromise in any way the rights of third parties, including those relating to the security of personal data.

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\* This dissertation is presented in partial fulfillment of the requirements for **Ph.D. degree** in the Graduate School of Politecnico di Torino (ScuDo).





## **Abstract**

This thesis reflects on the acknowledgement and usage, for disaster aid and governance, of the Disaster Risk Creation (DRC) theoretical construct and investigates the barriers and challenges of addressing the processes enhancing exposure and vulnerability. The methodological approach adopted builds upon well-established Disaster Risk (DR) root causes analytical models and questions their relevance and urgency for aid and Disaster Risk Management (DRM) actors in Haiti and Guatemala, two highly exposed and vulnerable Countries. Recollecting aid workers' tales and explanations of DRC restated the overall paralysis in dealing with "usual" clusters of DR drivers, particularly dysfunctional governments, hazard-prone buildings, and environmental degradation. Besides this awareness, actors revealed a certain degree of self-consciousness also of the side effects of their practices, of their active role in unwittingly reinforcing and amplifying disaster risk: this through and due to lack of common long-term strategies and coordination, conflicting prioritizations and interventions, duplicated and counterproductive services, failed and ineffective recoveries, etc. Stated DRM and aid's contribution to DRC, the thesis intercepts relevant academic frameworks that already captured some explanations to such dynamics and open to theoretical and practical implications that could reverse such vicious tendencies and resist to new creations of DR.





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# **Chapter 1**

## **Introductory notes**

This thesis investigates the struggles, unmet challenges, and failures, for disaster governance, in understanding, explaining, and addressing Disaster Risk (DR) root causes and drivers, i.e., those processes enhancing exposure and vulnerability, in the context of highly exposed and vulnerable Central American and Caribbean countries. The methodological approach adopted builds upon well-established theoretical models of causal analysis of Disaster Risk Creation (DRC) and investigate their relevance and urgency for aid and Disaster Risk Management (DRM) actors in Haiti and Guatemala.

My interest in Disaster Risk Creation matured while studying and working in the fields of spatial planning and climate change adaptation, flood risk management, disaster risk reduction, waste prevention and management. Among the questions and doubts arisen along with these experiences, of particular concern were the difficulties and gaps in linking scientific findings, theoretical frameworks, and models to urgent and unsolved social and environmental local



needs. Major contradictions related to the “sustainability, resilience, mitigation and adaptation” popular theoretical debates and their simplified adoption and usage, often overlooking more inconvenient drivers of unsustainability. Henceforth, the urgency of adopting more just and comprehensive DR analytical models that include and address those vulnerability-enhancing attributes and behaviours defining disasters’ losses and impacts, such as land overexploitation and degradation, poverty, inequality, and marginalization. Also because of the political reluctance in acknowledging the centrality and in addressing these DRC processes, the scenario portrayed by scholars such as A. Lavell and A. Maskrey seems indeed very present and urgent: “the likelihood that risks rise faster than DRR and climate change adaptation can reduce them is a very real one” (A. Lavell & Maskrey, 2014).

Following the provocative words of one of the humanitarian aid professionals interviewed, this PhD research was triggered by considering that the [Risk = Exposure \* Vulnerability \* Hazard] paradigm and discourse does not apply for many economic and social contexts below a certain degree of human development. Hence, this research argues that DR should be understood as wicked problems (Chandran et al., 2015), as interconnected hybrid threats (Duijnhoven & Neef, 2016), as “manifestations of unresolved development problems – and – indicators of skewed, unsustainable development processes” (A. Lavell & Maskrey, 2014; Wisner, 2016).

The context of this investigation refers to Central America and Caribbean Countries, where the centrality of political, social, and human factors in DR generation processes has been thoroughly acknowledged and debated in the past fifty years. Specifically, the research focused on Guatemala and Haiti, two well-established contexts of DRC academic debates due to multiple and periodic catastrophes, creeping and forgotten crises, chronic emergencies, and everlasting recovery processes. In these dependent economies and fragile states, the research’s case studies have been the so-called arenas of intervention (D. Hilhorst, 2013; D. Hilhorst & Jansen, 2010), i.e. those disaster governance and aid settings resulting from the permanent establishment of international and nongovernmental organizations (NGO) supporting, siding and substituting national governments.

Referring to aid and DRM practitioners, this research aims at understanding the current state, relevance, and challenges in acknowledging DRC and in overcoming the international agenda’s unattainable priority “reduce the underlying risk factors” (appeared from 1994 Yokohama Strategy and Plan of

Action for a Safer World to the 2019 Global Assessment Report on Disaster Risk Reduction). In other words, one purpose of this study is to test and build an explanation on whether long-established DRC analytical models have planning implications for aid and DRM professionals on how they understand and approach DR. The threading research questions have been:

- How actors belonging to aid and DRM arenas of intervention acknowledge and explain DRC? How do the available policy documents and academic contributions?
- How aid and DRM interventions interact and relate to DRC processes? Which are the barriers and challenges?

Bearing such questioning in mind, the thesis is composed of five themed chapters, organized as follows.

Chapter 2 outlines the literature reviewed at the beginning of the PhD. The chapter begins by recollecting terms, definitions, and theoretical models offered in the academic debate concerning such complex and wicked matters in the fields of DR management and reduction, and was conceived to widen my knowledge of disaster studies at beginning of my research process. This preliminary theory development highlighted four key perspectives which have been resurfacing throughout the thesis:

- Political perspective, related to the challenges and taboos of addressing key stressors and enhancers of DR vulnerability;
- Theoretical perspective restating the urgency of upgrading and questioning mainstream DR conceptualizations;
- Assessment perspective questioning leading DR understanding and emphasizing the complexity of system dynamics;
- Policy perspective, reflecting on the planning implications for DRM and humanitarian aid.

Thereafter, the research focuses on the disaster studies Political Ecological Framework and thrives to meet the challenges arisen with the Vulnerability or Root Cause Paradigm, which explains and, therefore, addresses disaster risk and vulnerability as socially constructed, as puzzles of intertwined historical, cultural, economic, and political factors. Acknowledging disaster risk as socially constructed, as opposed to the “natural disaster” vision, attributes a large part of losses and damages to underlying processes resulting from societies’ decisions

and practices when facing a potentially damaging physical event, “including the choice to ignore them or dismiss their significance” (Oliver-Smith et al., 2016, 2017). Several theoretical models, above all the Pressure and Release (PAR) model (Blaikie et al., 2004), drafted already in 1978 (Davis, 1978), conclude the literature review providing solid and established analytical tools for a causal understanding of the root causes, dynamic pressures and unsafe conditions that generate vulnerability and DR.

Chapter 3 is concerned with the research’s methodology. While the conceptualizations arisen in the literature review do question, implicitly or not, leading quantitative and indicator-based methods for DR evaluations and assessments, the research design outlined in this chapter aims at structuring a system dynamics and planning-oriented understanding of DRC processes. This constituted an initial research objective: adopting existing DRC analytical frameworks, testing their potential for sourcing and assembling different perspectives on the topic, and their efficacy for a more structured understanding of DR causes and interconnections.

Underlying the stated research questions and objectives, the initial hypotheses and propositions were:

- Adopted disaster risk assessment and evaluation approaches do not fully encompass all the factors contributing DRC;
- Stakeholders’ perception, culture and memory of these processes might be partial, biased and differ from each other;
- Policies and practices might: (a) not properly address underlying risk factors, (b) overlap and overconcentrate on certain strategies, (c) lead to unexpected/counterproductive/hindering effects.

The data collection linked secondary sources (policy documents, academic contributions, reports...) to stakeholders’ views and inputs, with interviews that involved workers from United Nations (UN) agencies, NGOs, governmental institutions, and civil society organizations belonging to the humanitarian and development aid worlds and dealing with DRM.

Besides understanding the current validity and urgency of the DRC debate, the secondary objective has been to highlight puzzles and nonlinear dynamics (Di Baldassarre et al., 2015, 2018; Helbing et al., 2006; Liu et al., 2007) that further complicate the management and reduction of such processes. To do so, the

analysis followed an iterative learning cycle: (i) the DRC debates established in these Countries were revised (academic articles, policy documents, projects reports, etc.), then (ii) aid workers and disaster professionals were engaged to contribute with their understandings which (iii) have been clustered following DR root cause analytical models (Blaikie et al., 2004; Narváez et al., 2009; Oliver-Smith et al., 2016); finally (iv) the highlighted barriers and challenges in addressing DRC were framed and generalized within existing academic debates.

Chapters 4 and 5 analyse, frame and resume the results of the desk analysis and field works, respectively, in Haiti and Guatemala. What resulted from the Haitian and Guatemalan experiences is that the DRC debate consolidated along with the many catastrophic events of the past decades and keeps being of extraordinary relevance nowadays. However, such theoretical constructs reached up just to projects' reports and policy documents but failed in bridging the gap to aid and DRM practices and measures. Interviewees highlighted a widespread feeling of paralysis when facing the different dimensions of underlying risk factors, mostly because of the economic, institutional and political root causes themselves (i.e. dependent economy, corruption, weak government, foreign interests, development failures, extreme poverty, etc.) that hinder and void any exit strategy. The resulting scenarios portray an alarming warning for future planning strategies: in addition to the persistence and reinforcement of root causes and risk drivers, the succession of several catastrophes of the past decades added failed recoveries (e.g. temporary and hazard-prone shelters turning into long-term informal settlements) and counterproductive effects (e.g. rural-to-urban migration as a result of the aid-related economic opportunities). About this, the discussion with involved stakeholders led to the unexpected success of becoming a therapeutic tool for acknowledging their own biases and mistakes in dealing with vulnerability and its driving forces: aid and DRM consist mostly in short term interventions focused on preparedness, relief, and recovery activities, not achieving to break existing vicious cycles.

Chapter 6 discusses the findings of the research and adjoins the debates regarding international aid shortcomings and ineffectiveness when dealing with DRM matters (Wamsler, 2006). In brief, actors' self-consciousness, and self-critique regarding mainstream DRM approaches of intervention, acknowledged (to a certain extent) the active role of planning, aid, and DRM in reinforcing and accumulating risks. The core of the issues highlighted from these experiences has been sharply resumed by Ben Wisner as one of the taboos of DRM: "Without acknowledging the role of maldevelopment in creating new risk and in blocking

the reduction of old risk, disaster managers and other development planners and practitioners provide no more than palliative care to terminally sick societies” (Wisner, 2016).

Given this understanding of the arena of Aid and DRM interventions’ contribution to DRC, this chapter questions how this acceptancy could pave the way to a DR governance transformation (Thomalla et al., 2018) and does so trying to better understand and frame the emerged clusters of unintended and undermining effects. This is particularly relevant for analogue permanent arenas of aid and DRM interventions which, lacking long-term development strategies, keep having a key role in contributing to “risk creation through investment decisions and by implementing DRR measures that reinforce unsustainable development pathways” (Johnson et al., 2016).

Furthermore, the last part of the chapter opens to key theoretical and practical implications of what emerged from the analysis. Firstly, recomposing these overall understandings of DRC for Haiti and Guatemala, benefitting of the many information available, confirms the need of replicating such experiment anywhere to orient aid and DRM long term strategies; thus, going beyond the current use of DRC mainly for explaining past mournful events. Secondly, framing such an understanding of DRC processes and their causal mechanisms, provide the opportunity to direct, prioritize and coordinate aid and DRM interventions, so to eradicate DR causes, reduce existing drivers, avoid ineffectiveness, and, most importantly, resist (Wisner & Lavell, 2017) to the creation of new vulnerabilities. The last major advantage of this DR understanding relates not only to widen the focus from the “natural” element to the political, social, economic, and cultural drivers that contribute to DR, but also to “share” and dilute blame for such processes. If looking at DRC bigger picture, responsibilities shift outwards and upwards, from exposed and marginal communities to the political and economic decisions of exclusion and exploitation that impoverish and drain these countries.

Resuming, this thesis follows a continual process of literature review that followed a chain of keywords, started with my personal questions, passing through internationally established debates, zooming in the tales of Haitian and Guatemalan catastrophes, and concluded gathering reflections from the academia and outlining theoretical and practical implications.

## **Chapter 2**

# **Disaster risk creation: addressing the right problem and setting an appropriate analytical tool**

## **2.1 Introduction**

This literature review was prompted and shaped by my personal experiences as student and researcher in the field of spatial and urban planning. Three experiences essentially constituted the background of this research and brought me to frame the key urgent questions and doubts targeted in this literature review: an internship in Santa Marta, Colombia, a research on flood risk analysis and management in the Liguria region, in Italy, and the participation to a European research project on sustainable urban waste management.

First of all, living in Colombia highlighted how sustainability-related urban planning tools, policies and projects lacked integration of urgent daily social

injustices and environmental problems, such as violence, poverty, unsafe and uncontrolled informal settlements, waste mismanagement, and so on. This experience consolidated the awareness that mainstream “buzzwords”, i.e., sustainability, resilience, adaptation, cannot work worldwide, especially not in dependent economies where foreign extractive companies (e.g., mines and agribusinesses) disproportionately contribute to the degradation and impoverishment of the surrounding environment. In these contexts, the adoption (mainly just on paper) of internationally established policies and planning models do not include nor fit with the drastically different local climate emergencies, built and natural environment, social conflicts, and political burdens.

Back in Italy, researching flood risk analysis, mapping, and management planning in the Liguria Region, highlighted outdated hazard zonings, approximated and scale-limited vulnerability and exposure analysis, and the exclusion of key endangering land uses and counterproductive human behaviours that enhance DR. This questionable understanding of DR contributed to many missed opportunities and resulted into simplified and “conformative” application of European Directives into the local planning system, deficient integration with existing relevant plans, sectoral and narrow-minded proposed DRM measures.

Finally, the research experience on sustainable urban waste management, based on urban metabolism theories, brought me to reflect on the importance of understanding, analysing, preventing and reducing the flows and processes that produce urban DR, somehow following the “reduce waste at the source” mindset.

The awareness, questions and doubts arisen along these experiences have been driving the present thesis and this literature review chapter, which aims at addressing the challenge of including an appropriate and complete understanding of urban complexities in DR assessment, mapping, and strategic planning. Thinking of humanitarian crisis contexts with social and environmental conflicts, the common thread of the review process concerned the understanding of disaster risk components’ interconnectedness, their complexity, and accumulation processes. In sum, thinking of the canonical definition of DR, i.e., as the consequence of the interaction between a hazard and the characteristics that make people and places vulnerable and exposed to it (according to UNDRR), the investigation started focusing on how and why people end up living under these circumstances, and on which terminologies, analytic frameworks and models address such processes.

The chapter is organized as follows. The first section presents theoretical perspectives and contributions that have been trying to discuss and explain the complexity of urban attributes, behaviours and uses enhancing and increasing vulnerability. Following this initial focus of vulnerability-enhancing urban attributes, the literature review moves to a socio-ecological system dynamics perspective, so to include the previously discussed single components within the system's complexity. It will then go on to present some key implications and challenges derived from this complex understanding of DR. Reflecting on these challenges and shortcomings, the remaining part of the chapter selects existing suitable references for building an analytical model capable of understanding the complexity and causality of Disaster Risk Creation (DRC).

## **2.2 Vulnerability-enhancing and disaster-forcing urban attributes**

An initial interpretative key on the urban attributes – disaster risk interplay resulted from Birkmann, Garschagen, & Setiadi (2014) focus and discourses around development, risk and adaptation in urban areas for the World Risk Index assessment (Birkmann, Garschagen, Mucke, et al., 2014; Welle & Birkmann, 2015). The leading role of the dissertation was given to urbanizations' vulnerability-enhancing effects, major drivers of disaster risk, influencing people's exposure, susceptibility, coping and recovering capacities. Among the patterns outlined, DRM needs to keep pace with vicious correlations between uncontrolled urban growth in hazard-exposed locations, inefficient land use planning, socio-economic disparities, inefficient DRM infrastructures, and marginal groups lesser equipped to cope with DR (Birkmann, Garschagen, & Setiadi, 2014).



	Vulnerability-enhancing effects of urbanization		
	Exposure	Susceptibility	Lack of capacity to cope and recover
High income countries	<ul style="list-style-type: none"> <li>- sub-urbanization and extreme land consumption per capita spreads exposure over large areas</li> <li>- generation of exposure to hazard cascades (e.g. natural hazards triggering technological hazards)</li> </ul>	<ul style="list-style-type: none"> <li>- demographic change (aging population) increases susceptibility in future</li> <li>- high dependence on complex high-tech infrastructure networks</li> <li>- high dependency of urban hinterlands on functioning of urban systems</li> </ul>	<ul style="list-style-type: none"> <li>- high persistence and lock-in of long-established urban centers increases costs for implementing new or expanding existing disaster risk infrastructure</li> <li>- demographic change (aging population) and shrinking cities will challenge effective and efficient coping infrastructure in future</li> </ul>
Medium income countries (often emerging economies and transition countries)	<ul style="list-style-type: none"> <li>- on macro-scale, economic growth correlates with massive urban growth in highly exposed areas, most notably in low elevation coastal zones</li> <li>- on meso-scale, cities often expand rapidly into highly hazard exposed areas due to massive urban growth coupled with insufficient or ineffective land use planning and regulation</li> <li>- on micro-scale, low income groups and migrants often have to revert to highly hazard exposed but cheaply accessible locations for habitation</li> <li>- generation of exposure to hazard cascades (e.g. natural hazards coinciding with health hazards and technological hazards)</li> </ul>	<ul style="list-style-type: none"> <li>- cities usually feature increasing socio-economic disparities in terms of income and access to education, health care, food and water, and other goods and services</li> </ul>	<ul style="list-style-type: none"> <li>- development of urban disaster management infrastructure often cannot keep pace with urban growth</li> <li>- marginal population groups in cities often insufficiently equipped to cope with natural hazards</li> </ul>
Low income countries (including least developed countries)	<ul style="list-style-type: none"> <li>- uncontrolled urban expansion increases exposure, particularly at meso- and micro-scales</li> <li>- generation of exposure to hazard cascades (e.g. natural hazards coinciding with health hazards and riots)</li> </ul>	<ul style="list-style-type: none"> <li>- urban populations and governments often trapped in vicious cycle of poor socio-economic performance, hazard impact, conflict and poor governance</li> </ul>	<ul style="list-style-type: none"> <li>- urban disaster management infrastructure usually poorly established or lacking</li> <li>- marginal population groups in cities often insufficiently equipped to cope with natural hazards</li> </ul>

Figure 1 Table extracted from (Birkmann, Garschagen, &amp; Setiadi, 2014)

In order to frame these vulnerability-enhancing effects, urban metabolism has been sustained (Mitchell, 1998) as a relevant but neglected conceptualization. A metabolic understanding of cities' functioning describes "materials that make up the city, the resources that it consumes, the energy that powers it, and the wastes that are dumped from it" (Mitchell, 1998), all of which applies and contributes to DR complexity.

This conceptualization supports a more complete understanding (Mitchell, 1998) of the variety of factors framing, in a climax, the problems addressed here:

- "Cities are changing in ways that raise questions about the applicability of previous human experience with hazards to cities of the future.

- Humans are transforming the biosphere in unprecedented ways and cities are the most intensely human-created of all environments.
- Urbanization tends to increase disaster potential.
- The process of urbanization is also changing in ways that have far-reaching implications for hazards management.
- Urban areas are affected by unusually complex mixes of overlapping and synergistic human problems that act to broaden or narrow opportunities for resolving hazards issues.
- Different constituencies and different agendas for different emerging problems collide and interact in ways that are only poorly understood, especially for non-western cities.” (Mitchell, 1998)

In the same article, the author gives an overview of what he defines as urbanization’s disaster-forcing attributes (Mitchell, 1998):

- “First, urbanization concentrates people and investments, thereby raising the potential for losses.
- Second, growing cities typically contain high numbers of recent arrivals many of whom are poor or otherwise ill-prepared for city living and therefore particularly vulnerable to urban disasters.
- Third, as cities expand, competition for land encourages the use of previously bypassed hazardous areas such as exposed coasts and steep slopes.
- Fourth, the process of land conversion frequently worsens existing risks: hillsides are undercut, floodplains are filled in, fire-resistant native vegetation is replaced with inflammable exotics, unstable sites are occupied by housing tracts.
- Fifth, most cities age faster than they can be replaced. Hence, the urban fabric deteriorates and its ability to resist damage declines; wood rots, concrete cracks, water systems spring leaks, dams silt up, disaster-resistant construction practices are undermined by unregulated building extensions and conversions.” (Mitchell, 1998)

These attributes recall what Manuel-Navarrete et al. (2007), referring to hydro-meteorological events in the Central America and Caribbean context, identified as clusters of interrelated and recurrent symptoms of the syndrome of (un)sustainability of development (Manuel-Navarrete et al., 2007). Such focus on causal interactions in complex coupled socio-ecological systems, call for broader interdisciplinary approaches and for the design and planning of more integrated strategies addressing “clusters of symptoms rather than isolated problems” (Manuel-Navarrete et al., 2007).

A step forward in the definition of this problem was made by (Gencer, 2013) which recalls Kofi Annan's plea for a raised awareness to human-induced conditions that increase vulnerability to DR. This exhortation focuses the analysis on analogue behaviours, practices and uses (e.g. rapid urbanization, land degradation, globalization, socio-economic poverty and climate change) but expanding the correlation between urban poverty and DR. Being marginal, unsafe and informal settlements one of the major manifestations of urban poverty and inequality, what follows are some key examples proposed by Gencer (2013) concerning how DR is created and constructed:

1. Food insecurity, poverty and land degradation;

"The disruption of agricultural production and related livelihoods by the expansion of urban land markets not only increases poverty and food insecurity, but also creates serious future climate problems with the loss of land surface necessary for the water-cycle or environmental problems with soil erosion contributing to the silting up of drainage channels and consequently increasing vulnerability of residents who migrate from rural areas and settle in these land (Satterthwaite/Tacoli 2002: 52–70)." (Gencer 2013)

2. Hazard prone building;

"[...] most informal settlements carry physical vulnerabilities due to their location or construction practices. These settlements are often "located on land not deemed appropriate for habitation because of its steep terrain or geological characteristics that make it prone to subsidence, landslides, or mudslides" (UN-Habitat 2003: 69). Slum dwellers and squatters often settle in these dangerous locations as the only option for their livelihoods and survival. [...] On the other hand, many times, environmental degradation, loss of rural incomes and strict building codes lead the incoming populations to the only available land, to the risk-prone urban fringes." (Gencer 2013)

3. Inadequate building materials;

"Inadequate building materials accompany risk by physical exposure in squatter settlements as structures are often built with non-permanent materials, such as "earthen floors, mud-and-wattle walls or straw roofs" (UN-Habitat 2003: 11). Quick makeshift structures are observed in impromptu urbanizations and sprawls of many low-income countries." (Gencer 2013)

4. Lack of municipal services and infrastructures;

"Most makeshift squatter settlements built with impermanent or recycled materials belong to the newcomers or to the very poor. In many cases, these settlements lack municipal services and infrastructure." (Gencer 2013)

5. Creation of new hazards;

“Lack of proper infrastructure facilities and unplanned urbanization schemes combine to create new hazards in informal settlements, where inadequate waste disposal in riverbeds and ravines, in addition to the urbanization of watersheds and wetlands may modify hydraulic regimes.” (Gencer 2013)

6. Further environmental and health problems;

“As informal settlements grow larger and denser, lack of sanitation, clean water and garbage removal, add congested living conditions add to the disaster vulnerability of slum dwellers, resulting in further environmental and health problems.” (Gencer 2013)

7. Lack of response capacity

“In many informal settlements and peripheral municipalities, vulnerability to natural disasters does not end with such physical exposure or social fragility. Lack or inefficiency of public urban services and institutions—transportation networks, hospitals, fire- or police stations—translate into lack of response capacities at times of disasters. Informal land titles obtained through developers add to the limited disaster recovery of these settlers, who can neither obtain government aid nor credit with their illegal titles. Social exclusion, ethnic or immigrant status, poor education and limited job opportunities add to the income poverty of these residents, limiting their mobility and resettlement and creating one of the biggest challenges for urban policymaking in the developing world” (Gencer 2013)

Though, most of these elements apply also to “formal” settlements and urban areas where, due to the same “inadequacy or inefficient application of construction standards and building design, unavailability or disregard of planning, and corruption or mismanagement” (Gencer, 2013), vulnerability is created regardless the better economic conditions.

D. Alexander (Alexander, 1997, p. 292) and, in a similar way, J. Lewis (Lewis & Kelman, 2012) distinguished three processes-oriented stages and types of vulnerability. Vulnerability can be: (1) newly generated, as a result of new urban development in hazard areas and unprepared and incapable to cope new residents, (2) residual pre-existing sources of DR un-ameliorated due to lack of political will or funding, and (3) delinquent, as the outcome of violated and ignored norms, codes, and regulations (Alexander, 1997, p. 292).

The understanding of the relationship between disasters and poverty had led the United Nations, in the 2009 Global Assessment Report, to an international call for addressing what they defined as the “deadly trio” (UNISDR, 2009): (1)

unplanned urban development, (2) vulnerable livelihoods and (3) ecosystem decline. The “disaster risk–poverty nexus” (UNISDR, 2009) figured below is a conceptualization of the role of global and underlying risk drivers, compounded with poverty, in contributing to three levels of risk: everyday risk, extensive DR, and intensive DR.

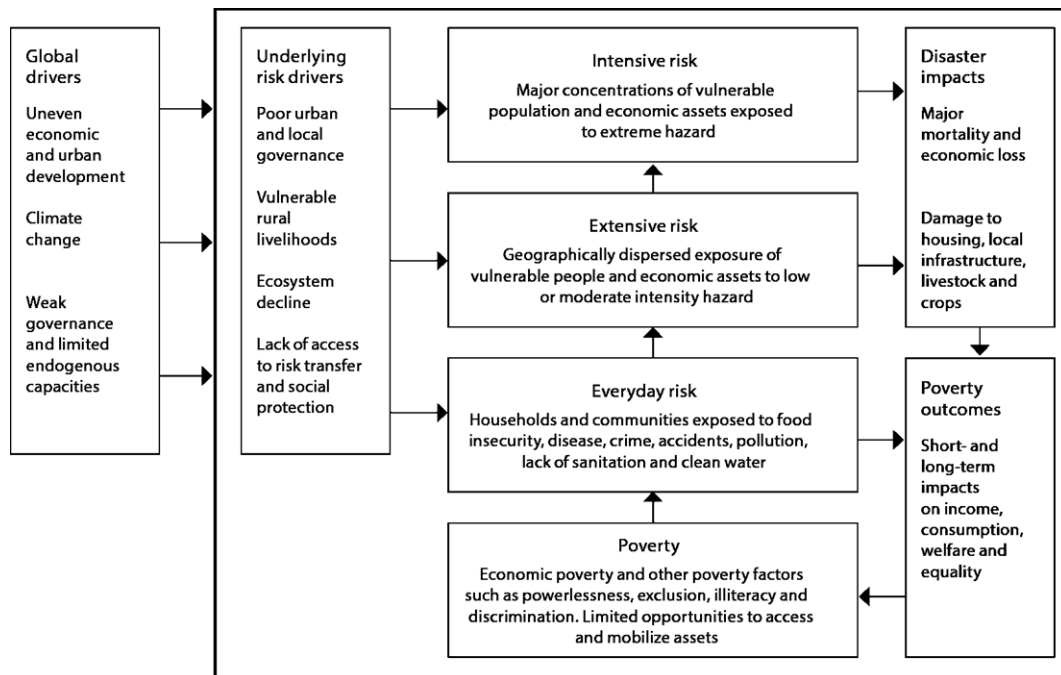


Figure 2 The disaster risk–poverty nexus, extracted from (UNISDR, 2009)

### 2.3 A systems’ dynamics-oriented disaster risk analysis

The previous definitions of vulnerability-enhancing and disaster-forcing attributes recall system thinking and complexity theories in disaster studies, which account for DR as the result of complex interactions between nature (hazard) and society (vulnerability) systems. In other words, the subject of the analysis moves to the wickedness of understanding and managing DR, where wicked problems are those difficult to define, unstable, multi-causal and have many interdependencies, addressing which can lead to unforeseen consequences (Chandran et al., 2015).

## **Hybrid and hyper risks: complex, interconnected and interdependent**

Going beyond the concept of Natural Hazards, Duijnhoven & Neef (2016) recalls the concepts of risks as Hybrids, as “the result of hyper-connectivity between systems”. For Hybrid risks Duijnhoven & Neef (2016) argues that there can't be any longer a distinction between human and natural risks, internal and external risks: “All risks should be conceived of as ‘manufactured’, meaning that they are always directly or indirectly consequences of human decisions” (Duijnhoven & Neef, 2016). As a consequence, one key challenge for DR management and reduction strategies is “to fully grasp the complexity, ambiguity and cascading chains of effects of these hybrid risks” (Duijnhoven & Neef, 2016).

Building on the previous concept of hybrid threats, Helbing (2013) widens the focus of the discussion to a systemic and system thinking perspective:

“Many disasters in anthropogenic systems should not be seen as ‘bad luck’, but as the results of inappropriate interactions and institutional settings. Even worse, they are often the consequences of a wrong understanding due to the counter-intuitive nature of the underlying system behaviour. Hence, conventional thinking can cause fateful decisions and the repetition of previous mistakes.” (Helbing 2013)

Bearing this in mind, Helbing (2013) argues that “systemic failures and extreme events are consequences of the highly interconnected systems and networked risks humans have created”. Due to this “hyper-connected world”, networks and networks of networks are stated to be even more vulnerable to what Helbing defines as “hyper-risks” (Helbing, 2013). This implies a paradigm and perspective shift in thinking, designing and managing such complex, interconnected and interdependent DR: “from a component-oriented to an interaction- and network-oriented view” (Helbing 2013).

The figure below exemplifies an attempt of sketching a scenario that comprises such non-linear interactions and interconnected causal chains in the case of an earthquake (Helbing et al., 2006).

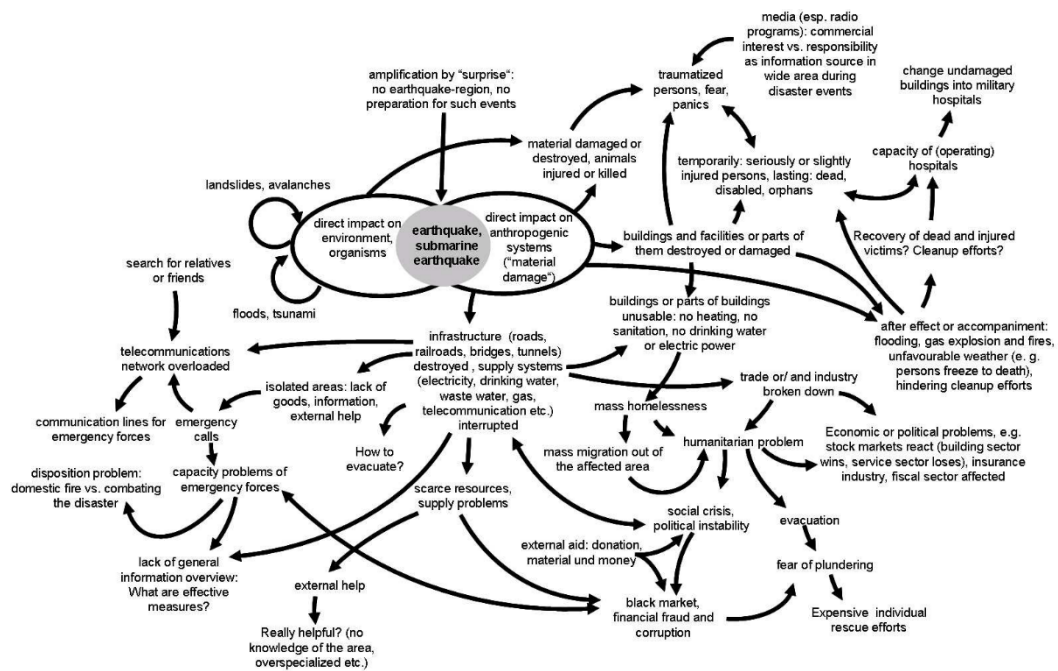


Figure 3 Example of causality networks in the case of earthquakes (Helbing et al., 2006)

Similarly, in the context of social-ecological systems and vulnerability assessment, Manuel-Navarrete et al. (2007) directed DR analysis on the multi-causal interactions between the human and biophysical subsystems, as outlined in the figure below.

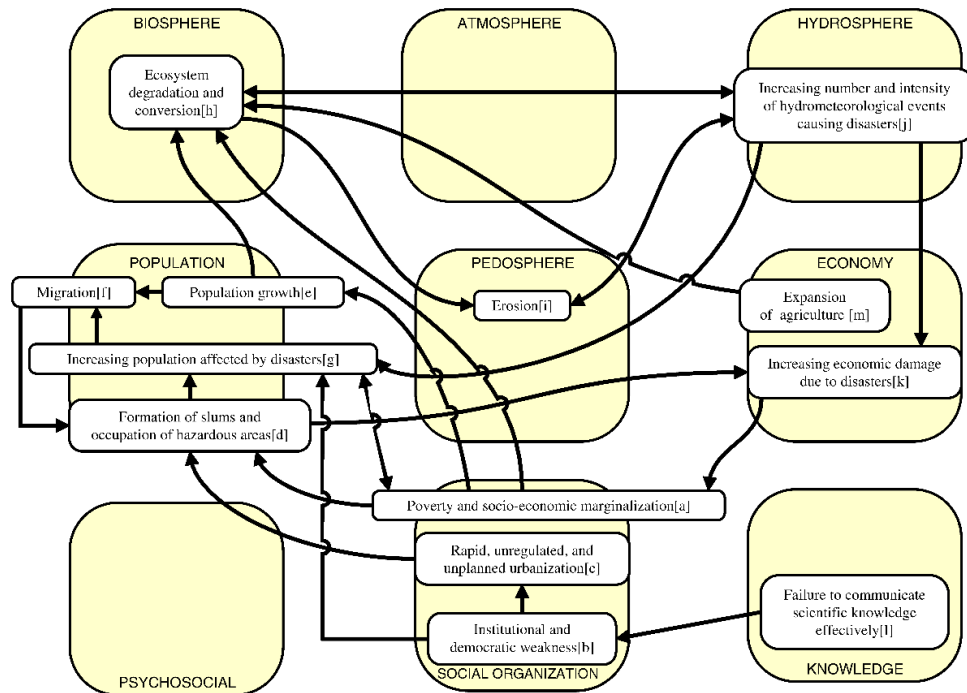


Figure 4 Causal structure of DR different clusters of symptoms in Latin America and the Caribbean (Manuel-Navarrete et al., 2007).

## Interconnected and socially constructed disaster risk

While discussing complex urban hazards, Mitchell (1998) reflected on the potentialities of a wider analytic and strategic approach when dealing with interconnected DR:

“the potential for new approaches to hazard reduction that comes into view if one broadens the analytic focus to take account of the full range of interacting issues and problems that occur in modern megacities. Because these problems are so tightly intermeshed it is no longer possible to treat them separately. They are an essential part of urban metabolism.” (Mitchell, 1998)

To understand causalities and interconnectedness, DR needs to be conceived as socially constructed:

“Understanding causality should be seen as a basic rationale for disaster risk research and in substantiating disaster risk reduction practice. [...] The fundamental notion that drives this approach to research is that disaster risks are socially constructed: that is, they are the results of human choice [18] or perception. The choices and processes involved are often quite diffuse and long-standing.

While it is now more widely accepted that the degrees of exposure and vulnerability help to explain the continuing increase in losses and in disaster frequency and magnitude, there is no overall, systematic and generally accepted



explanation for the persistence and growth of these conditions. Today, in addition to the increasing inequalities that characterize most complex societies, there are many base or fundamental social processes underway that lead to particular “risk drivers” or dynamic conditions that accentuate existing or create new forms of risk at all levels.” (Oliver-Smith et al., 2017)

Understanding DR as the result of social construction processes implies a vocabulary shift, from natural disasters to socio-natural hazards and anthropogenic disasters, and a more longitudinal and historical perspective of analysis:

Disasters unfold over time and “their causes are deeply embedded in societal history, structure and organization, including human-environmental relations. As such a longitudinal perspective is required to engage the social construction of risk and the pre-history of a disaster. This approach aims to reveal the root causes of disaster by examining existing or potential contradictions in underlying structures and on-going social processes” (Oliver-Smith et al., 2017).

### **The interplay between physical and social processes: patterns, feedbacks, nonlinear dynamics, and puzzles**

Attempting a more profound understanding of systems’ complexity requires (Liu et al., 2007) the overcoming of traditional separations between ecological and social sciences, thus entering the field of Coupled Human and Natural Systems (CHANS). This allows the definition of nonlinear dynamics, systemic instabilities, and puzzles (Di Baldassarre et al., 2015, 2018; Helbing, 2013; Liu et al., 2007).

Contributing to this debate, (Di Baldassarre et al., 2018) advanced a research framework for identifying the empirical puzzles and feedback mechanisms unravelled in the interplay of hazard and vulnerability. In the context of the so-called socio-hydrology they identified recurring unintended consequences and unexpected successes:

- Diminishing returns “where efforts to enhance collaboration [...] do not enhance performance or even lead to negative consequences” (Di Baldassarre et al., 2018);
- Levee effect “relates to the observation that the non-occurrence of frequent flooding (possibly caused by flood protection structures, e.g. levees) is often associated to increasing vulnerability” (Di Baldassarre et al., 2015);

- Safe development paradox “shows that lowering hazard levels can paradoxically lead to increased risks, as doing so can reduce risk awareness and promote urban expansion in disaster-prone areas” (Di Baldassarre et al., 2018);
- Variability in learning, with a negative connotation, refers to the context where frequent events can also gradually generate damage (Moftakhari et al., 2017), which erodes community resilience and sustains a negative spiral toward significant loss of social and economic capital (Di Baldassarre et al., 2018);
- Cascading effect, speaking of infrastructure and tightly coupled organizational systems, resulting in a disaster escalation process (Di Baldassarre et al., 2015).

## **2.4 Disaster Risk Management's shortcomings and political reluctance on Disaster Risk Creation**

Acknowledging DR as socially constructed and created, as the result of complex causal chains, has strong repercussions on how it should be explained, assessed, and addressed, and overturns the political importance usually given to DRC processes.

What follows are five key challenges and implications that arise from the assumptions and conceptualizations reported so far.

The first challenge concern how DR is conceived, and catastrophes explained by those in power, thus accountable for reducing and managing it. “For politicians, admitting the reality of vulnerability makes life difficult. Acceptance that disasters happen, as disasters always have, is politically easier than addressing political causes of social susceptibility. Attempting to prevent disasters runs the risk of blame for failure” (Lewis & Kelman, 2012). That is also the reason why the “natural disaster” term and vision continues to lead to discourses, shifting attentions and faults from DRC fundamental social processes (Lewis & Kelman, 2012; Oliver-Smith et al., 2017) in favour of uncontrollable physical hazardous events.

The second implication concerns how DR is analysed, questioning existing assessment and evaluation models and approaches, which need to be listed as part of the problem itself. DR analyses have been criticized as underestimating events

probabilities, not sufficiently considering feedback loops and vicious circles, and the relevance of human and social factors (e.g. negligence, irresponsible behaviour, greed, fear, perception bias..) (Helbing, 2013). Criticisms were raised (Manuel-Navarrete et al., 2007) also regarding indicators and indexes limitations: their selection and weighting are often supported by untested assumptions about the factors and processes underlying vulnerability, the lack of data leading to inaccurate calculations, and the dynamics of interaction disregarded (Manuel-Navarrete et al., 2007).

The third challenge relates to the overall supremacy of unsustainable development models that create and reinforce vulnerability, “that privilege economic growth over social and environmental values and priorities” (Oliver-Smith et al., 2017), thus spreading DR as an epidemic. Blaming and questioning development models as contributing to DRC remains a taboo issue (Wisner, 2016): “the very development process that is supposed to “lift all boats” is, in fact, sinking theirs by creating risk” (Wisner, 2016). Challenging and reforming development remains particularly complex as “the power to effect change remains with those who benefit from the status quo, not with those who suffer the consequences of oppression, discrimination, exploitation” (Lewis, 2014) and that remain underrepresented. Instead, any development investment, project and infrastructure should be “screened – accounting – for their impact on disaster risk” (Blaikie et al., 2004; Wisner, 2016).

The fourth challenge relates the supremacy of DRM approaches overly oriented in favour of reacting and responding to disasters and emergencies (Lewis, 2014; Oliver-Smith et al., 2017), to the detriment of DRR. The denunciation of some disaster studies movements is that both research and practices overly concentrate on physical hazards and events, and this is fuelled even more by disaster damages and losses (Oliver-Smith et al., 2017), simplifying and neglecting long-term causal processes that create DR. This is also due to the overall paralysis to address physical and technical unsafe conditions, for which urban plans and building regulations, already in place for decades, could not provide feasible solutions. As a result, “the efforts to reduce and control damage and loss are well outweighed by the processes that generate new risk in our societies” (Oliver-Smith et al., 2017). This has been partially explained with political trade-offs when facing DR:

“There is also more political gain in responding to a disaster, whereas there is none for attempting to prevent one and failing. There is even less political loss in regarding all disasters as “acts of god” and as “unprecedented” natural events, instead of being due to vulnerabilities and susceptibilities brought about by political and behavioural actions and inactions” (Lewis, 2014).

The last political challenge concern the international agenda’s overall “odd silence” on DR *creation* (Wisner, 2016) – and consequently on resisting it (Wisner & Lavell, 2017) – especially if compared to decades of DR *reduction* discourse. Over the past thirty years, the International Agenda on Disaster Risk Reduction different initiatives and policy documents have been including the priority “reduce underlying risk factors”, despite later reporting little or no progresses (Oliver-Smith et al., 2017). This applies to the International Decade for Natural Disaster Reduction (1990-99), the Yokohama Strategy and Plan of Action for a Safer World (1994), the Hyogo Framework for Action (2005), the Sendai Framework for Disaster Risk Reduction (2015) and the UN Global Assessment Report on Disaster Risk Reduction (GAR). The poor commitment and enforcement of these international plans and principles is explained by the nature of UN and international organizations, directed by their member Countries towards an innate optimism, oversimplifying society’s inequalities and injustices (Lewis, 2014; Lewis & Kelman, 2012). “How else could governments be expected to commit themselves to signing up to report content unless there are no indictments, no fault-finding, no blame, and no negatives reflecting on themselves?” (Lewis & Kelman, 2012).

## **2.5 The Pressure and Release model and disaster risk root cause analysis frameworks**

Some of the authors that came into help for defining the right problems, urgencies, and challenges, have been also framing and providing analytical tools for better understanding these processes constructing disasters’ components. Most of these geographers, anthropologists, and sociologists pertain to the field of human and political ecology and have been challenging, since the 80s, the DR technocratic, or hazard-centred approach (D. J. M. Hilhorst, 2003). The stress of these group of scholars, referred to as the “root causes paradigm” (Oliver-Smith et al., 2016), “complexity or mutuality paradigm” (D. J. M. Hilhorst, 2003), and

“radical approach” (Mercer et al., 2008), has been directed to human activities and geographical processes that contribute to societies vulnerabilities, exposures, and to hazards themselves. The focus of their explanations of DR was based on in-depth causal analysis of nature-society complex interactions (D. J. M. Hilhorst, 2003), integrating and analysing components and drivers that many others considered as simple facts (Oliver-Smith et al., 2016).

This section has been divided into four parts. The first part deals with the key reference for understanding the processes underlying DR, the pressure and release model (Blaikie et al., 2004). Then, it investigates the multidimensional nature of vulnerability that this perspective implies. It follows some insights on the methodological implication of this perspective, in the attempt of tracing links with DR components. Finally, the last part focuses on how this perspective would and should impact DRM.

### **2.5.1 The Pressure and Release model**

Among the most established endorsers of disaster risk creation and social construction, we have the authors of the *At Risk* book (Blaikie et al., 2004), which, since the late 70s, stated vulnerability to require the same degree of importance devoted to understanding and addressing natural hazards.

The key framework they present is the Pressure and Release model (PAR model), drafted by the authors already in 1978 (Davis, 1978): a tool for “showing how disasters occur when natural hazards affect vulnerable people” (Blaikie et al., 2004), where vulnerability is defined as “rooted in social processes and underlying causes which may ultimately be quite remote from the disaster event itself” (Blaikie et al., 2004). The basis for the PAR model (figure 5 below) is the conceptualization of disasters as the intersection of two opposing forces, or pressures: “processes generating vulnerability on one side, and the natural hazard event (or sometimes a slowly unfolding natural process) on the other” (Blaikie et al., 2004). The release concept relates to the need of relieving (Blaikie et al., 2004) and reducing these pressures, i.e. processes creating and reinforcing vulnerability, as a core part of DR management.

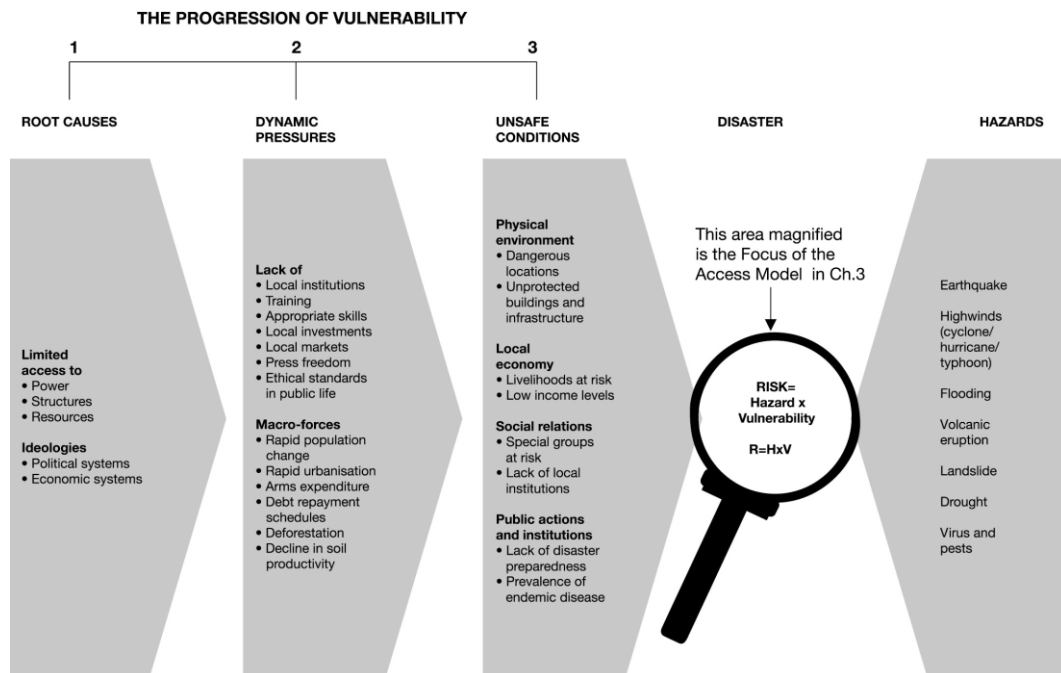


Figure 5 Progressions of vulnerability – PAR model from Blaikie et al. (2004)

According to the PAR structure, the explanation of disasters requires a thorough analysis and sketch of all “connections that link the impact of a hazard on people with a series of social factors and processes that generate vulnerability” (Blaikie et al., 2004), and this through history and at different scales.

The “starting slot” of the analytical process of the progression of vulnerability has been allocated to root and underlying causes, “an interrelated set of widespread and general processes – usually economic, demographic and political – within a society and the world economy” (Blaikie et al., 2004). These sources of DRC processes need to be retrieved and retraced back in time and space, as they can be: “spatially distant (arising in a distant centre of economic or political power), temporally distant (in history), distant in the sense of being so profoundly bound up with cultural assumptions, ideology, beliefs and social relations in the actual lived existence of the people concerned that they are ‘invisible’ and ‘taken for granted’” (Blaikie et al., 2004).

The translation of these root causes to actual conditions of unsafety (vulnerability and exposure to hazard) is driven by dynamic pressures, defined as

“more contemporary or immediate, conjunctural manifestations of general underlying economic, social and political patterns” (Blaikie et al., 2004). Driving forces of DR are those ongoing continuous processes and practices, e.g., uncontrolled urbanization, government corruption, deforestation, pollution..., that should be stopped and reduced in order to prevent the creation of DR.

Finally, unsafe conditions, resulting from the combination of root causes and structural constraints (Zakour & Swager, 2018), close the PAR’s vulnerability chain of causation: “the specific forms in which the vulnerability of a population is expressed in time and space in conjunction with a hazard” (Blaikie et al., 2004). This section contains those urbanizations and societies endangerment and impoverishment (Lewis & Kelman, 2012) situations that launched my research in the first place, and that are usually considered as the static components of DR: hazard-prone building, inadequate construction techniques, missing infrastructures, lack of resources and capacities to face DR.

The “progression of vulnerability” has been revised and discussed by his and other authors on several occasions (Bankoff et al., 2013; Davis, 2014; Wisner et al., 2012; Zakour & Gillespie, 2013; Zakour & Swager, 2018), expanding and revising its analytic components, as shown in the figures below.

These more recent versions of the PAR model (Wisner et al., 2012; Davis, 2014), refined the “hazard side” of the equation, trying to account for the human and social contribution in generating and worsening hazards. In doing so, this causal understanding of DRC can include the causes and drivers of climate change, and reflect on societies influences on hydrometeorological hazards severity, frequency, and extents.

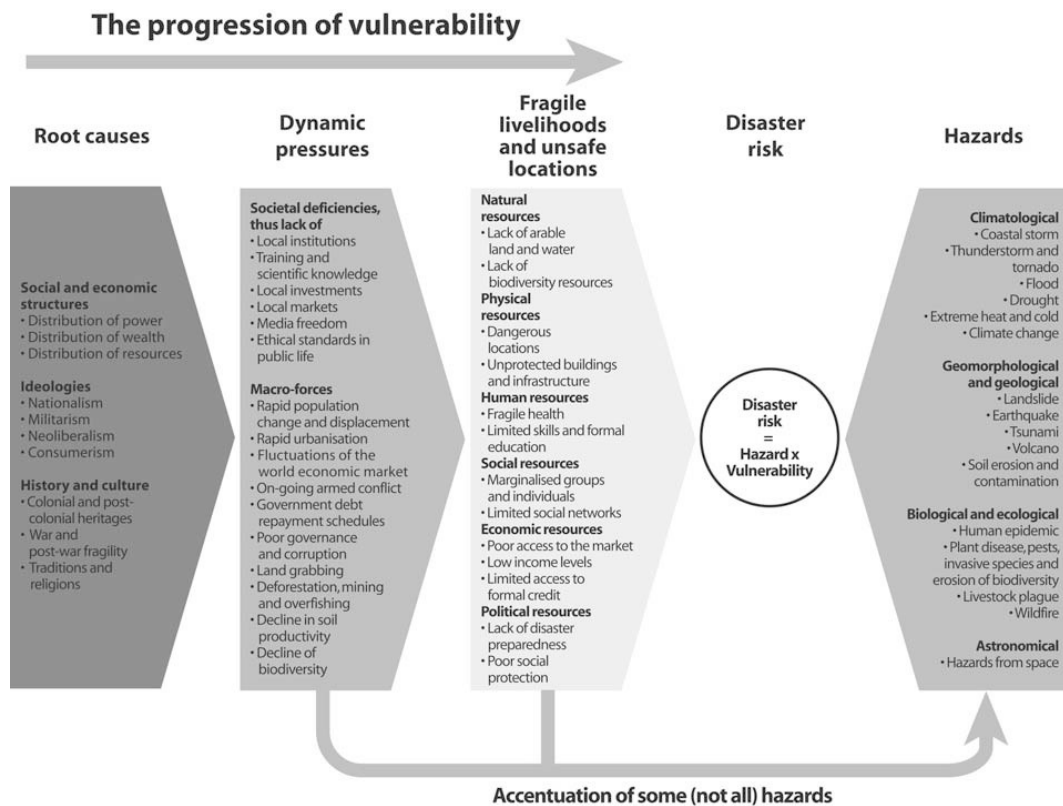


Figure 6 An updated version of the PAR model (Wisner et al., 2012)

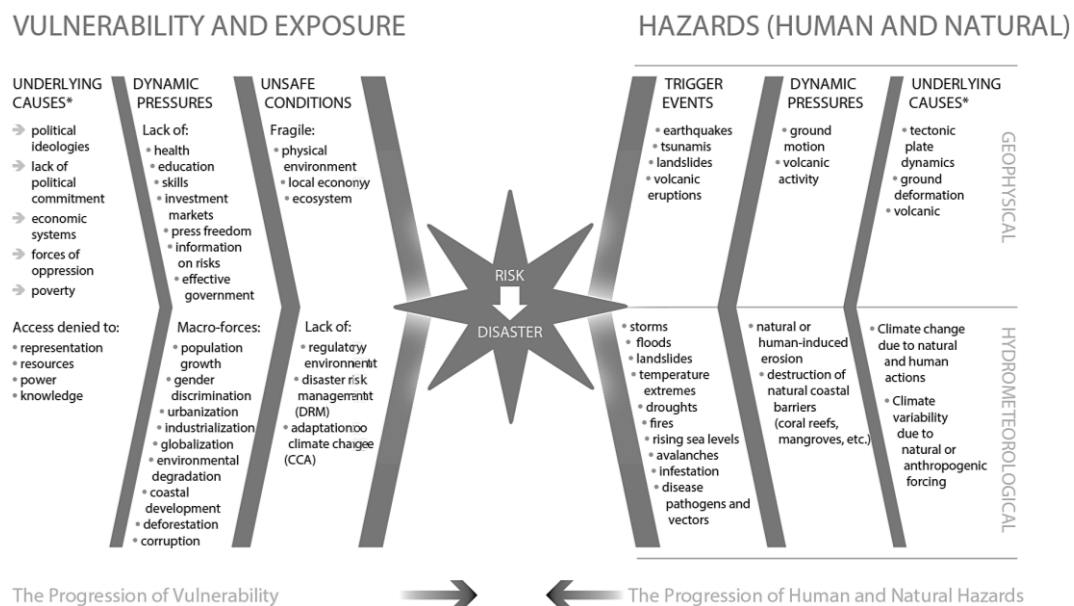


Figure 7 From the PAR to the Disaster Crunch Model (Davis, 2014).



Speaking of the forces that “increase, or fail to decrease” (Lewis & Kelman, 2012), the progressions of vulnerability and hazards, Lewis and Kelman (2012) made an important analytic distinction between “bad” and “ugly” behaviours and practices:

“ “Bad” is effectively malfeasance—actions in which the perpetrators to a large degree understand, or should understand, that their specific choices, over which they have power, are causing disaster-related problems, usually (although not always) for others.

“Ugly” implies “ugly in intent and action” even though there might be limited understanding of the vulnerability- and disaster-related implications, not out of wilful ignorance but due to realities, especially externally imposed realities, that often preclude integration of disaster implications into decision-making processes.” (Lewis & Kelman, 2012)

### **2.5.2 Vulnerability’s dimensions**

For what concerns the levels of detail of DR root cause analysis, the usual governance and planning systems scales, i.e., global, regional, national, metropolitan, and local, should intersect with the different dimensions of vulnerability. Vulnerability dimensions were introduced by Gustavo Wilches-Chaux as the different point of view to approach such a complex and dynamic system (Wilches-Chaux, 1989, 1992, 1993): the angles of global vulnerability. Analogue categories were included by Ian Davis (2014) in his interpretation of the “anatomy of vulnerability”, which follows:

- “Physical: For example, unstable locations, closer proximity to hazards, fragile unprotected buildings and infrastructure, a lack of enforced building regulations and unenforced land-use planning, permitting building on earthquake fault lines, lack of hazard awareness in engineers, architects, planners, builders and building craftspeople.
- Environmental: For example, destruction of natural environmental storm barriers – such as coral reefs or coastal mangrove plantations – deforestation and consequent slope instability, lack of flood protection through river controls.
- Economic: For example, lack of productive assets, limited income earning opportunities, low pay, single income revenue, a lack of savings and insurance protection, concentrations of industry and commerce in hazard prone areas, a lack of business continuity planning (BCP).

- Social: For example, lack of education concerning hazard safety, low status within society, gender discrimination, ethnic minority discrimination, unsustainable population growth, fewer decision-making possibilities, oppressive formal and informal institutional structures, and political, economic and social hierarchies.
- Psychological: For example, fears that derive from religious and other belief systems, ideologies, political pressures, mental illness.
- Physiological: For example, status in life – the young and the old, pregnant women, lactating mothers, chronic illness, disability, exposure to sexual violence and harassment.
- Political: For example, democratization often being regarded rather naively as a prerequisite for effective DRM, short political terms of office resulting in failures to address long-term risks, lack of basic freedoms, lack of participatory decision making, lack of a press freedom, lack of control of corruption, lack of governance, lack of enforced regulations, centralization and the lack of devolved powers to local levels, lack of governmental priorities for DRM and CCA, lack of national or local disaster plans (adapted from Leoni, n.d., p. 14).” (Davis, 2014)

These vulnerability dimensions have been framed, in relation to the PAR model, as groups of resources (Wisner et al., 2012) which communities, depending on pressures and constraints, may or may not have access to. Depending on the access to resources, communities may develop and adopt endogenous capacities, or suffer the imposition of exogenous vulnerabilities. The circle of capacities – from inside the community outwards – and the triangle of vulnerability – from outside the community inwards – (Wisner et al., 2012) in the figures below sketch these processes of access to and deprivation of resources.

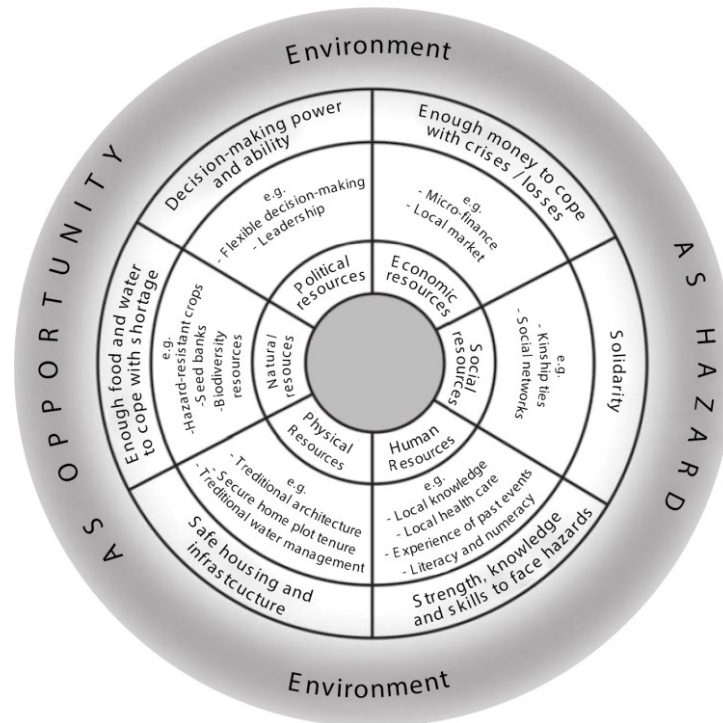


Figure 8: The circle of capacities (Wisner et al., 2012)

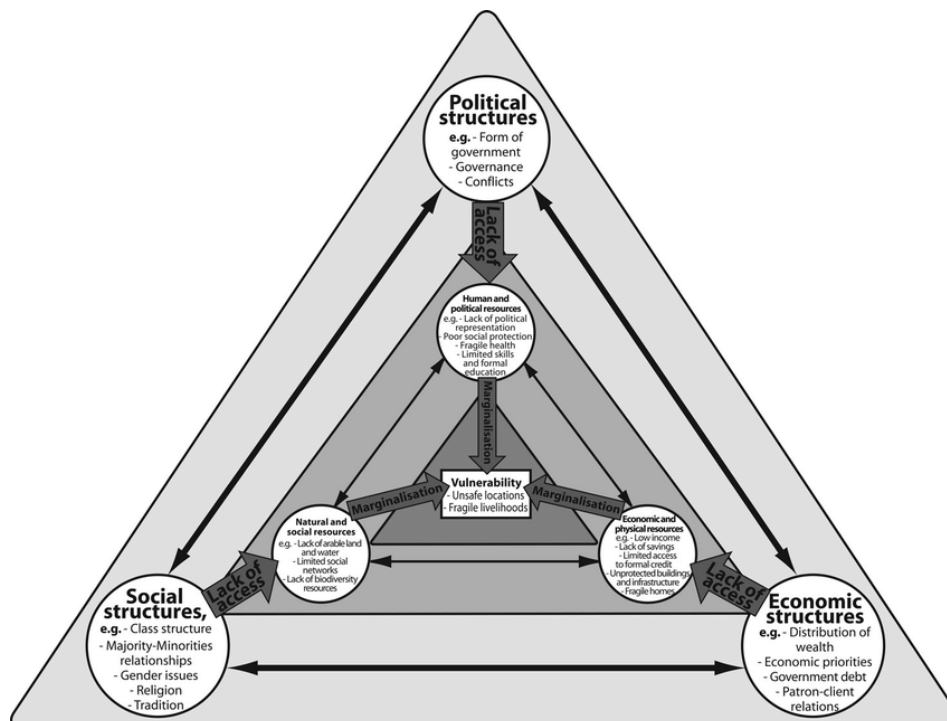


Figure 9 The triangle of vulnerability (Wisner et al., 2012)

### 2.5.3 Disaster Root Causes – “Detectives” and “Forensics”

The key methodological references for this research analysis have been the German Committee for Disaster Risk Reduction (DKKV) analytic tool for Detecting Disaster Root Causes (Witting, 2013), and those provided by the Forensic Investigations of Disasters (FORIN) project (Oliver-Smith et al., 2016).

The FORIN research project, carried out by the Integrated Research Program on Disaster Risk (IRDR), provides a methodology that resumes many of the reflections outlined so far and concludes this state-of-the-art revision. The DKKV framework focuses on how DRC influences vulnerability, exposure and risk management, so to “support agencies and stakeholders involved in humanitarian assistance and development cooperation to identify efforts and intervention options to address these issues” (Witting, 2013).

The FORIN causal approach is partly based on the pressure and release (PAR) model’s structure but it acknowledges (Oliver-Smith et al., 2016) that disasters are not just independent events that can be confined within boundaries of time and space. In this case, disasters are understood and stated as the unfolding of systemic pathological changes which starts from “contrasting or conflicting goals within the structures of the socio-cultural systems, leading to internal functional disorder or dynamic pressures” (Oliver-Smith et al., 2016). Here, dynamic pressures are understood as symptoms, or warning signs, of the system’s liabilities which, in concurrence with DR components, can trigger the “escalation of the already unsafe conditions into a state of crisis or emergency” (Oliver-Smith et al., 2016).

This Disaster Risk Root Causes Analysis methodology proposes a systematized description of the observed unsafe conditions starting from disaster aftermaths: “patterns of loss and damage and their social impacts, their spatial and social distribution and the nature of and reasons for the decision-making by private and public actors that led to such patterns and expressions” (Oliver-Smith et al., 2016). The FORIN project proposes a step-by-step questionnaire for describing:

- a. The triggering event(s), reflecting whether it manifested similarly in past disaster, or the threat may be novel or recently constructed due to natural or socio-natural changes in the physical environment (Oliver-Smith et al., 2016);

- b. Exposure of social and environmental elements, in this case, attention is devoted also to “understanding how human intervention has debilitated environments, exposing them to greater damage than would be the case without such human modification and intervention” (Oliver-Smith et al., 2016);
- c. Social and economic structure of exposed communities, reflecting on behaviours and practices – and how to identify them – that “may help increase or overcome adverse hazard and exposure conditions and related post impact losses” (Oliver-Smith et al., 2016);
- d. Institutional and governance elements.

Starting from specific DR conditions, both the FORIN and DKKV analytic tools focus on the explanation of DRC processes multi-dimensional characters and examine causal chains and interconnections. DKKV’s current reality tree analytic process is structured (see figure below) along two key axes:

“The horizontal X-Axis describes the two main subjects of investigation. The first is the pre-disaster condition of a society or community exposed to natural hazards (vulnerability and disaster risk). The second includes the entire range of activities related to DRM [...] since it is assumed that even after a major disaster event, limited risk management capacities or failures in risk management can enhance or extend the crises.

The Y-Axis shows the progression of each analysis level from observed impacts and insecurities (drivers) to underlying patterns and structures (root causes).” (Witting, 2013)

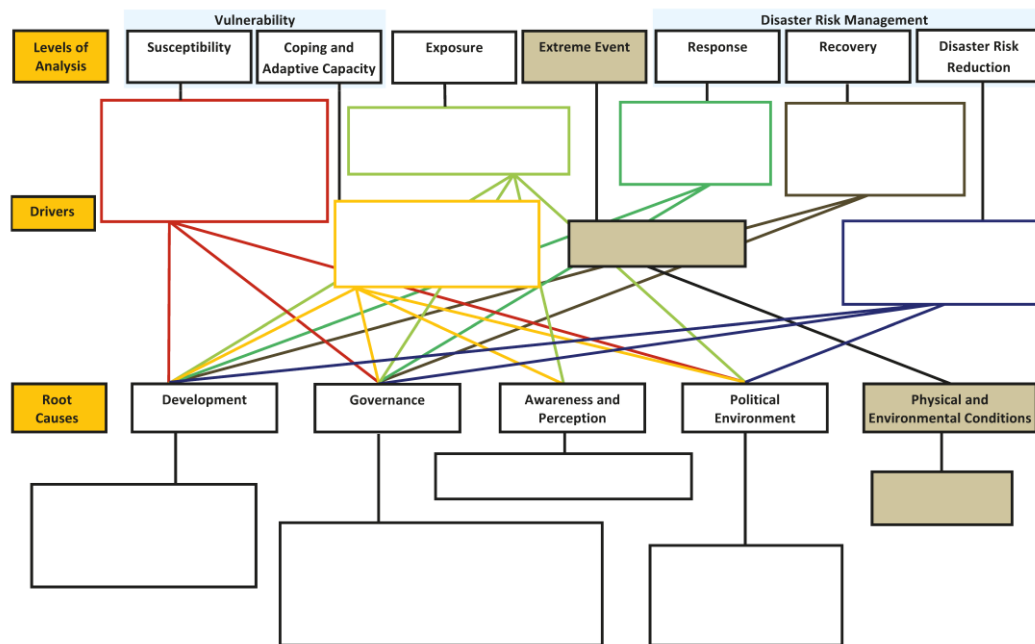


Figure 10 DKKV's DR cause analytic framework (Witting, 2013)

The identified root causes and drivers are clustered in five high-priority (according to the expert interviewed by DKKV) categories: development; governance; awareness and perception; political environment and physical and environmental conditions (Witting, 2013). Similarly, the FORIN framework proposes to focus on four strong drivers: population growth and distribution, urban and rural land use patterns and processes, environmental degradation and ecosystem service depletion, poverty and income distribution (Oliver-Smith et al., 2016).

One of the added value of these frameworks lays in the link of disaster risk management cycle components to the DRC analysis, so to highlight also interventions' deficits and insufficiencies (Witting, 2013).

#### 2.5.4 What to seek, what to avoid: prospective DRM and marginalization

Building on the PAR model, Narváez et al. (2009), in the figure below, distinguished 4 milestones (*hito* in Spanish) of the DRC process, resulting from root causes and drivers: (I) creation of future risk conditions, (II) consolidation and permanence of existing risk factors, (III) disaster occurrence, updating the

risk situation, and (IV) transformation of the risk scenario effected from disaster's aftermath (Narváez et al., 2009). To each milestone different DRM phases and interventions may correspond (Narváez et al., 2009):

- (I) prospective DRM, prevent the construction of future risk through development planning (number 2 in the figure below);
- (II) corrective DRM, reduce, transfer, and mitigate existing risk, enforce warning systems, prepare to respond to emergencies (number 3 and 4 in the figure below);
- (III) reactive DRM, respond and manage emergencies, rehabilitate, provide aid, shelters, and services to affected populations (number 5 in the figure below);
- (IV) prospective DRM, which applies also for the recovery and rebuild after the emergency (number 6 in the figure below).

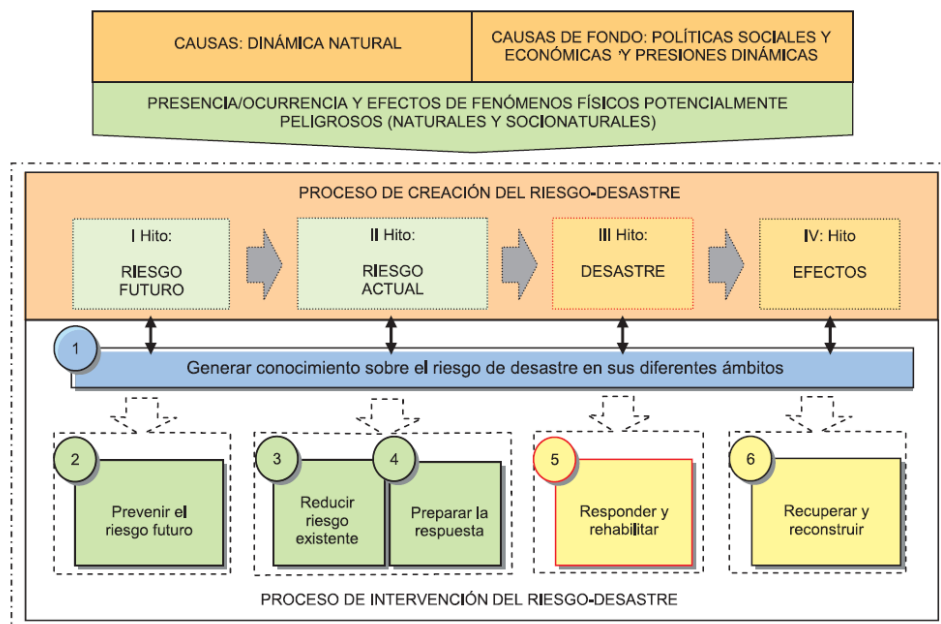


Figure 11 Framing DRC and DRM processes (Narváez et al., 2009).

Compared to more widespread corrective and reactive DRM, the overall aim of many of the quoted authors relates to a more prospective approach: current DRC processes should be stopped and resisted, so to prevent and avoid future DR conditions (Narváez et al., 2009; A. Lavell & Maskrey, 2014; Wisner & Lavell, 2017).

To do so, once understood and defined the root causes, dynamic pressures, unsafe conditions that create DR, each process may and should be addressed. As for vulnerability, a model has been set for the “progression of safety” (Wisner et al., 2012), thus including those resources and assets that communities possess, can access to and use in order to “resist, cope with and recover from disaster shocks they experience” (Blaikie et al., 2004; Wisner et al., 2012). The frame in the figure below accounts for the “release” part of the PAR model, i.e., addressing root causes, reducing pressures, achieving safety, preventing, and mitigating hazards.

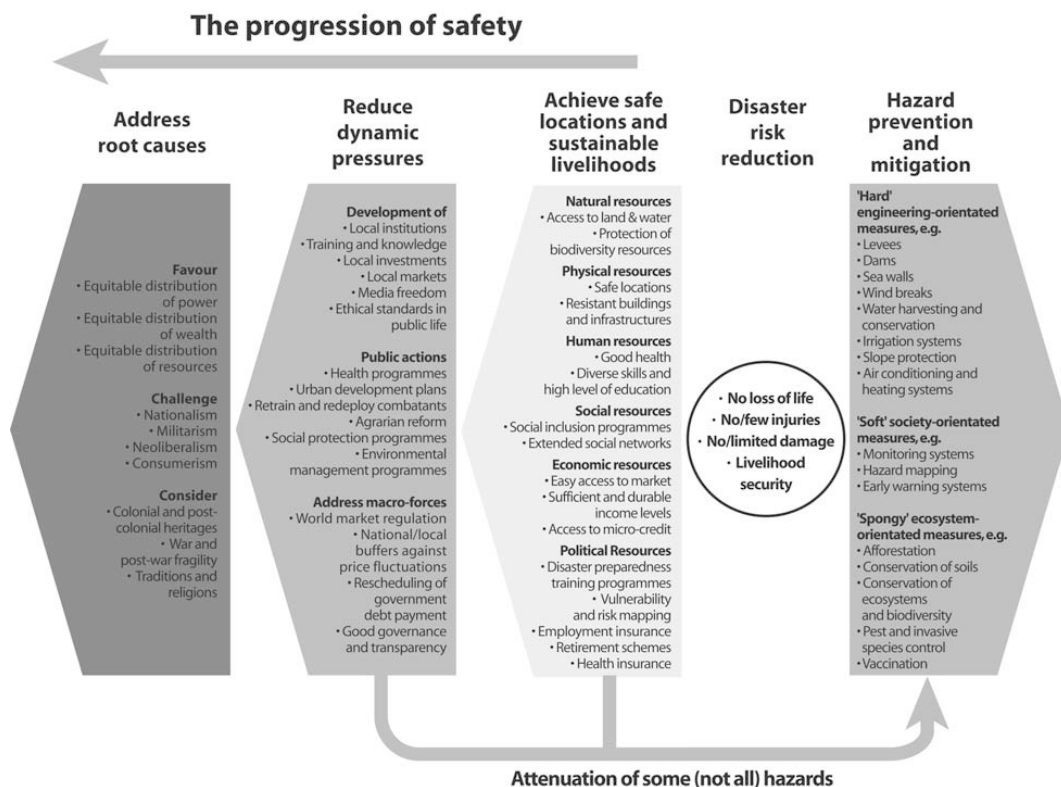


Figure 12 The progression of safety (Blaikie et al., 2004; Wisner et al., 2012)

Besides defining the safety strategies to adopt, particular importance should be given to avoiding new marginalization and impoverishment in disaster aftermaths.

Once again, Wisner et al. (2012) gave an exemplifying overview of how, once disasters strike, drivers of risk may evolve and worsen as needs, which if not addressed, may lead to vicious circles of delayed and “unsatisfactory ‘recovery’”



and further marginalisation” (Wisner et al., 2012). As an example of what has been called the “roadmap to hell” (Wisner et al., 2012), failing recoveries lead to perpetual dependence on aid and charity, to debts, destitutions, and displacements, in sum to the strengthening of unsafe conditions:

“Squatters settling in hazard-stricken areas need land to which they can relocate, although this is often a painful experience. People with limited skills and fragile health are often weakened when faced with changing social and economic environments. Survivors with fragile social ties and limited social networks need external assistance and thus increase their dependence on others. Those with poor economic resources often have to resort to high-interest, informal loans to provide for their need for cash to recover. They also often lose their sparse physical assets, including their house, thus leading to further destitution. Meanwhile, increasing needs of the most marginalised in the aftermath of disasters are frequently neglected by the authorities, for whom those survivors are often invisible. Disasters thus often further marginalise those who were already living at the margin before the events.” (Wisner et al., 2012)

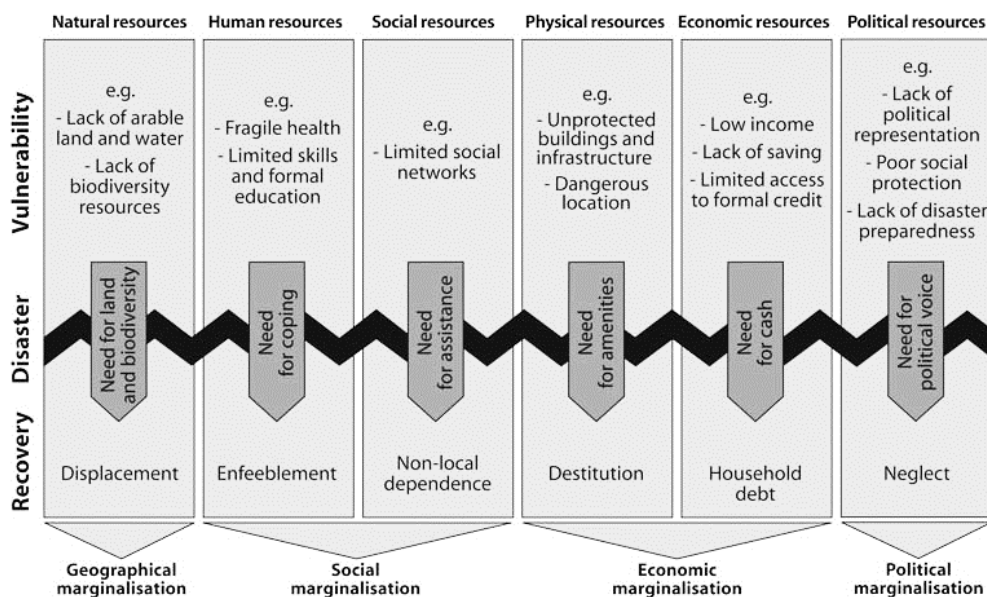


Figure 13 The roadmap to hell (Wisner et al., 2012)

Recognizing, understanding, and addressing these processes of marginalization that affect disaster victims is extremely relevant to avoid the reinforcement and the new creation of DR. Indeed, processes reinforcing marginalization are not just recoveries' worst case scenarios, but also they constitute the starting and closing point of DRC loop, as sketched (diagram below) already in the 80s (Gaillard & Cadag, 2009; Susman et al., 1983).

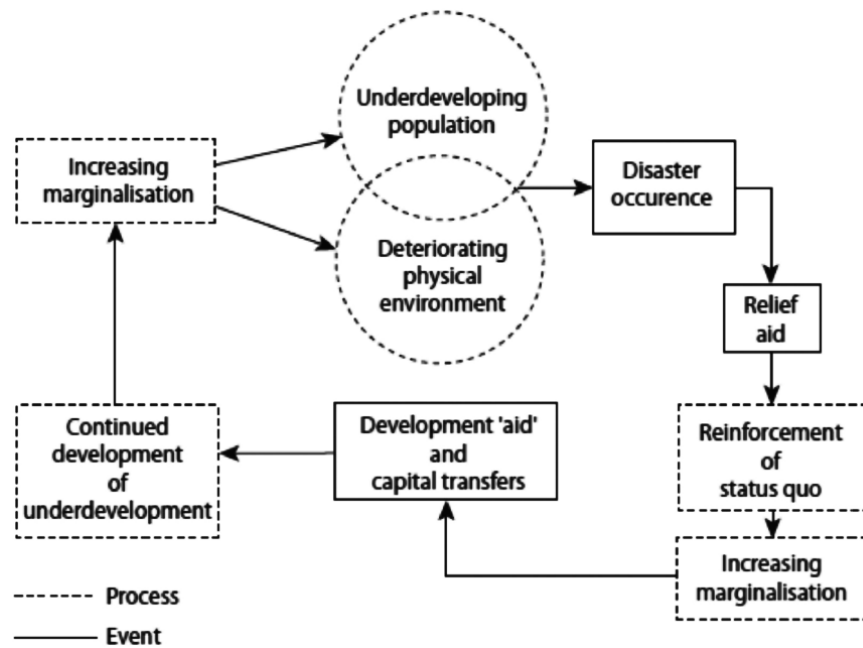


Figure 14 The marginalization-disasters relationship (Gaillard & Cadag, 2009; Susman et al., 1983)

## 2.6 Conclusive remarks

In conclusion, this review of the DR political ecological perspective orients the research towards understanding the complexity of DRC processes and to reinforce DRM prospective interventions. The resulting mindset aims at addressing rooted social injustices and inequalities, and at shifting the DRM paradigm from resilience to transformation:

- Resilience “depoliticizes the creation of risk and vulnerability, and may be serving to maintain the status quo and/or system functionality” (Thomalla et al., 2018, p. 3).
- Transformation is “characterized by changes in structures, goals, perspectives, and/or governance regimes that alter the pre-existing risk management status quo” (Thomalla et al., 2018, p. 3).

Bearing this challenge in mind, the following methodological chapter attempt to address some key resuming research questions, those formulated by Witting (2013):

- “How to develop a framework for understanding and analyzing disasters in different phases and with regard to the various drivers and root causes that contributed to the disaster?
- Which lessons learned are formulated after a disaster (with regard to root causes and context conditions that created the background for the occurrence of a disaster)? Which other can we learn ex-ante?
- How to systematize the multi-dimensional problem context of disasters and drivers?
- What kind of analytic tool would help to identify drivers and root causes of disaster risks after a disaster occurred?
- Which recommendations can be derived from the study and the expert interviews for different stakeholders in DRR and humanitarian assistance?”  
(Witting, 2013)

## **Chapter 3**

# **Research design and methodology**

Understanding the current state, relevance, and challenges in reaching the historical priority of the international agenda “Reduce the underlying risk factors” (appeared in all Disaster Risk Reduction international strategies since 1994) is the challenge this thesis thrives to meet. Having 40 years of DR and root cause analysis frameworks, the objective of the research has been to test their current use, validity, urgency, and practical implications, interacting with actors directly involved in DRM. The thesis reflects on gaps and linkages between practitioners’ understandings and academic debates on DRC.

This analytical effort has been framed thinking of disaster-prone countries with dependent economies where, also due to multiple, subsequent, and periodic catastrophes, crises are creeping and/or forgotten, emergencies permanent and recovery processes everlasting.

With Central America and the Caribbean as geographical context, the case study of the research relates to those arenas of intervention (D. Hilhorst, 2013; D. Hilhorst & Jansen, 2010) resulting from the permanent establishment of international and nongovernmental organizations (NGO) taking part in disaster governance and aid. The choice of setting for the data collection directed to well-established contexts of DRC academic debates, Guatemala, and Haiti. The investigation involved stakeholders belonging to United Nations (UN) agencies, NGOs, governmental bodies, and civil society organizations belonging to the humanitarian and development aid realms, dealing with the different phases of DRM lifecycle.

### 3.1 Research questions, hypotheses, and objectives

This actor-oriented and explanation building analysis targeted the current state and the relevance of the DRC theoretical debate, from a national standpoint, according to aid workers and disasters professionals in Haiti and Guatemala. In doing so, the leading research questions have been:

- How actors belonging to aid and DRM arenas of intervention acknowledge and explain DRC? How do the available policy documents and academic contributions?
- How aid and DRM interventions interact and relate to DRC processes? Which are the barriers and challenges?

Implicitly, the research has been questioning also whether, from a methodological and theoretical point of view, the PAR model (and its descendants) (a) still features explaining the processes underlying these permanent crisis contexts, (b) has bridged to stakeholders DR understanding, and (c) can constitute the basis for a research design replicable in any geographical context.

In Countries resumed as “implosions of underlying risk factors” (quoting some of the interviewees), the research objective has been to test whether long-established DRC analytical models had affected how aid and DRM professionals understand and approach to DR. Furthermore, besides understanding the current validity and urgency of DRC debate, the secondary objective has been to highlight puzzles and nonlinear dynamics (Di Baldassarre et al., 2015, 2018; Helbing et al., 2006; Liu et al., 2007) that further complicate DR management and reduction, and contribute to its production (Fraser et al., 2016). In other words, which practical

implications could have a more structured and systematic adoption of DR roots cause analysis (DRRCA) for humanitarian and development aid?

As a result of the literature reviewed in the previous chapter, the first stage of the research set out to investigate on the feasibility of testing and adjusting an appropriate analytical framework, a lens supporting the sketch and structure of DRC elements and their causative processes. The urgency of framing and recomposing DRC was initially related to the opportunity, for these analytical approaches, of constituting the steppingstone for prioritizing and integrating humanitarian aid, disaster risk reduction, management and development plans, programs, and policies. Such objective aspired to empower the many bits of knowledge and understandings of DR, and consequently to revise interventions on roots and drivers of vulnerability, exposure, and systemic instability.

Among the others, the initial questions linked to this research proposal were also:

- Why focusing mainly on the unpredictable (i.e., hazardous events) rather than encompassing rooted wicked problems in DR understandings and evaluation?
- Is there any room for improvement in aid organizations' DR understanding and planning approaches?
- Can disaster risk root cause analysis approaches interact and/or integrate existing DRM interventions?
- How can such an analytical effort foster the achievements set out by the international agenda?

Consequently, the hypotheses and propositions behind these research questions resume as follows:

- Disaster risk assessment and evaluation approaches do not fully encompass all the factors contributing to such DRC processes;
- Stakeholders' perception, culture and memory of these processes might be partial/biased and differ from each other;
- Policies and practices might: (a) not properly address underlying risk factors, (b) overlap and overconcentrate on certain strategies, (c) lead to unexpected/counterproductive/hindering effects.

The main advantage of understanding these complex DRC causal mechanisms, besides explaining DR impacts, losses, and damages, would be to

direct more strategic and coordinated aid and DRM interventions. This prioritization might set the basis for a transformative (Thomalla et al., 2018) Disaster Risk Management, capable of eradicating risk causes, reducing existing threats/risk drivers and resisting (Wisner & Lavell, 2017) to the creation of new ones.

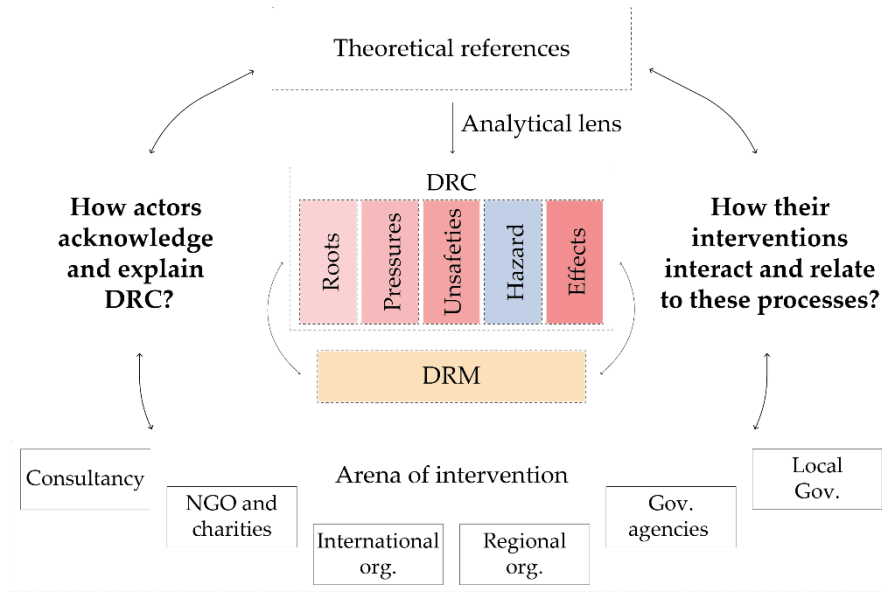


Figure 15 Research questions in between the DRC theoretical debates and arena of intervention's understandings.

The analysis consists of the effort of bridging the literature available on DRC for both countries to the views and explanations of key stakeholders involved in the arena. Aid and DRM practitioners contextualized theoretical assumptions and academic contributions along an iterative methodological learning cycle: (i) the DRC debates established in these Countries were revised (academic articles, policy documents, projects reports, etc.), then (ii) aid workers and disaster professionals were engaged to contribute with their understandings which (iii) have been clustered following DR root cause analytical models; finally (iv) the highlighted barriers and challenges in addressing DRC were framed and generalized within existing academic debates

### 3.2 Setting a common ground: glossary, analytical lens and case study

From the methodological point of view, the research's first step considered and recollected some of the most established contributions from the Root Cause paradigm debate presented in the previous chapter. Such references ("At Risk" above all) allowed the definition and adoption of a glossary, a shared language, of the key components for understanding DRC processes.

Table 1 Glossary resuming key components of the "anatomy of vulnerability" (Davis, 2014). Main analytical references: Pressure and Release (PAR) model (Blaikie et al., 2004; Davis, 1978), Disaster Crunch model (Davis, 2014), Progression of Safety (Blaikie et al., 2004; Wisner et al., 2012), the roadmap to hell (Wisner et al., 2012), the Disaster Risk Process Approach (Narváez et al., 2009), Vulnerability-Plus Theory (Zakour & Gillespie, 2013; Zakour & Swager, 2018) and the Forensic Investigation of disaster (FORIN project) methodology (Oliver-Smith et al., 2016).

Terminology	Definition
Root Causes; Underlying Causes.	"An interrelated set of widespread and general processes" set as 'distant' both spatially (arising in a distant centre of economic or political power), temporally, as well as in the "sense of being so profoundly bound up with cultural assumptions, ideology, beliefs and social relations", perceived as 'invisible' and 'taken for granted' (Blaikie et al., 2004).
Dynamic Pressures; Drivers of Risk; Structural pressures and constraints.	"More contemporary or immediate, conjunctural manifestations of general underlying economic, social and political patterns" (Blaikie et al., 2004).
Unsafe Conditions; Unsafe livelihoods and locations.	"The specific forms in which the vulnerability of a population is expressed in time and space in conjunction with a hazard" (Blaikie et al., 2004). In disaster aftermath referred to as "patterns of loss and damage and their social impacts, their spatial and social distribution" (Oliver-Smith et al., 2016)
Capacities	"Capacities refer to the resources and assets that people possess to resist, cope with and recover from disaster shocks they experience. The concept of capacity also encompasses the ability to either use or access needed resources" (Blaikie et al., 2004; Wisner et al., 2012).
Marginalisation	Failure and/or delays in satisfying the needs emerged in the aftermath of a disaster (Wisner et al., 2012) and, more in general, to reduce the dynamic pressures and unsafe conditions.



Resources Typology, Vulnerability Dimensions.	Categories relevant in structuring the multidimensionality of Disaster Risk and Vulnerability, usually Environmental, Physical, Technical, Economic, Social, Political, and Institutional (Blaikie et al., 2004; Davis, 2014; Wilches-Chaux, 1989, 1993; Wisner et al., 2012).
DRM life cycle's strategies	<p>(a) Anticipatory or Prospective (A. Lavell &amp; Maskrey, 2014) addressing and avoiding risk's development and increase;</p> <p>(b) Corrective and Compensatory addressing root causes, reducing dynamic pressures and achieving safe locations and sustainable livelihoods (the so-called Progression of Safety (Wisner et al., 2012));</p> <p>(c) Reactive, responding to and recovering from emergencies, avoiding missing, failed, insufficient and build back the vulnerable situations (Davis, 2012).</p>

These models and their components have been adapted and combined in the analytical lens (Figure 16 below) of the analysis, a tool supporting the interpretation and the framing/outline of DRC processes.

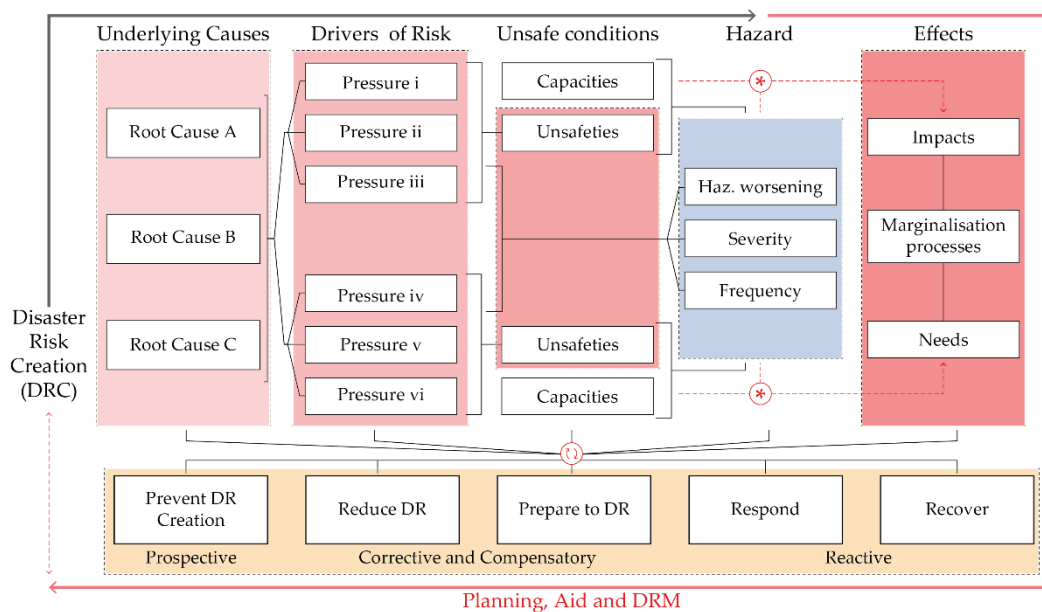


Figure 16 Analytical lens (adapted from (Blaikie et al., 2004; Narváez et al., 2009; Ben Wisner et al., 2012; Zakour & Swager, 2018)).

This glossary and analytical lens has been the main reference for structuring interviews, for collecting and analysing policy documents and existing DRC analysis, as well as for framing and discussing the results, reflecting on its methodological soundness and gaps. Compared to other applications of the PAR framework, the underlying goal of this methodology has, since the very beginning, also to test an analytical tool that links among each other's different contributions and understandings of DRC: a sort of participatory tool that might

allow a more complete sketch of DRC components at stakes, acknowledging biases and partialities coming from the culture, background and ethic of each contributor.

The data collection tried to consider and differentiate the system's dimensions proposed by Colledge (2017) speaking of cities as complex adaptive systems. As a result, the analytical frame interrelates the "location dimension" (different scales and levels), the "temporal dimension", the "people dimension" (actors and key stakeholders) and the resources dimensions (which recall the glossary's vulnerability dimensions).

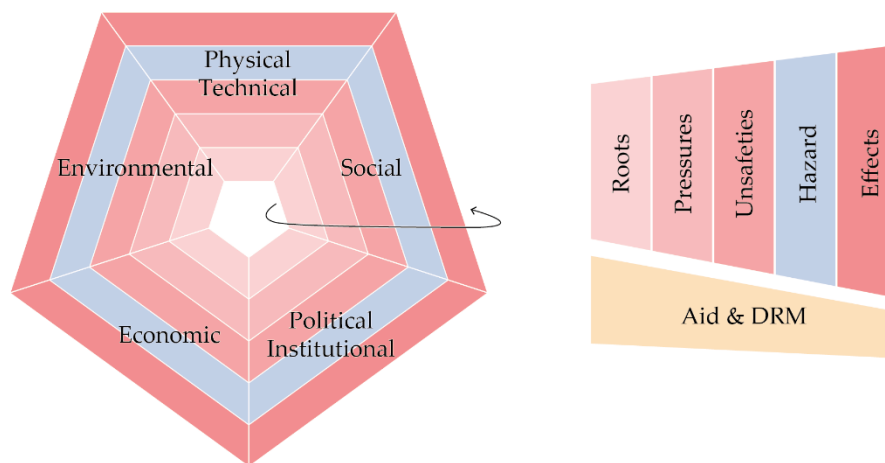


Figure 17 On the left, the whole centric and circular structure of DRC's resources dimensions; on the right the analytical lens compounding these dimensions (adapted from (Blaikie et al., 2004; Davis, 2012, 2014; Narváez et al., 2009; Wilches-Chaux, 1989, 1993; Wisner et al., 2012)).

Regarding this analytical structure, it should be noted that the phases listed above represent just a snapshot, a "freeze image" of DRC processes along with time flow: some of those dynamic pressure and unsafe conditions coming from past behaviours and crises, constitute nowadays problems much more rooted, also because of overlapping past responses and marginalisation. These frequent overlapping of attributes partially justify the cognitive troubles encountered in clustering the different dynamics according to the proper phase and dimension of the DRC process. Overcoming and addressing this historical stratification of DRC components, adapting the analytical lens to a more cyclic functioning, enhancing the interconnections between elements belonging to different phases, constituted the main methodological challenges of the analysis. The DPSIR (drivers, pressures, states, impacts and responses) causal framework, generally used to

analyse society-environment interactions, resembles, in the structure figured below, the adopted analytical lens while nudging toward a circular functioning and mindset, more suitable to DRC processes.

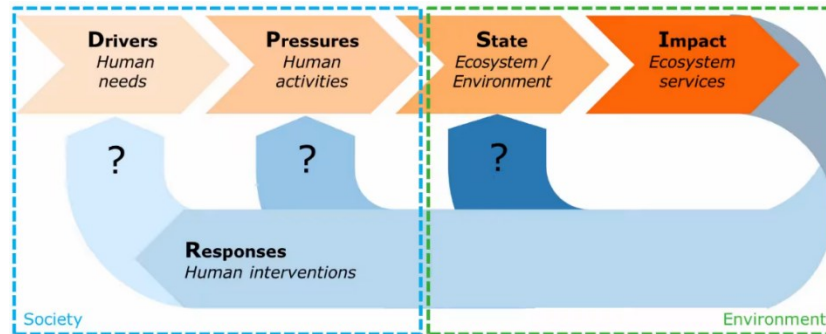


Figure 18 DPSIR structure and understanding analogue to the adopted analytical lens' (Source <https://www.youtube.com/watch?v=ZZi5Y6iBm1Y>).

The adoption of this analytical lens posed initial doubts, questions and dilemmas concerning:

- Lack of available information and knowledge regarding DRC processes;
- Lack of awareness, among concerned stakeholders, regarding such information;
- The suitability of the PAR model for framing and understanding DRC complexity;
- The questionable practical contribution, for DRM and aid professionals, of this approach to DR understanding.

### 3.3 Geographical settings

The selection of the research's geographical settings focused on the most vulnerable and exposed countries in Central America and the Caribbean where, also due to recurring and overlapping catastrophes, impacts and losses are disproportioned, crises everlasting, governments fragile and fragmented, economies dependent and foreign and humanitarian aid permanent.

The choice of setting for the data collection directed to countries which, also due to recurrent catastrophes and consequent humanitarian crises, became well-established contexts for the DRC academic debate, Guatemala, and Haiti.

Following the 1976 “class-quake” (Davis, 1978) in Guatemala City, Ian Davis, Phil O’Keefe and Ben Wisner (O’Keefe et al., 1976) reflections on this catastrophe’s unnaturalness and selective impacts on the poorest families (Blaikie et al., 2004), got them to draft the first version of what, later on, became the Pressure and Release model. Similarly, after 1998 Hurricane Mitch hit Central America, academics contributions (Christoplos et al., 2010; A. Lavell, 1999; Oliver-Smith, 2009; Wisner, 2001) debated the structural constraints that brought to such devastation and that impeded a successful recovery.

Similarly Haiti, due to the 2010 deadly earthquake and cholera outbreaks, gained the attention of many academics becoming one of the most validated contexts for the social construction of DR literature; in the “Haiti’s 500-Year Earthquake” (Oliver-Smith, 2012) essay, Anthony Oliver-Smith sketched the processes that unfolded through time starting from the colonial occupation and resulting in the estimated 300 thousand deaths of the earthquake.

As shown in the table below, Haiti and Guatemala recur also among Latin America and the Caribbean’s “worst”, as more endangered and vulnerable Countries according to different World indexes and evaluations. Below an example with LAC Countries’ ranking in the INFORM index for Risk Management, World Risk index, Fragile States index, and Human Development index.

Table 2 LAC Countries world ranking (most critical ones in bold) in the INFORM Index for Risk Management (2021 - <https://drmhc.jrc.ec.europa.eu/inform-index/>), World Risk Report and Index (2020 - <http://weltrisikobericht.de/english/>), Fragile States Index (2020 - <https://fragilestatesindex.org/>), and UNDP’s Human Development Index (in descending order, 2020 - <http://hdr.undp.org/en/indicators/137506>).

Name	INFORM index ↓	World Risk index	Fragile States index	Human Dev. index
Haiti	<b>21</b>	<b>22</b>	<b>13</b>	<b>170</b>
Guatemala	<b>28</b>	<b>10</b>	<b>58</b>	<b>127</b>
Colombia	<b>29</b>	88	65	83
Honduras	<b>34</b>	35	<b>64</b>	<b>132</b>
Mexico	<b>34</b>	97	98	74
Brazil	52	118	75	84
El Salvador	<b>55</b>	<b>17</b>	93	<b>124</b>
Peru	55	92	97	79
Nicaragua	60	20	62	<b>128</b>
Bolivarian Rep. of Venezuela	65	66	<b>28</b>	113

Ecuador	76	62	89	86
Dominican Rep.	92	32	107	88
Panama	100	63	140	57
Guyana	103	6	101	122
Costa Rica	105	12	147	62
Jamaica	108	29	116	101
Suriname	108	77	115	97
Paraguay	115	143	104	103
Dominica	120	3	#N/D	94
Chile	123	30	142	43
Trinidad and Tobago	126	47	129	67
Cuba	135	100	118	70
Saint Lucia	144	123	#N/D	86
Antigua and Barbuda	147	4	127	78

### 3.4 Case study and unit of analysis

In these geographical contexts, the analysis has been directed to aid workers and disaster professionals within *arenas of interventions* (D. Hilhorst & Jansen, 2010), this research's real case study. The aid and DRM community of practice (Gibson & Wisner, 2019) was set as a relevant sample for collecting data in terms of personal experiences and understandings along with the different phases of the DRM cycles and past catastrophic events in Haiti and Guatemala.

Conceiving aid and DRM actions as an arena, where an ecosystem of actors understand the context, the needs, their role (D. Hilhorst & Jansen, 2010) and consequently plan and implement their interventions, required an actor-oriented approach focused on DRC processes' perceptions and thoughts: "different actors 'see' disasters as different types of events and, because they perceive them as such, they prepare for, manage and record them in very different ways" (Bankoff & Hilhorst, 2009).

The arena of intervention encompasses a space of polycentric disaster governance (Abbott, 2018), where international agencies and NGOs side, support and, at times, substitute national government because of their potential of filling institutional gaps and of solving problems (Wisner et al., 2020). Setting these ecosystems of actors and communities of practices (Gibson & Wisner, 2019) as framing case study endorses how non-governmental, foreign-led and disaster-related governance can "strongly affect local power relations and (re)ordering processes" (D. Hilhorst, 2013) in the local realities where they operate. This

acknowledging also their “strong and rather permanent presence – and – intermediary” role (D. Hilhorst, 2013), and thus continuous interrelation with DRC dynamics.

In this thesis, when referring to the arena of aid and DRM interventions are encompassed all those institutions, agencies, and organizations, foreign, international and national, that, at different levels (see Figure 20), intervene, manage and address (see Figure 21) DR governance. These interventions are considered altogether as contributing to the prospective-corrective-reactive DRM lifecycle, regardless of their pertinence to humanitarian aid projects and service delivery, civil protection ones, or to urban and regional planning development initiatives.

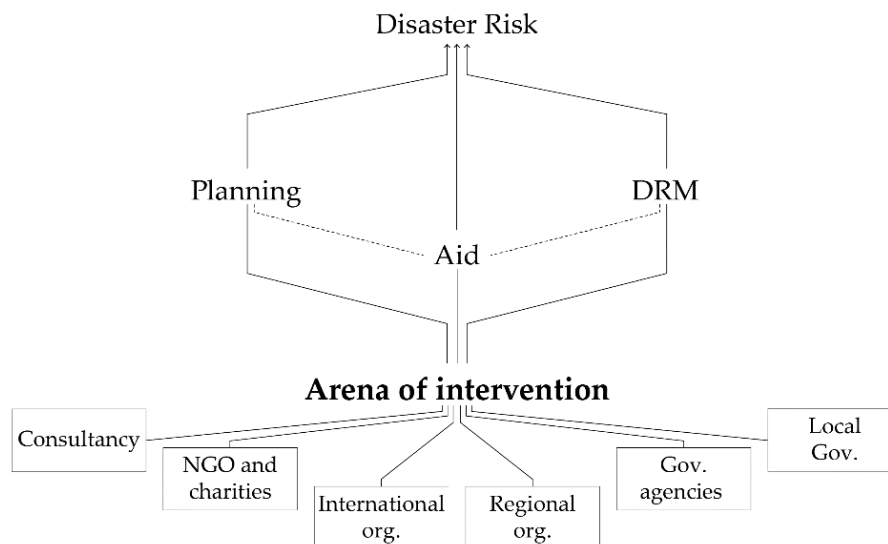


Figure 19 Picturing the arena of intervention: case study and data source.

The units of analysis embedded in this case study have been the different perspectives and explanations on DRC offered by DRM, humanitarian, and development aid stakeholders such as governmental institutions, donors, international agencies, international and national NGOs, charities, civil society organizations, community-based organizations, research centres, consultancies, etc.

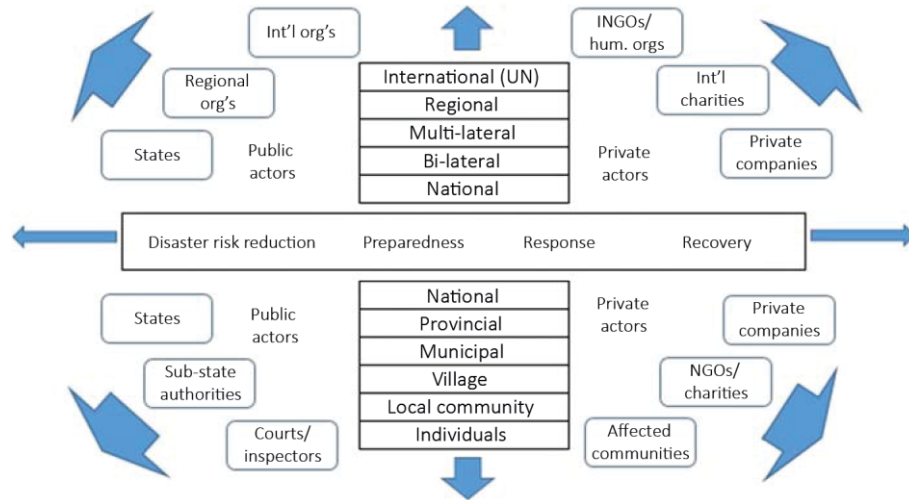


Figure 20 Arena of intervention's various dimensions, scales, and actors (extracted from Hesselman & Lane, 2017).

		Pre-disaster			Disaster/emergency	Post-disaster	
Level	Actors	Prevention	Mitigation	Preparedness	Response	Recovery	Development
International	International agencies	Raise awareness on DRM	Ensure quality in donor funded infrastructure projects	Treat DRM as an inclusive activity	Mobilize financial aid as grants and long-term loans	Fund Food For Work and rehabilitation programmes	Mainstream DRM activities in development planning
National	National government	Establish early-warning systems, infrastructure, legal and policy framework for DRM	Promulgate construction code and safety regulations	Prepare national disaster relief plan	Declare a disaster and state of emergency	Set up emergency and recovery fund	Prepare Codes of Conduct in relief and development
Province/district/municipality	Provincial government	Set local administration rules; Provide incentives for promotion of risk-reducing technology	Promote multi-sectoral, integrated approaches in DRM	Provide agro-ecological data for national disaster relief plan	Coordinate and mediate actions between national and local levels	Implement Food For Work or other rehabilitation programmes	Protect infrastructure; promote risk-reducing technologies
	Technical line agencies & research institutions	Develop risk reducing technologies	Test risk-reducing technologies and sector-specific forecast systems	Prepare sectoral risk management and response plans	Assist in needs assessment and distribution of sector specific inputs	Promote sector specific recovery processes	Develop risk-reducing technologies
	Intermediary-level NGOs	Provide training to local NGOs	Undertake watershed/river basin planning	Provide skills training to local NGOs	Mediate between national & local level	Set up rehab. projects to restore lost assets	Promote local institutional development
	Local government	Develop local disaster prevention plan	Undertake watershed/river basin planning	Prepare evacuation and contingency plans	Provide shelter to displaced households	Set up rehabilitation projects for public goods	Prepare local risk maps and disseminate information
Community	Local leaders/representatives	Plan/implement awareness-raising campaigns	Solicit external technical assistance on DRM	Carry out awareness-raising campaigns	Act as advisory focal points	Promote improved technologies	Facilitate links and coordination between organizations
	Local emergency committees	Undertake hazard risk diagnosis	Undertake household vulnerability assessments	Prepare evacuation plans	Deploy search and rescue teams	Deploy food aid committees/teams	Advise how to reduce local vulnerability
	Local-level NGOs	Provide training to local CBOs	Undertake household vulnerability assessments	Conduct awareness raising campaigns	Deploy trainers on hygiene & health	Provide psychological counselling & support	Define local priorities to reduce vulnerability
	Micro-financial intermediaries	Undertake hazard risk diagnosis	Promote mitigation practices	Spread risk across portfolio	Undertake client damage assessments	Arrange loan rescheduling and other special activities	Integrate DRM in development activities
	Community-based organizations	Undertake hazard risk diagnosis	Maintain public infrastructure	Construct infrastructure to protect property	Tap customary solidarity networks	Mobilize communities for joint action	Provide moral support and advice

Figure 21 Examples of roles and functions of different levels and organizations along the DRM lifecycle (extracted from Baas et al., 2008).

### 3.4.1 Host and entry point to the arena: COOPI

The methodological choice of approaching areas of interventions required an initial stakeholder's analysis in both countries (actor and stakeholder identification, mapping, networks definition) and the sampling of sub-units (e.g., specific NGO or agency) to be involved in the interviews. Given the multitude of

organizations involved, the sampling process has been exploratory but not representative of the whole arena of intervention. First in Haiti and then in Guatemala, the access to the arena of intervention was supported by the Italian NGO COOPI, which hosted me and provided most of the initial information for sampling, identifying, and contacting interviewees.

The idea of approaching COOPI's country directors as entry contact points to the Haitian arena of interventions benefitted on this NGO past experiences with my university and supervisor and was initially motivated with its direct experiences in the field of DRR and DR preparedness activities. The first experience of data collection in Haiti brought me to get in contact with the Guatemalan office and to repeat an analogue experience there.

On both occasions, I am very grateful to COOPI's national equips for their availability and openness in hosting me, involving me in their work activities and daily lives, introducing me to colleagues and friends belonging to the arena of intervention, allowing, and facilitating my participation to meetings, conferences, and social events relevant to the research. Furthermore, this entry point to the arena enabled and shaped the data sourcing in many ways:

- supporting and informing the selection of key interviewees;
- providing access to relevant reports, projects material, evaluations etc.;
- giving explanations and context to certain elements, keywords and examples that emerged from interviews;
- allowing open discussions and confrontations regarding the research questionings, reflecting its usages and limits in relation to their work experiences and to their knowledge of the international agenda and donors' priorities;
- sharing personal reflections regarding constraints, mistakes, biases and limits of arenas' functioning.

### **How did the data collection go?**

Being COOPI a humanitarian organization, the subject selection and sampling started with, and has been biased to the humanitarian side of the arena. The initial approach involved local directors and DRM expert of NGOs and international agencies belonging to the humanitarian cluster in Haiti (*Cadre de Liaison Inter-Organisations*) and the Humanitarian Country Team in Guatemala (*Equipo Humanitario de Pais*). The contact with governmental agencies and development



aid organizations happened to a lesser extent, during conferences and meeting or thanks to the introduction, suggestion and contact of previous interviewees. Thus, for what concerns the DR blurred boundaries between humanitarian and development aid, speaking of roles, approaches, and timings of intervention, the collected understandings have been analysed here as a whole, considering both the peculiarities and the overlapping parts.

The understanding of DRC's status quo object of the research and presented in the following chapters is based mainly on personal experiences, perceptions and views (Voorst, 2019) emerged from conversations with locals and expatriates (among the interviewees, majority of western and foreign workers in Haiti and of national staff in Guatemala), belonging to nongovernmental and governmental entities of these arenas of interventions. The three periods of research on the field in Haiti (November-December 2018) and Guatemala (April-May 2019, February-March 2020) involved actors belonging to UN agencies, NGOs, and civil society organizations that had different levels and types of work experiences in the DRM and aid sectors.

In each country, there have been a dozen in-depth interviews, involving representatives and aid workers belonging to: donor (1 in Haiti), UN agencies (6 in Haiti, 1 in Guatemala), IFRC (1 in Guatemala), international NGOs (3 in Haiti, 10 in Guatemala), national NGOs (2 in Guatemala), governmental agencies (1 in Haiti, 3 in Guatemala), community-level organization (1 in Haiti, 1 in Guatemala), consulting agencies (2 in Guatemala).

Furthermore, during the experiences in Haiti and Guatemala, the choice of the arena of aid and DRM interventions as case study got me into a surprisingly fertile and active environment with stakeholders' meetings, events, workshops, and initiatives being carried out daily, allowing me to easily reach out and get in contact with most of the relevant actors as well as to follow current debates regarding recent interventions and ongoing crises. The main struggle has been to keep the coherence and the focus on the research questions despite the many emerging matters in such an enthusiastic debate and animated environment.

Finally, it should be noted that most of these actors have been working for different organisations both in these countries and around the world: generally, but not exclusively, French-speaking African Countries for those in Haiti and Latin American for the ones in Guatemala. This brought to my attention examples and reflections coming from western aid workers' personal experiences in other

geographical contexts, strengthening the potential to generalize such dynamics to analogues contexts.

### 3.5 Data collection and processing

Stated the arena of aid and DRM interventions as case study, coherently with the causal and interpretative empirical research questions, the analytical process relied on mixed methods for an explanatory case study. More specifically, the Disaster Risk Root Cause and Forensic investigation methodologies provided an analytical approach for tracing DRC processes: “a data analysis method for identifying, validating, and testing causal mechanisms within case studies in a specific, theoretically informed way” (Mills et al., 2010). To do so, the FORIN methodology (Oliver-Smith et al., 2016) provided different research approaches that constituted the adopted analytical process:

- a. Meta-analysis: which refers to the “systematic reviews of the available literature on a specific topic – event- or system-based – carried out to identify and assess consistent findings across diverse studies” (Oliver-Smith et al., 2016).
- b. Retrospective longitudinal analysis: providing “a historical narrative of risk construction – including in the analysis – processes of development planning, sectoral management, pre-disaster preparation and post-disaster recovery” (Oliver-Smith et al., 2016).
- c. Comparative analyses: “detailed, place-based analyses of several disaster events in order to more fully understand the differential contexts and processes that expose people and their assets to risk” (Oliver-Smith et al., 2016).

In both countries, the first and preliminary phases of data collection focussed on re-establishing the existing prolific contributions and widespread acceptance, in the academia, regarding DRC components and processes, and on cross-referencing them to DR assessments, projects’ reports, and policy documents produced by aid and DRM organizations.

This desk analysis of secondary sources aimed at approaching the local debate and setting references as for used terms, key authors, and the importance attributed to specific DRC factors. Besides the terminologies presented in the glossary table, different ones were encountered addressing and explaining the same DRC factors in French, Spanish and English, such as:

- Conditions leading to DR, construction, and social construction of DR;
- DR and vulnerability background, surroundings, multipliers, and aggravating factors;
- Vulnerability dimension, factors, determinants, approaches, derivations;
- Anthropogenic threats and risks.

Once new terminologies emerged, the policies, plans, programs, and projects review repeated so to include omitted inputs. The targeted documents included methodologies and guidelines for disaster risk assessment and evaluation, post-disaster need assessments, DR and environmental evaluations, mappings and assessments, humanitarian needs overview, civil protection and emergency plans, DRM, development and urban planning laws, policies, and plans (at national and departmental level), reports analysing specific catastrophes and assessing reliefs and recoveries.

Against the multitude of existing analysis acknowledging DRC ([b] in figure 22 below), the ambition of the interviews concerned the circulation, modernity, urgency, and relevance of these factors within perceptions, practices and governance of nowadays stakeholders. The initial idea of adopting the resulting DRC components as proxies for validating existing DR analysis and assessments, and for evaluating past and present plans and projects' achievements and effects, remains a valid research proposal but was not addressed, also due to the poor level of implementation and enforcement of this tools.

As resumed in Figure 22, after stating DRC as main [a] analytic lens, gathering the [b] existing analysis available, the dialogue and the interviews with stakeholders concerned each one's version and explanation on the most relevant DR driving forces ([c] DRC's status quo) and reflected on the challenges and successes in addressing them ([d] contribution to DRC).

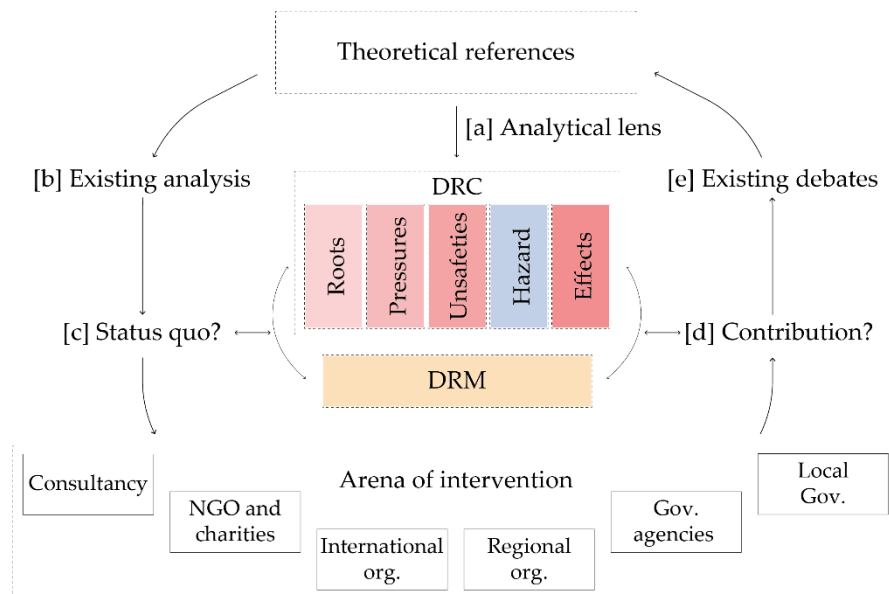


Figure 22 Research process and data collection steps

After reaching out to organizations representatives and DRM officers, interviews were conducted both on formal and informal occasions, were overall unstructured, and proceeded briefly presenting my research proposal and questions, my background, and the key theoretical references. This interviews' side of the data collection ([c-d] in figure 22 above), involved aid workers and disaster professionals in an open debate regarding the following key points:

- DRC acknowledgement and explanation;
- Understanding of historical, social, and economic causes behind local vulnerability;
- DR and vulnerability assessment methods;
- DRM measures, prioritization, and strategies of intervention;
- Challenges, limits, and unintended effects encountered.

Interviews were noted down schematically but intentionally not recorded, so to allow a more open and informal debate where interviewees could express freely, especially for blaming and complaining about anything. It is for the same reason that specific inputs have not been presented in the results with the identity of its interviewee. Interviews' insights and contribution have been clustered according to the different phases and dimensions of DRC, and, later on, they have been contextualized and further analysed through secondary sources desk analyses.

The collected causes, drivers, and conditions from reports, policy documents and interviews have been assembled, structured, and reordered according to DRC phases and dimensions, thus testing the adopted analytical lens (figure 16), attempting a certain level of accuracy and heterogeneity. This confirmed “conventional” DRC factors and drivers which have been analysed and clustered in three main vulnerability dimensions: political and institutional, environmental, physical and technical. Additionally, interviews’ analysis of DRC discourses and debates, required a secondary desk review of more academic articles, newspaper and books framing and contextualizing the DRC factors emerged ([e] in figure 22).

Once outlined the interconnections and causal relation among (and within) the different DRC phases and clusters, the research process focused on the identification of gaps, challenges, paradoxes, vicious cycles, counterproductive and unintended effects of aid and DRM interventions, practices, and policies. Reflecting on past crises and emergencies’ challenges and limits, a side-cluster of dynamics arose: the active but often unintended contribution of aid and DRM actions in exacerbating DRC processes. Attempting a deeper and more structured understanding of causes and interconnections of this side-cluster, existing academic debates (also [e] in figure 22) have also been review and framed as a term of reference.

### **3.6 Research’s challenges and biases**

The methodological choice of accounting subjective and non-objective points of view from aid and DR professionals, academics, and activist, regarding their knowledge, culture (Cannon et al., 2014), memory (Dollfus & D’Ercole, 1995), perception (Wachinger et al., 2013) of DRC, implicitly accepted the challenge of assembling biased, incomplete and asymmetric (Comfort et al., 2010) information. The effort of reconnecting the dots of the DRC debate, while building explanations on its usage and urgency, was diffculted by the political and ideological backgrounds behind each interpretation, by the faults and blames attributed to different actors, the role and contribution to DRC of interviewees themselves and by the so-called hallucinations of the “façade of a shared language” (Bankoff & Hilhorst, 2009): often at first, dialogues were biased because of each one’s understanding of certain DRM terminologies and concepts.

Concluding, besides the theoretical challenges underlying this methodological approach, the research has been challenged by my hybrid and ill-defined positioning:

- overly theoretical background lacking practical experience on the aid and DRM field, and therefore lacking term of comparison to assess the research's performance;
- unclear volunteer/guest condition at COOPI, biased by high expectations on the arena of intervention on one side, and by watchdog ambitions on the other;
- for the Haitian experience, poor and very basic understanding of French, and totally lacking one of the Haitian Creole, which impeded in depth discussions with non-English speaker local professionals;
- interviewees' selection biased by the snowball sampling, supported by COOPI's directors, of high-level stakeholders;
- data collections on the field have been relatively short and, also due to the COVID-19 pandemic, did not follow further up with in depth interviews and discussions, as initially planned;
- collected perspectives and understanding of DRC were often western-centred and not local enough, especially in the highly international environment of the aid arena;
- in retrospective, the same methodology and analytic process could have applied for better known and more easily accessible Italian contexts experiencing multiple and recurrent catastrophes.



## **Chapter 4**

# **The Haitian experience: understanding and framing the Disaster Risk Creation debate**

### **4.1 Introduction**

After the 2010 earthquake in Haiti, many authors have been highlighting, from different perspectives, causes and driving forces of its catastrophic outcome: more than 300.000 deaths, 200.000 injured, millions displaced, and 70% of its Capital's built environment destroyed. Two key counterpoints recur in the literature stressing the importance of understanding DRC processes in Haiti: on one side France's "odious debts" (Klein, 2010), Western embargos and U.S imperialist (Schuller, 2016a) interferences that have been punishing, burdening, and



impoverishing Haitian economy from 1804 independence and world's first black republic (Oliver-Smith, 2010) onwards. On the other hand, the starkly different outcomes, in terms of human losses, of two other earthquakes that hit New Zealand and Chile on that same year are compared to what happened in Haiti: in September 2010 a similar magnitude and similar proximity to an urban centre earthquake occurred near Canterbury, New Zealand (Schuller, 2016a) without casualties; at the end of February on that same year a magnitude 8.8 earthquake, approximately 500 times more powerful but farther in epicentre's depth and location from densely populated areas (Oliver-Smith, 2010; Schuller, 2016a), killed more than 500 people in Chile. Comparing these earthquake-prone Countries, the highlighted discriminating factors refer to preventive measures, preparedness and enforced seismic-resistant building codes embedded in very different development processes. Against this, Haiti has been referred to (and stigmatized) as a failed and fragile State with a crippled and dependent economy that resulted from skewed development paths.

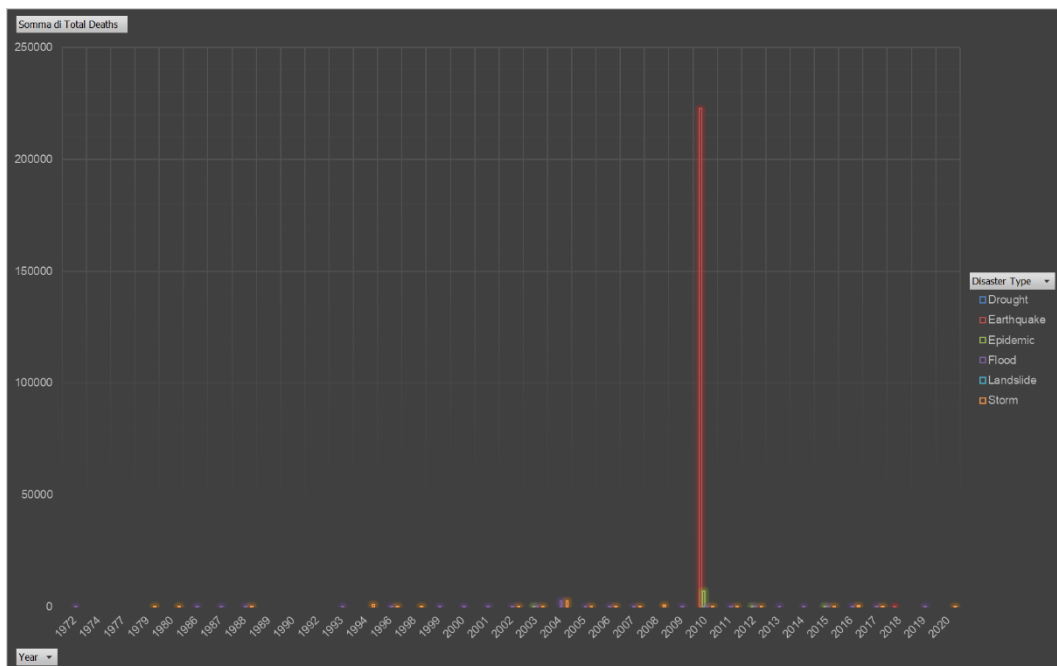


Figure 23 The disproportionated effects in terms of human losses of the 2010 earthquake – a graph showing deaths accounts from 1972 to 2020 per disaster type in Haiti, data source Emergency Events Database (EM-DAT).

Following the adopted analytical lens presented in the methodology, in this chapter are assembled explanations and contributions from interviews, academic and policy documents, with different level of detail, stressing different responsibilities along with the phases of DR and vulnerability construction. This is quite a delicate analytical process as, depending on the stresses and the blames on who and what is reliable for creating DR, different and opposing approaches of intervention have been, are and may be justified. In the Haitian context this laid the ground for international political debates and condemns regarding decades of imposed neoliberal structural policies, NGOs and UN missions permanent establishment, and to the consequent call for reparations for the burdening colonial and post-colonial legacies (Klein, 2010).

### **An overview of Haitian DR**

In addition to the seismic-related threats, Haiti is periodically severely concerned by hydrometeorological events, namely tropical storms, hurricanes, and droughts; in the graphs figured below an overview of the hundred thousand affected people accounts of the past fifty years. These intensive and extensive events trigger secondary and cascading disasters throughout the country, i.e., floods, landslides, mudslides, soil erosion, desertification, diseases, and famines. The specific Haitian condition of extreme poverty and vulnerability cumulated major losses and impacts, often underestimated, along the history of hazardous events hitting the Caribbean. Compared to the neighbouring islands States, especially to Cuba, Haiti occupies seven out of the ten worst events in terms of life losses, with two of the remaining being of the Dominican Republic (source Emergency Events Database - EM-DAT referring to the 1970-2020 period).

## I. Affected population

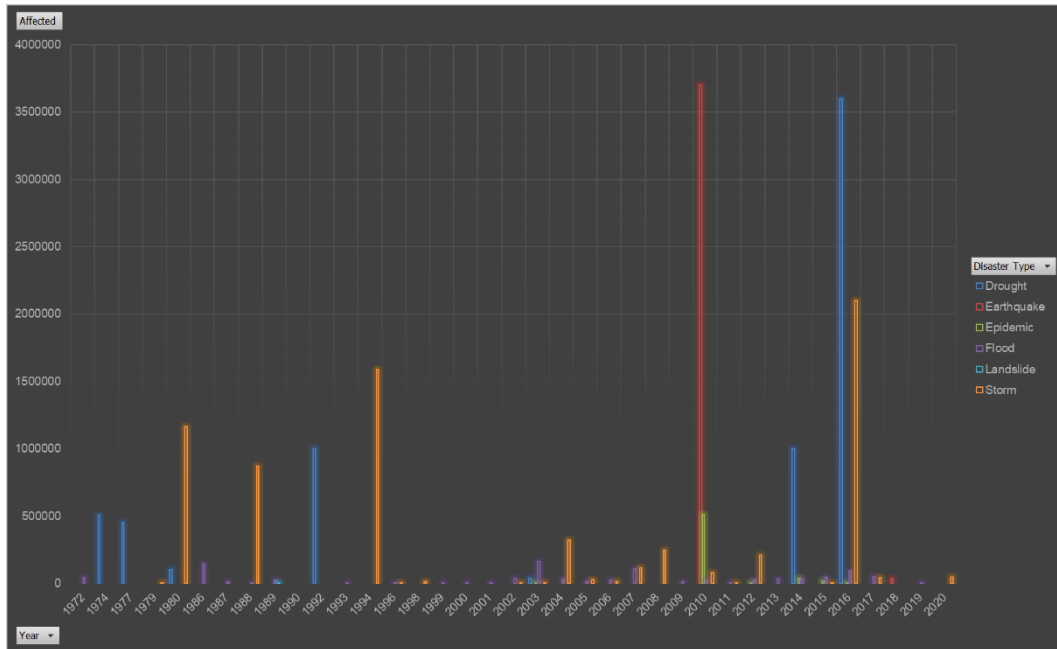


Figure 24 Graph showing total affected people accounts from 1972 to 2020 per disaster type, in Haiti - data source Emergency Events Database (EM-DAT).

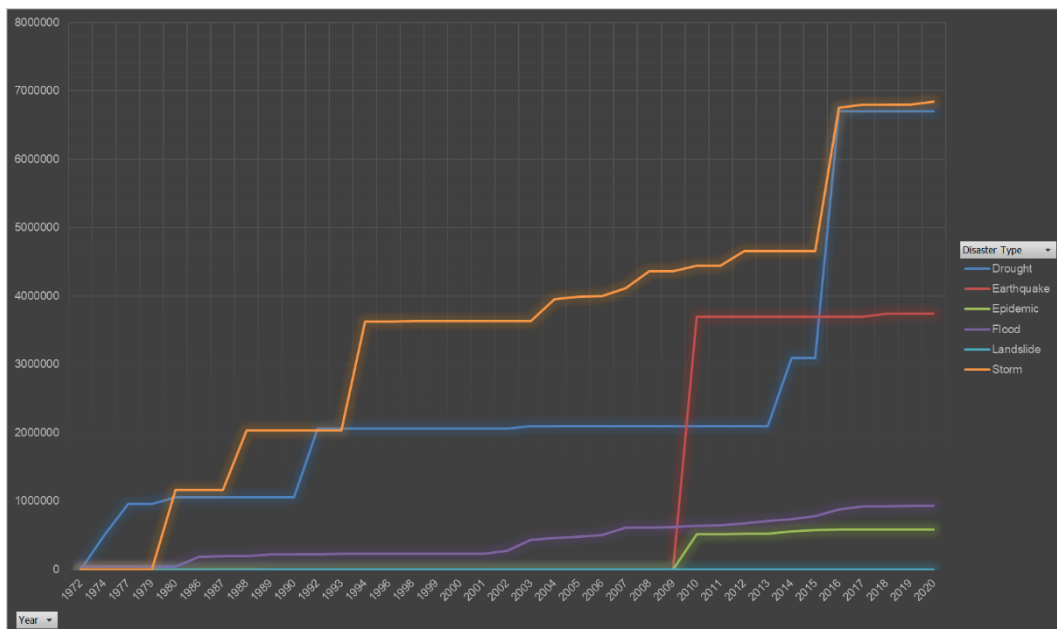


Figure 25 Graph showing cumulated sums of totally affected people accounts from 1972 to 2020 per disaster type, in Haiti - data source Emergency Events Database (EM-DAT).

## II. Major events

Table 3 List of major catastrophic events, affecting a total of at least 1000 people, from 1972 to 2020 in Haiti - data source Emergency Events Database (EM-DAT).

Year	Disaster Type	Disaster Subtype	Event Name	Tot. Deaths	Tot. Affected
1972	Flood			78	40000
1974	Drought	Drought			507000
1977	Drought	Drought			450000
1979	Storm	Tropical cyclone	David	8	1110
1980	Storm	Tropical cyclone	Allen	220	1165000
1986	Flood	Riverine flood		69	45000
1988	Storm	Tropical cyclone	Gilbert	54	870000
1980	Drought	Drought			103000
1986	Flood			79	98860
1987	Flood			33	5150
1987	Flood				3000
1988	Flood			15	1001
1988	Flood				2500
1989	Landslide	Landslide			1060
1989	Flood				24725
1992	Drought	Drought			1000000
1993	Flood	Riverine flood		13	5000
1994	Storm	Tropical cyclone	Gordon	1122	1587000
1998	Storm	Tropical cyclone	Georges	190	12029
2000	Flood			12	1200
2001	Flood	Riverine flood		26	5081
2002	Flood	Flash flood		31	38339
2003	Flood	Riverine flood		38	150000
2003	Drought	Drought			35000
2003	Flood	Flash flood		24	12070
<b>2004</b>	<b>Storm</b>	<b>Tropical cyclone</b>	<b>Jeanne</b>	<b>2754</b>	<b>315594</b>
2004	Storm	Tropical cyclone	Ivan	3	6500
2004	Flood	Riverine flood		2665	31283
2005	Storm	Tropical cyclone	Alpha	12	2192
2005	Storm	Tropical cyclone	Hurricane "Dennis"	40	15036
2005	Flood	Riverine flood		11	11500
2005	Storm	Tropical cyclone	Stan	1	10000
2005	Flood			6	2500
2006	Storm	Tropical cyclone	Ernesto	5	15000
2006	Flood	Coastal flood			4690
2006	Flood	Flash flood		11	20010
2007	Flood	Riverine flood		14	15014
2007	Flood	Riverine flood		2	12500
2007	Storm	Tropical cyclone	Dean	9	3966
2007	Storm	Tropical cyclone	Noel	90	108763
2007	Storm	Tropical cyclone	Olga	3	2352
2007	Flood	Riverine flood		4	1500
2007	Flood	Riverine flood		41	75947
2008	Storm	Tropical cyclone	Hurricane "Gustav"	85	73006
2008	Storm	Tropical cyclone	Hurricane Hanna	529	48000
2008	Storm	Tropical cyclone	Hurricane Ike	74	125050
2009	Flood	Riverine flood		11	9910
2009	Flood	Riverine flood		10	2500
2010	Flood	Riverine flood		27	22085
2010	Storm	Convective storm		6	73122

2010	Storm	Tropical cyclone	Hurricane Tomas	21	5020
<b>2010</b>	<b>Earthquake</b>	<b>Ground movement</b>		<b>222570</b>	<b>3700000</b>
2010	Epidemic	Bacterial disease	Cholera	6908	513997
2011	Flood	Riverine flood		34	2358
2011	Storm	Tropical cyclone	Hurricane Irene	2	1544
2011	Flood	Riverine flood		2	2080
2011	Storm	Tropical cyclone	Tropical storm "Emily"	1	1500
2012	Storm	Tropical cyclone	Hurricane Sandy	75	201850
2012	Flood	Riverine flood		9	11000
2012	Flood	Riverine flood		16	7600
2012	Flood	Riverine flood		17	7865
2012	Storm	Tropical cyclone	Hurricane Isaac	13	8007
2012	Epidemic	Bacterial disease	Cholera	21	2224
2012	Epidemic	Bacterial disease	Cholera	29	3593
2013	Flood	Riverine flood		6	33265
2014	Drought	Drought			1000000
2014	Flood	Flash flood		12	30000
2014	Epidemic	Viral disease	Chikungunya virus		39343
2015	Storm	Tropical cyclone	Hurricane Erika	5	1969
2015	Flood	Riverine flood		6	45000
2015	Epidemic	Bacterial disease	Cholera	170	20000
2016	Flood	Riverine flood		13	2782
2016	Flood			6	22070
2016	Flood			1	18373
2016	Drought	Drought			3600000
2016	Flood	Riverine flood		5	48280
<b>2016</b>	<b>Storm</b>	<b>Tropical cyclone</b>	<b>Hurricane Matthew</b>	<b>546</b>	<b>2100439</b>
2016	Epidemic	Bacterial disease	Cholera		6096
2016	Flood			5	3000
2017	Flood			5	50000
2017	Storm	Tropical cyclone	Hurricane 'Irma'	1	40092
2018	Earthquake	Ground movement		17	39336
2019	Flood	Flash flood		6	1325
2019	Flood			8	3108
2020	Storm	Tropical cyclone	Hurricane 'Laura'	39	44175

### III. Mapping DR – existing efforts

As of 2016, the Atlas of natural hazards in Haiti (Stollsteiner et al., 2017) accounted for and took into consideration 36 different projects and initiatives (figure 26) mapping DR at the national, departmental and local scale, considering specific single threats as well as multi-hazards evaluations. As mapped in figure 27, in this Country there are nearly no safe areas to inhabit, and main cities lie on geological fault lines, in coasts prone to cyclones and tsunamis.

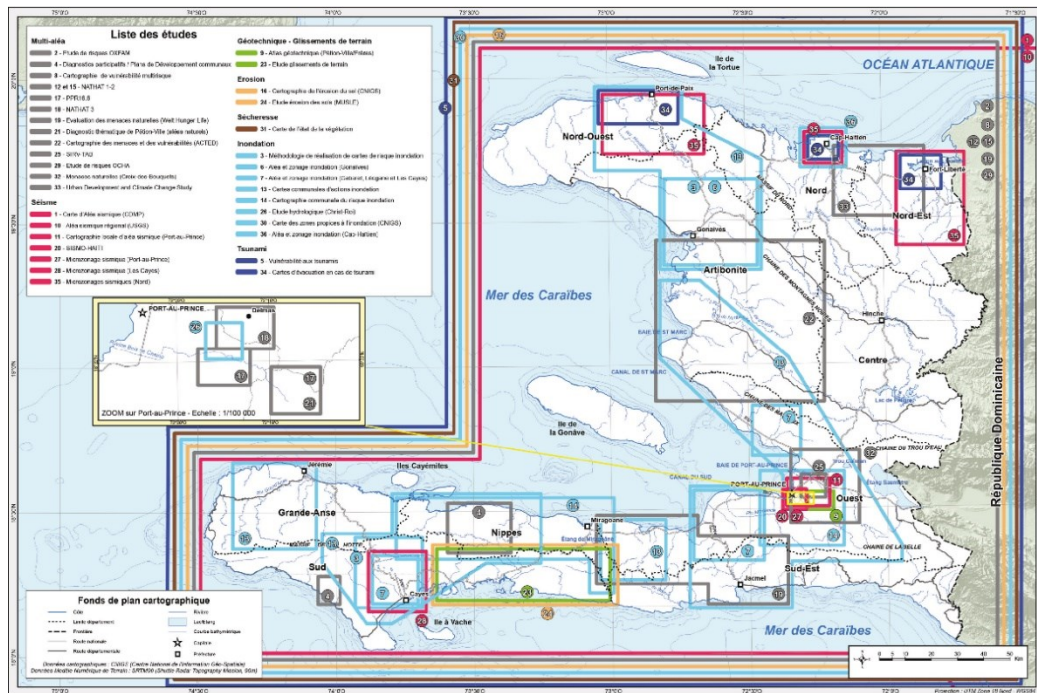


Figure 26 Main existing analysis and mapping of DR in Haiti as of 2017 (Stollsteiner et al., 2017).

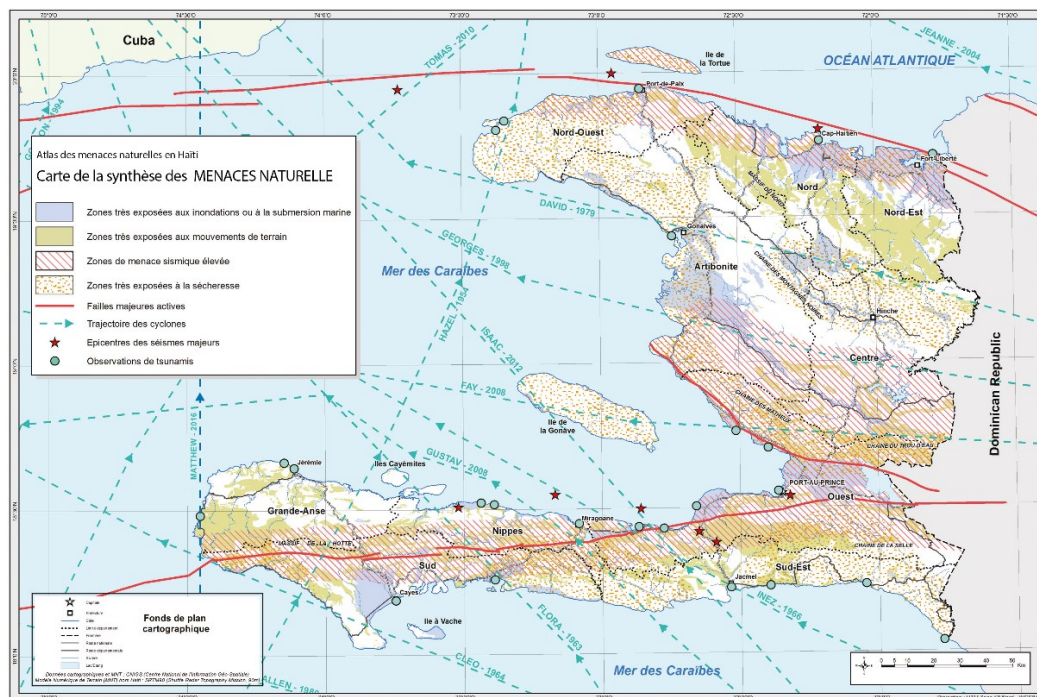


Figure 27 Synthesis map of major threats in Haiti as of 2017 (Stollsteiner et al., 2017).

## 4.2 Framing DRC's dimensions in Haiti

### Data sourcing: perspectives and existing contributions on DRC processes

What follows is a resuming table of the reviewed existing contribution describing and discussing DRC components, explained featuring different keywords such as sources of fragility, foundations of a disaster, underlying risk factors, vulnerability factors, DR multipliers etc.

Most of the documents were retrieved through a snowball sourcing, started from contributions encountered in the general literature review (Oliver-Smith, 2010; Oliver-Smith et al., 2016; Witting, 2013), and from interviewees' suggestions and keywords. Particularly because of the keyword dependency of this context-specific literature review, interviews with stakeholders and participant observations in Haiti have been of paramount importance for an initial outline of recurring term, key concepts, well-established references, ongoing debates among aid workers and within the arena of intervention.

Table 4 Reviewed contributions describing and discussing Haiti's DRC components.

Source	Authors	Terms, explanations, and components of DRC
Feeding dependency, starving democracy: USAID policies in Haiti: 1997 Executive summary - Grassroots International	(Richardson, 1997)	Dependency and negative impacts of US policies in Haiti
Cartes et étude de risques, de la vulnérabilité et des capacités de réponse en Haïti – OXFAM	(Mathieu et al., 2003)	Conflicts and crisis
Why Foreign Aid to Haiti Failed—and How to Do it Better Next Time	(Buss & Gardner, 2005)	Governmental failures and aid ineffectiveness
Social Resilience and State Fragility in Haiti: Breaking the Conflict-Poverty Trap	(Verner & Heinemann, 2006)	Components of the conflict-poverty trap
Plan d'action national d'adaptation, République d'Haïti	(Haïti - Ministère de l'environnement, 2006)	Anthropogenic pressures on the environment
Haiti : La catastrophe n'était pas naturelle.	(Gilbert, 2008)	No natural disaster but disastrous choices against the Nation
Gluings Globalization: NGOs as Intermediaries in Haiti	(Schuller, 2009)	NGOs as driving agents of dependency and institutional vulnerability
Vulnerability and causes of fragility in Haiti.	(Gauthier & Moita, 2010)	Root causes of fragility

Haiti's Disproportionate Casualties after Environmental Disasters: Analyzing Human Vulnerabilities and the Impacts of Natural Hazards	(Felima, 2009)	Jeopardies of Haitian vulnerability – Disaster risk factors
Multiple jeopardies of Haitian vulnerability. How socio-economic and political factors exacerbate environmental hazards in Haiti	(Felima, 2010)	Jeopardies of Haitian vulnerability – Disaster risk factors
Haiti and the historical construction of disasters	(Oliver-Smith, 2010)	Historical construction of vulnerability and disasters
Haiti: A Creditor, Not A Debtor	(Klein, 2010)	Sources of Haitian's debts, i.e., roots causes
Denaturalizing “natural” disasters: Haiti's earthquake and the humanitarian impulse	(Pinto, 2010)	Key determinants of the level of devastation; Foundations of a disaster
Disasters should not be the protagonists of Disaster Risk Management	(Mora Castro, 2010)	Disasters products of human vulnerability
Haiti Earthquake PDNA: Assessment of damage, losses, general and sectoral needs – World Bank	(World Bank, 2010)	Vulnerability factors; Links between poverty, environment, and vulnerability to disasters
Haiti Earthquake Response. Context Analysis – ALNAP	(Rencoret et al., 2010)	Political, economic, and social context
Analysis of Multiple Natural Hazards in Haiti – NATHAT	(Mora Castro et al., 2010)	Vulnerability and its aggravating factors
Disaster capitalism to the rescue: The international community and Haiti after the earthquake	(Dupuy, 2010)	History of Haiti's political and economic dependence
Anatomy of a Haitian tragedy: When the fury of nature meets the debility of the state	(Gros, 2011)	Logic, mechanisms, and consequences of institutional failure
Haiti 2010 earthquake — How to explain such huge losses?	(Hou & Shi, 2011)	Sources of fragility; Type of vulnerability; Factors of vulnerability; Fragilities
Earthquake, humanitarianism and intervention in Haiti	(Vorbe, 2010)	Historically constituted “social” nature of the disaster
The Haiti Earthquake: a disaster set apart from others?	(Mowat, 2011)	Symptoms and causes of socially constructed disasters
A man-made disaster: The earthquake of January 12, 2010 — A Haitian perspective	(Bellegarde-Smith, 2011)	Competing perspectives on faults and blame behind Haitian DRC
Analyse des menaces naturelles multiples (MULTIMENHAS-2) en Haïti. Étape 2: reconstruction des quartiers.	(Mora Castro, 2012)	Conditions leading to disasters; Socio-economic and environmental aspects of vulnerability
What is the Vision for Sheltering and Housing in Haiti? Summary Observations	(Davis, 2012)	Recovery evaluation - negative factors of insufficient and failed recovery
Rising from the Wreckage: Lessons Learned from the 2010 Haitian Earthquake Response	(Hook, 2012)	Compounded vulnerabilities
A Critical Review of Haiti Earthquake	(Martin et al., 2012)	PAR Model



of 2010: Key Development Problems and Focused Solutions		
Humanitarian Assistance in Gonaïves after Hurricane Jeanne. <i>Tectonic Shifts: Haiti Since the Earthquake</i>	(Beauvoir-Dominique, 2012)	Ineffective relief and recovery
Haiti and Catastrophes: Lessons not learned. <i>Tectonic shifts: Haiti since the earthquake</i>	(Etienne, 2012)	DR drivers as structural crisis
Assumptions and exclusion: coordination failures during the emergency phase	(Miles, 2012)	Ineffective relief and recovery
Tectonic shifts: Haiti since the earthquake	(Schuller & Morales, 2012)	Vulnerability to disasters, Disaster Capitalism
Justice, Charity, and Disaster Relief: What, If Anything, Is Owed to Haiti, Japan, and New Zealand?	(Valentini, 2013)	Roots of poverty and vulnerability
Detecting Disaster Root Causes – A Framework and an Analytic Tool for Practitioners –German Committee for Disaster Reduction DKKV	(Witting, 2013)	Root causes and risk drivers
The Historical Roots of Haiti's Unnatural Disaster	(Barr, 2013)	Historical origins and social and economic roots
Beyond Good Intentions: The Structural Limitations of NGOs in Haiti	(Edmonds, 2013)	Construction of a failed state, socioeconomic divides, aid dependency
Population Density and Housing in Port-au-Prince: Historical Construction of Vulnerability	(Tobin, 2013)	Nature of Haitian vulnerability
Concern's Approach to Disaster Risk Reduction: Haiti	(Clark-Ginsberg, 2014)	Causes of disasters
Plan de contingence - 2014 - Departement du Sud-Haiti	(SNGRD, 2014)	Vulnerability factors
Integrated Research on Disaster Risk. The FORIN Project: Understanding the Causes of Disasters.	(Oliver-Smith et al., 2016)	Root Causes and Risk Drivers
"Haiti's unnatural disaster: Neoliberalism." In <i>Humanitarian Aftershocks in Haiti</i>	(Schuller, 2016a)	PaR Model
'The tremors felt around the world': Haiti's earthquake as global imagined community.	(Schuller, 2016b)	Understandings of DR
Haiti: NGO's Republic	(Lee, 2016)	Dimensions of the Haitian complexity in relation to disasters and NGOs presence
Hurricane Matthew is just the latest unnatural disaster to strike Haiti	(Von Meding & Forino, 2016)	DR as socially constructed, root causes in colonial history and structural injustice
Root causes of Haiti's vulnerability	(Catsburg, 2016)	PAR model
Country document for DRR, Haiti, 2016 - Document Pays Haïti	(Joseph et al., 2017)	Degradation of the physical environment, Underlying risks

Disaster narratives of flood experiences in Cap-Haitien, Haiti: An anthropological study	Crystal Andrea Felima	Capitalist Dynamics of Disaster Risk in Haiti Contextualizing Trash and Waste
Production of Disaster and Recovery in Post-Earthquake Haiti	(Svistova & Pyles, 2018)	Production of disaster, PAR model
Land without rest – fault lines in Haitian soil (Book summary of “Grond zonder rust breuklijnen in Haitiaanse bodem”)	(Catsburg 2019)	DRC as social fault lines
Humanitarian aid and local power structures: lessons from Haiti's ‘shadow disaster’	(Hsu & Schuller, 2020)	History of centralisation as the root of rural vulnerability and of minimal response
Plan national de gestión des risques de desastre 2019 - 2030	(Ministère de l'Intérieur et des Collectivités Territoriales, 2019)	Vulnerabilities to be reduced

Besides the vast and already structured academic production on the topic, references to the components underlying DRC, although less systematically, emerged also from plans, policy documents, and projects reports. As happened for the international agenda, DRC factors are often stated as unsolved problems and unmet challenges too complex for DRM to address and overcome.

Furthermore, this first experience of data collection within the arena opened a dialogue that had some kind of therapeutic effect: interviewed aid workers shared reflections and dilemmas regarding the barriers that impede an effective reduction of DRC processes. Interviews highlighted an overconcentration of funds, projects and interventions for emergency preparedness, relief, and recovery, implicitly admitting difficulties and failures in addressing DRC in the long term. This result though is partially biased due to a preponderance of interviewees pertaining to the humanitarian world but has been substantiated, on several occasions, by more general articles and books on the topic. The main problematic aspects related to funding destination and mechanisms, project's design and assignment, fragmented adoption and implementation of regulations and plans, ineffective coordination among all the actors involved, opacity in the definition of priorities and strategies.

The difficulties and counterproductive mechanisms produced from the aid and DRM apparatus result in strengthening or even creating new vulnerabilities and exposures to DR. Looking at the past decades of overlapping catastrophes and humanitarian crisis, the sections below present the emergence of this new layer of DRC, investigated and recomposed side by side to the other phases and dimensions already foreseen in the analytical lens: root causes, risk drivers, unsafe conditions, effects on the hazard and on disasters aftermaths.

### 4.2.1 Root and underlying causes

The root causes of Haiti's vulnerability to disasters have been thoroughly outlined by the anthropologist Mark Schuller, who following the Pressure and Release (PAR (Blaikie et al., 2004)) model structure, set the starting point on the violence, brutality and environmental degradation behind colonial Caribbean plantations and slave systems (Schuller, 2016a): "By the end of the 18th century, the colony's African slaves were producing 40% of all the sugar and 60% of all the coffee consumed in Europe" (Oliver-Smith, 2010). This originated two competing elite populations: the Bossale (born in Africa) black military elite and the Creole (island-born, descendants of the plantation system/violence) "mixed-race mercantile elite" (Schuller, 2016a). Even after the independence, following colonial bad habits, "State leaders were called a "kleptocracy" (Lundahl 1989; Rotberg 1997) or a "predatory" republic (Fatton 2002; Lundahl 1984)" (Schuller, 2016a) supporting Creole urban elites and excluding the poor rural majority.

After revolts and revolutions and the 1804 Haitian declaration of independence, mulatto elites negotiated and accorded an indemnity (in 1825) to France to compensate for the "loss of slaves" and land. It took 122 years and several loans for Haiti to pay back this "odious debt" (Klein, 2010) of 90 million golden francs, draining its revenues and missing the opportunity of building infrastructures, economic activities and a functioning state: "When "the West" was industrializing, building railroads and later roads, telegraph, and telephone lines, and modern irrigation and sewage systems with the surplus generated in part by colonialism and slavery, Haiti was forced to pay up to 80 per cent of its public revenue to service this debt" (Schuller, 2016a). Debt obligations affected and drove extractive activities, especially coffee and sugar cane mono-crop plantations, which further impoverished and degraded the environment through a progressive complete deforestation.

In the context of Caribbean plantations, the independence of a colony has been inconvenient and "unthinkable" (Schuller (2016a) quoting Trouillot) for western countries fearing for other slaves to follow the Haitian example. As a sort of form of punishment and control, U.S. interfered with Haitian politics and governments throughout the eighteenth and nineteenth centuries with 26 invasions between 1849 and 1915 and the 1915-1934 occupation (Chomsky, 2011; Schuller, 2016a; Vorbe, 2010). Schuller stressed U.S. occupation's responsibilities in rooting three DRC driving forces: opening Haitian lands to foreign ownerships,

centralizing economic and political power in Port-au-Prince to the detriment of rural areas, and accelerating urbanization without the needed infrastructures (Schuller, 2016a).

Both U.S. occupation and the following nearly 30 years of U.S. endorsed dictatorship of François “Papa Doc” Duvalier and his son “Baby Doc” accumulated greater debts to foreign lenders setting the stage for what has been called the “Devil’s Bargain” (Schuller, 2016a): the push for neoliberal policy measures from International Financial Institutions (IFIs) in exchange for new debts, military, and economic aid. Three well-known scandals arise from IFIs imposed structural adjustment programs and reforms in Haiti in the 70s:

- The lowering of tariffs and restrictions for imported subsidized foreign goods, rice above all (Richardson, 1997). This brought Haitian internal rice production to decline and to the failure of this agricultural sector while the country became one of the largest U.S. rice surplus importers in the world. Rice, grains, and food imports in general, raised in prices to unsustainable levels even after the 2010 earthquake with consequences in terms of malnutrition, currency devaluation and dependency on global finance prices fluctuation (Barr, 2013).
- Another catastrophe originated from USAID (United States Agency for International Development) pressures on Duvalier for the slaughter of all of Haiti’s Creole pigs to limit the spread of the swine flu virus (Oliver-Smith, 2010) which constituted a “stock market crash” (Schuller, 2016a) for most Haitian families and furtherly impoverished and dispossessed farmers (Dupuy, 2010).
- At the same time, Haiti’s “abundant supply of unskilled, low-wage workers” (Dupuy, 2010) attracted foreign industrial investments for its “proximity to the U.S. market; its lack of foreign exchange controls and other kinds of government interference; its policies allowing the free circulation of the U.S. dollar; its tax incentives with exemptions on income and profits; and its tariff exemptions on imported raw materials, machinery, or other inputs used in the assembly industries” (Dupuy, 2010). On top of this, IFIs pushed for Haiti to keep low wages in order to offset bureaucratic and political risks (Dupuy, 2010), turning the country into one of the world cheapest labour suppliers, the site for offshore textile plants attempting the creation of the “Taiwan of the Caribbean” (Barr 2013).

Because of tax exemptions and the incentives supporting them, these export-oriented policies had little positive effects for the government and local economy and ended up transferring wealth outside the country to foreign investors, “in sum, the assembly industry drained more foreign exchange than it brought in” (Dupuy, 2010). These decades of neoliberal policies are blamed to be responsible for cementing Haitian political and economic dependence (Dupuy, 2010). Historical admissions of guilt have been made by Bill Clinton, USAID, and the World Bank for the negative and hindering effects of their imposed structural adjustments. Despite that, the relief strategies for economic development after the 2010 earthquake have been nearly identical (Dupuy, 2010) to those of the past.

Marginalized countryside, agricultural decline and industrial investments, compounded of the consequent poor school and health state spending in rural areas, resulted in the mass migrations to Port-au-Prince, which expanded in a “monstrous” urbanization (Schuller, 2016a): 150.000 inhabitants in 1950, 732.000 in the early 1980s, and to about 3 million in 2008 out of the 9.8 million Country’s total (Dupuy, 2010). The deforestation continued in rural areas as well as growing slums as a source of cheap building materials and charcoal. To give an idea of the relevance of these factors underlying DR, after “US dumped its subsidised surplus” of rice in Haiti following these economic reforms “[t]ens of thousands of rice farmers were forced to move to the jerry-built slums of Port-au-Prince” relocating them straight into what would become the 2010 disaster zone” (Barr 2013).

The discontent, protest and riots against inflation and government’s austerity measures brought the country to decades of political instability and internal violence in what has been defined as a fragile state (Gauthier & Moita, 2010).

The Haitian state, often taken as the centre of blame for DRC, has been described as failed (Edmonds, 2013; Oliver-Smith et al., 2016), fragile (Gauthier & Moita, 2010), as the victim of an imposed failure because of the nature of its birth (the slave revolt against the ruling world powers (Barr 2013)). This ‘failed state’ has been maintained by state, local elites and foreign agencies’ collusive “*ménage-à-trois*” (Hsu & Schuller, 2020; Schuller, 2007).

In sum, the heritage of the colonial system, a state serving elites’ interests and foreign powers influence in Haiti’s domestic affairs, constituted the historical roots and underlying causes behind vulnerability creation and consolidation. What

follows are three of the clusters of dynamics that resulted from these processes, dimensions of DRC that Catsburg (2016) calls “interdependent fault lines” and Felima (2009, 2010) refers to as “Haitian Jeopardies”.

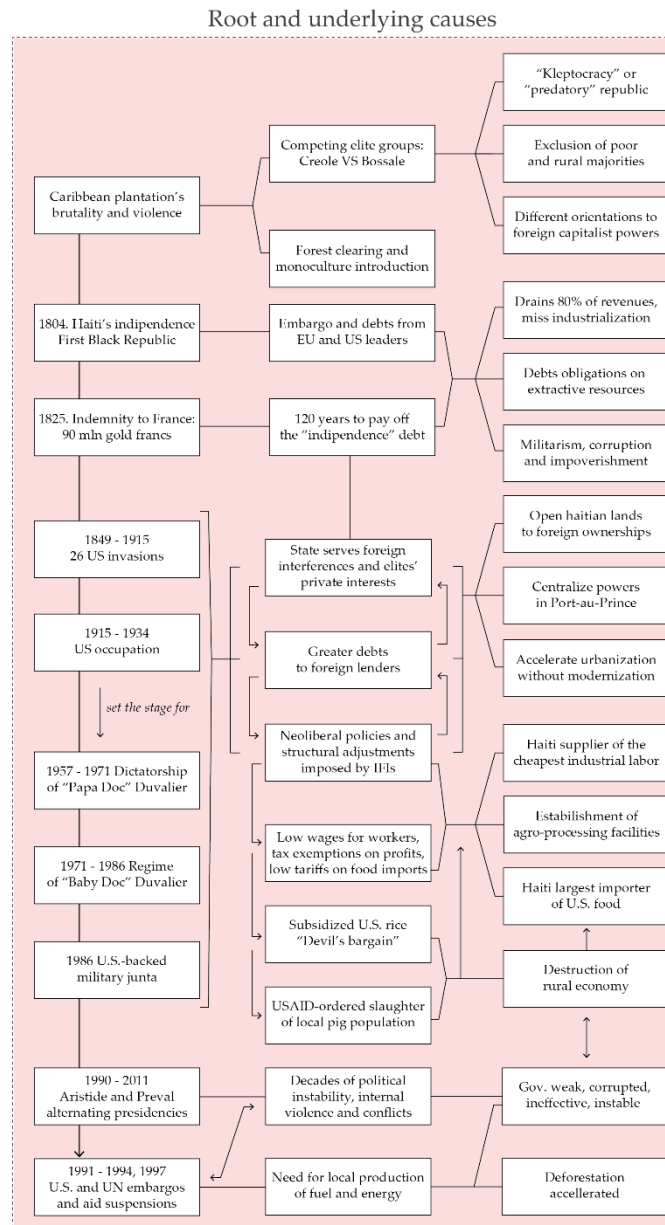


Figure 28 Historical roots and underlying causes of DRC

#### 4.2.2 Political and institutional dimension

After centuries of colonialism, exploitation, debts, foreign interferences, Haitian political history and state apparatus have been characterized as unstable, paternalistic, corrupted, repressive, violent (Felima, 2010), highly centralized and serving elites' private interests. This political environment brought to many presidents assassinated, overthrown, resigning or obstructed by the U.S. as well as to military juntas, dictatorships and attempts to it, internal dissent between president and parliament, popular uprisings, political murders, and mass killings ((Felima, 2010) quoting (Buss & Gardner, 2005)).

Due to the political instability, internal violence and conflicts, there have been repeated waves of mass migrations to the US, Canada and the Dominican Republic, the so-called Haitian diaspora (a quarter of Haitians live outside the country - (Gauthier & Moita, 2010)). Major consequences affected state's capacities on one side, brain drained of professionals, and the national economy on the other, with a large part of the population heavily reliant on migrants' remittances (Gauthier & Moita, 2010). After past centralization of powers in Port-au-Prince, governmental and institutional structures, public offices, banks, industries and higher education schools disproportionately concentrated in the capital, with an estimate of just 1% of the national budget leaving the central department (Hsu & Schuller, 2020).

What resulted has been defined as a fragile state (Gauthier & Moita, 2010), i.e., a government lacking the political will, leadership, and institutional capacity to provide basic services, strategic public policies, and a long-term vision for a sustainable development. A weakness manifested, when facing DR related emergencies and recoveries, by an ill-preparedness and malfunctioning government heavily relying on international assistance and intervention. The missing legal framework and weak law enforcement applied also for the inefficient, inadequate, and non-functional national DRM plan (Felima, 2010) adopted, on paper, before the 2010 earthquake.

Since the 70s (Schuller & Morales, 2012), in the declared effort of breaking vicious cycles of poverty and violence and to implement governance reforms, a multitude of international organizations and NGOs established permanently as the main side of national institutions in decision-making processes, a phenomenon that some Haitians saw as a violation of their basic state sovereignty (Gauthier &

Moita, 2010). Already before the 2010 quake, there have been several decades of foreign involvement, supported by UN military Stabilization Missions (MINUSTAH), attempting to secure the political situation and to face the recurring crises.

The establishment of international organizations and the substantial importance of external resources for the national budget, further amplified Haiti's dependency on foreign funding, priorities, and to the threat of aid suspensions and cutbacks. Before the 2008 storms/hurricanes and 2010 earthquake, Buss and Gardner (Buss & Gardner, 2005) explained aid ineffectiveness in Haiti (referring to the 90s) as the result of different drivers linking (a) the malfunctioning and weak national government to (b) foreign "intrusive paternalism" (Bellegarde-Smith, 2011) and donor mechanisms.

From the government side, national institutions lacked the capacity in administrating aid, and the ownership of foreign programs, usually having little to say on how to allocate funds, lacking coordination even within the government (Buss & Gardner, 2005; Gauthier & Moita, 2010). In sum, in an already unstable governmental context, aid funds did not necessarily correspond to Haiti's needs or priorities (Gauthier & Moita, 2010), and the resulting dependency discouraged national actors from taking responsibility (Gauthier & Moita, 2010) for development processes, both damaging their legitimacy in the face of citizens.

On the other side, donors and international organizations have been reluctant to directly fund the Haitian government because of its instability and corruption levels (Gauthier & Moita, 2010) and failed to prioritize and address such governance and political weaknesses (Buss & Gardner, 2005). NGOs have been declaredly preferred as key funding carriers and implementing actors since the 70s, to the point, e.g., of US forbidding funding the Haitian Government in 1995 to boycott the Aristide presidency (Schuller & Morales, 2012).

The following key factors underlying and manifesting aid ineffectiveness outlined by Buss and Gardner, ahead of time to the earthquake (Buss & Gardner, 2005), correspond with those highlighted from interviewees after a decade of relief and recoveries:

- Aid suspensions and cutbacks, depending on the Haitian political situation and on the related U.S. pressures.



- Inappropriate and counterproductive conditionality, i.e., funding tied to the fulfilment of donors-driven agendas, goals, and criteria; Interrupting funding depending on implementation's progress status, remains, as of today, one possible solution for donors in order to "empower", and control, national and local governments.
- Aid tying, requiring Haiti to purchase services, technical assistance, and goods from donor countries, as was the case of the subsidized U.S. rice scandal (Richardson, 1997).
- Poor alignment of donor programs to country goals, and lacking harmonization of interventions, i.e., duplication of services in some sectors or areas and under-funding in others.
- Bypassing government leaving projects management directly to NGOs and contractors, exacerbating institutional capacity problems over the long term.
- Unclear policy focus and program design; ineffective capacity building; lack of coordination and accountability among organizations in time and space.
- Faulty implementation, meaning donor pushing for immediate results when longer-term interventions were needed, as well as the adoption of pre-designed growth models (Gauthier & Moita, 2010) that did not sufficiently consider context-specific conditions.

As a result, governmental institutions were more accountable to donors rather than to their citizens, NGOs became an alternative to Haitian fragmented state (Hsu & Schuller, 2020; Schuller, 2009), providing services instead of them, funds usually diverted to civil society or to implementing agencies with just a small part reaching the population (Gauthier & Moita, 2010). Donors directly funding NGOs as preferred implementing actors contributed to privatizing and splintering government's functions and capacities, eroding the social contract with citizens, and removing the state's responsibility for basic service, security, and protection provision (Schuller, 2009). In a sort of vicious cycle, the fulfilment of basic functions operated by the international aid community, delegitimized national and local institutions, eroded donors' confidence in the Haitian cause, and worsened society distrust towards the state (Gauthier & Moita, 2010). Similar hatreds applied for international NGOs, constituting a buffer between elites and impoverished population (Schuller, 2009) and the bottlenecks between funds and their rightful recipients.

These driving forces of malfunctioning governance and unaccomplished aid shaped Haitian institutional unsafe conditions when facing DR. National and local government had not enough means to provide basic services and address complex matters such as poverty, sanitation, health, and food insecurity, nor political leaders could afford unpopular measures accounting DRC drivers. The duties and responsibilities of ministries and institutions regarding DRM were unclear and lacking executive powers of enforcement.

A side effect of the massive presence of NGOs and aid organizations has been the brain drain of the public-sector personnel and of the educated middle-class professionals, attracted by their better salaries and working conditions: “It has been estimated that NGOs provide up to one-third of all jobs within the formal economy” (Schuller, 2009).

Donor dependent short-term aid services were often unsustainable and lacking long-term development-oriented vision, to the point of establishing institutions and interventions that could not self-sustain in the long run without further external help, while leaving unaccounted more urgent and complex measures regarding, for example, waste management and infrastructures.

Finally, insecure and conflicting “red zones”, often those most marginalized and in need, raised and keep raising various ethical dilemmas for humanitarian and development actors, concerning either restricting aid (Schuller, 2016a) or engaging non-state armed groups and negotiate safe access in “their” neighbourhoods (Schuberth, 2017).

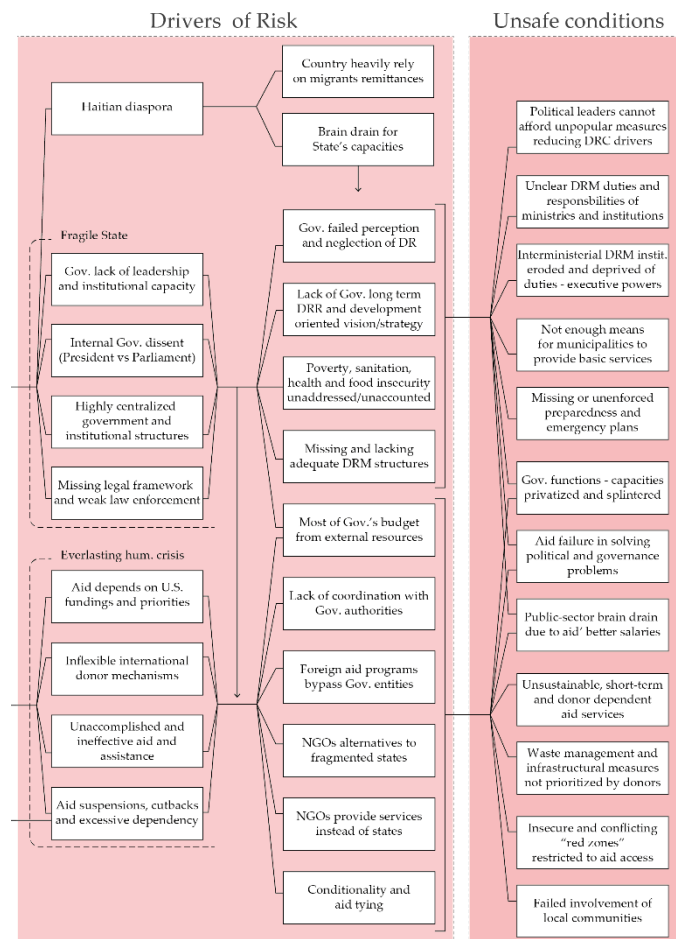


Figure 29 Risk drivers and unsafe conditions – focus on the political and institutional dimension of DRC

### 4.2.3 Environmental dimension

The environmental degradation in Haiti began with the Spanish conquest and intensified during French colonization through forests clearing, the establishment of agricultural monocultures, and the massive export of both woods, coffee, and sugar. The vegetation cover was already reduced by half at the end of the 16th century compared to the initial status at the time of the conquest (Mathieu et al., 2003). These exports continued to be the Country's main revenue even after the independence, and so did the systematic extraction of natural resources, an approach that did not leave time for ecosystems to regenerate (Mathieu et al., 2003). Deforestation intensified after the fall of Duvalier regimes, worsened by forest fires related to internal conflicts and coups, accelerated because of

neoliberal policies and embargos (Felima, 2010), reaching the infamous 2% of national forest cover of the 90s (an overquoted reference that may be over/underestimated considering more recent satellite evaluation (Churches et al., 2014)). Wood and charcoal alone covered and keep providing most of the country's domestic and agricultural energy needs to the point of cutting fruit trees for coal production even at the household level.

The historical reasons underlying deforestation and environmental degradation have been the establishment of foreign agribusinesses and processing facilities, the crisis of local agricultural production competing with foreign subsidized food tariffs, and the concentration of land ownership in elites' hands during U.S. occupations (Felima, 2010). Consequently, the processes of rural impoverishment led to massive migrations to urban areas bringing more environmental pressure to already existing unsustainable urbanizations.

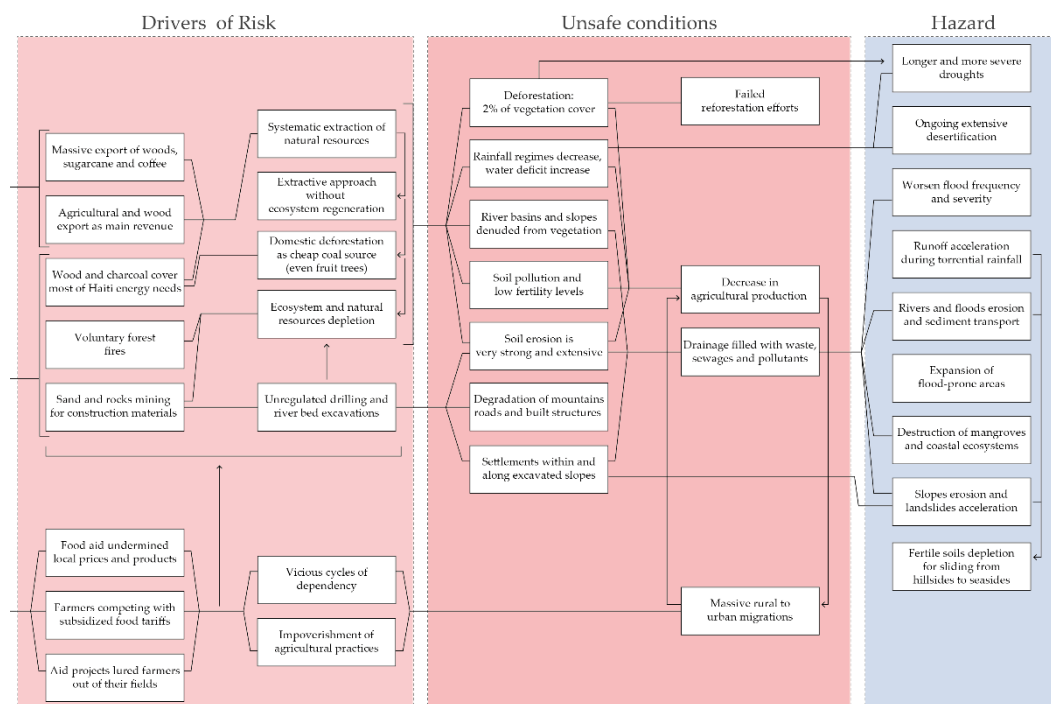


Figure 30 Risk drivers, unsafe conditions, and effect of hazards – focus on the environmental dimension of DRC

#### 4.2.4 Physical and technical dimension

The physical and technical dimension of DR drivers refers mainly to the hyper-urbanization (Schuller, 2016a), outcome of the mass internal migration of landless peasants to Port-au-Prince lured from the wages (even though very low) in the manufacturing industries, more appealing, to a certain extent, if compared to rural areas' missing job opportunities, health care and high schools. Regardless of the different historical, political, and economic reasons, displacements to metropolitan areas have been driving DR and vulnerability in terms of (1) marginalization and spatial segregation of incoming migrants in slums and shantytowns, (2) the hazard-proneness of these settlements, (3) inadequate building materials, lacking basic services and infrastructures, (4) littering and waste mismanagement.

Peculiar of the fast urban growth of the Haitian capital has been the climb up of elites and middle classes to hillsides and mountainsides (Schuller, 2016a), settling their estates in areas formally forbidden for building (Beauvoir-Dominique, 2012). This "escape" left low-lying areas and the former historical centre to incoming displaced masses (over two million in two decades), abandoned of any social housing policies (Beauvoir-Dominique, 2012) to address their needs.

The core of the physical dimension of Haiti's unsafe conditions is constituted by slums and shantytowns that grew segregated in marginal areas, particularly in low-lying swampy lands where waste settles, on steep mountain slopes, in unserviceable hilly areas and along riverbeds (Schuller, 2016a). These unplanned and overcrowded urbanizations compounded extreme poverty and work informality with poor sanitary conditions, lacking running water, drainage, and sewage systems. Despite the recurring storms, floods and landslides affecting these densely populated areas (up to 43.000 people per square kilometre – (Beauvoir-Dominique, 2012)), living in hazard-prone locations has been, to a certain extent, acceptable for Haitian facing burdensome daily threats as violence, hunger, undernourishment, and diseases.



Figure 31 Drone photo of the Jalousie shantytown over the hills of Port-au-Prince, one of the most densely populated (Source: <https://i.redd.it/uyvilfqirtv41.jpg>)

Also due to elites' control of land, existing urban structure disinvestment, and the capital flight (Schuller, 2016a), such hyper-urbanizations seriously lacked basic services and infrastructures and had no feasible enforcement of any urban planning and zoning, building codes and standards, nor adequate building materials. Within this informal and unplanned development, conflicts arouse regarding land rights and titles, building authorizations and related taxations. Given the widespread corruption within governmental institutions, citizens' distrust in the taxation system and its avoidance drained state's resources, bringing the government to the eventual recognition of many land invasions so to capitalize on any potential revenue.

Against this urban setting, basic services and infrastructures were poorly accessed and distributed, with NGOs providing the majority of public and health-care services (Buss & Gardner, 2005; Felima, 2010), and still, in the wake of the 2010 earthquake, largely unprepared in addressing large-scale disaster evacuations and emergency response (Buss & Gardner, 2005):



- only 28 per cent of the population had access to health care, and only 3 per cent health insurance (Buss & Gardner, 2005; Felima, 2010);
- less than 30 per cent of households were connected to the electricity grid, and just 10 in a regular way (Felima, 2010) – thus more need and demand for wood as fuel;
- For what concern the roadways system, just 5 per cent were considered in good conditions (Buss & Gardner, 2005; Felima, 2010).

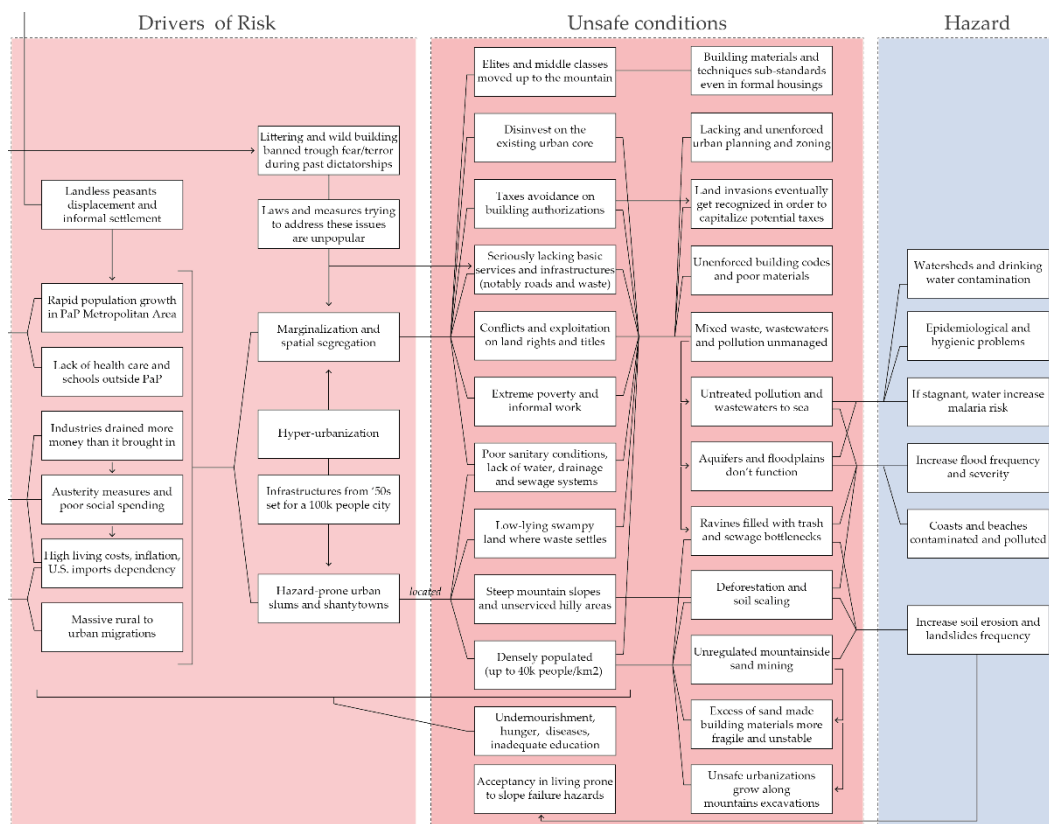


Figure 32 Risk drivers, unsafe conditions, and effect of hazards – focus on the physical and technical dimension of DRC

#### 4.2.5 DRC environmental effects and contribution to hazards

One of the recurring elements in policy documents under “underlying risk factors” refers to the interlinkages between unsafe conditions and the related dynamics of environmental degradation also affecting hazards’ frequency and severity:

- Wild and unplanned urbanizations increase already extensive soil sealing, pollution, and erosion;

- Tree logging for building material and domestic coal production further contribute to deforestation and to denude river basins and slopes from vegetation, worsening and accelerating soil erosion and landslides risk;
- The unregulated mountainside sand mines and quarries, an informal economic sector for cheaper, but excessively sandy, concrete and building materials, led to more fragile and unstable constructions, mountains and road embankments destabilization, landscapes degradation, slopes erosion and allowed the sprawl of urbanizations along excavated areas;
- Due to missing infrastructures, waste, wastewaters, and pollution have been and remain unmanaged, especially in shantytowns, causing, when rains come, trash bottlenecks in drainage systems, ravines and rivers, blocking roads, and bringing pollutants and wastewaters to sea. Wastewaters stagnate in low-lying areas while watersheds and drinking water get polluted, both raising epidemiological and hygienic risks. Similarly, soil, subsoil as well as beaches and coastal ecosystems have been contaminated by households, medical and industrial waste and wastewaters (Mathieu et al., 2003).

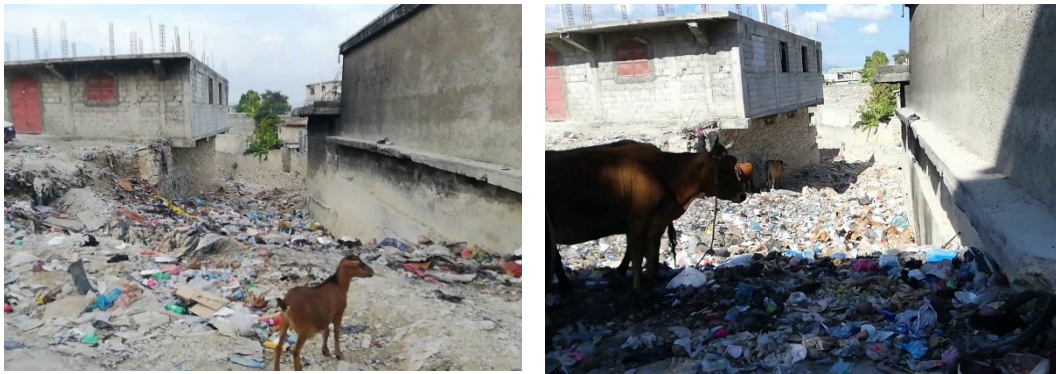


Figure 33 Port-au-Prince, an example of riverbed filled with unmanaged waste and rubbles -(Photos taken by the author at one month distance)

The environmental impacts due to unmanaged Styrofoam products' rubbish constitutes an emblematic example of hydrometeorological hazards negative contributions: despite three government decrees, over the decades, prohibiting the production, import, trade and use of Styrofoam goods, they keep being ever-present around the capital. This kind of products, used especially for food cups and plates, are illegally imported from the Dominican Republic, and constitute the basis for everyday street-food distribution, used even by aid workers in their



offices for lunch. The harmful impact is quite vivid around Port-au-Prince, clogging canals and flooding the streets when the rain comes.



Figure 34 Styrofoam waste clogging a canal in Port-au-Prince (source (Ferreira, 2012))

These pressures worsened the frequency and severity of hydrometeorological events accelerating (a) rainfalls runoffs due to the denuded slopes, (b) rivers' erosions and sediment transport during floods and (c) elevating watercourse drainage channels thus expanding flood-prone areas (Mora Castro et al., 2010). Such factors further aggravated the precarious conditions of infrastructures and of the marginalized settlements along watercourses. For what concern rural lands, impoverished soils have low fertility levels and water deficit, which contributed to the failure of reforestation efforts, the decrease in agricultural production and, during dry seasons, to longer and more severe droughts; overall, this contributes to the undergoing extensive desertification.

Among the explanation given me regarding the paralysis in addressing these "DR forcing taboos", one interviewee underlined how, during past dictatorships, bans applied for wild building, street littering, waste disposals and deforestation

which were imposed through fear and terror. Still in the present days, laws and measures that recall those times are unpopular and inconvenient.

#### **4.2.6 Decades of catastrophes, relief, and aftershocks**

The driving forces of political instability, institutional weakness and ineffective foreign aid applied also for the emergency and the relief operations following the 2010 quake: the Government lacked the leadership to manage the crisis while donors and international organizations didn't coordinate the multitude of efforts.

The earthquake revealed the ongoing conjunctural crisis (Etienne, 2012; Schuller & Morales, 2012), i.e., “the intersection of neoliberalism and foreign control, together with the complicity of Haiti's elites and government” (Schuller & Morales, 2012).

As happened in other Haitian catastrophes aftermaths, emergency and relief operations acquired negative connotations and fostered discontent among disaster victims. As an example, in September 2004, after Hurricane Jeanne hit the city of Gonaives in the north of the island, the Haitian anthropologist Beauvoir-Dominique R. (Beauvoir-Dominique, 2012) highlighted relief and recovery “problems” analogue to those of the 2010 earthquake in the capital:

- The clean-up of mud from houses and ravines has been carried out, just months later, through “Cash for work” aid programs, “intensive labour” that directly involved disaster victims in exchange for a minimum daily wage of less than 2 US dollars. This created occupation just for a few days and discontent among the affected population that defined it slavery (Beauvoir-Dominique, 2012).
- Camps of tents and shelters remained as a permanent housing solution for thousands of people, with deteriorating living and sanitary conditions, problems regarding waste and water management, and dilemmas regarding how exiting the aid service provision (Beauvoir-Dominique, 2012).
- Aid distribution excluded Vodou practitioners in favour of Protestant communities, sharpening internal divisions (Beauvoir-Dominique, 2012).
- The stop of food assistance lacked transition and participation of affected communities (Beauvoir-Dominique, 2012).

- Redevelopment contracts did not involve nor benefit Haitian companies and were tied back to the US market (Beauvoir-Dominique, 2012).

The 12th January 2010 earthquake, the numbers of the apocalypse (Etienne, 2012):

“Official figures confirm a situation of apocalyptic dimensions: more than 200,000 dead, more than 300,000 injured, thousands of amputees, 1 million orphans, 2 million displaced, and more than half a million homeless citizens still spread about in makeshift camps. We have seen a mass exodus of more than 30.000 professionals. Two hundred and eighty-five thousand houses and buildings destroyed. with productive and social sectors annihilated. Forty-nine university buildings collapsed: 3.978 schools were destroyed (representing more than 23% of the schools nationwide). including more than 90% of schools in the Port-au-Prince metropolitan area: and more than 1,500 teachers died. The health sector was also severely affected with the collapse of 30 out of 49 hospitals and health centers in the metropolitan area. Food insecurity and health risks have increased significantly.” (Etienne, 2012)

Political and institutional dimension of the aftermath

The worldwide media coverage and international debate that followed the event brought international agencies and individual contributions to reach an unprecedented total of USD 16 billion (Hsu & Schuller, 2020) overall for responding to the emergency and attempting a recovery. Once again, humanitarian aid distributions have been assessed as imbalanced, focused on central regions with higher visibility and with weakening effects on domestic productions. It strengthened the already existent “assistantship” syndrome (Beauvoir-Dominique, 2012), while excluding the government and the population from decision-making processes (Hsu & Schuller, 2020).

The key obstacles of this humanitarian crisis, acknowledged years later by international agencies and representatives, have been a model of intervention inappropriate for the complex urban setting of Port-au-Prince, the widespread lack of coordination of activities, and the parallel donors’ government that weakened an already ineffective central government (Hsu & Schuller, 2020).

In a country that counted over 10.000 NGOs before 2010 (Bellegarde-Smith, 2011), the large number of incoming organizations and volunteers after the quake challenged the already difficult coordination of relief activities. Donor preferences for funding NGOs instead of the Haitian Government continued, leaving them just 1 to 3% of the overall emergency budget (Bellegarde-Smith, 2011; Schuller & Morales, 2012). Melinda Miles (Miles, 2012) accused response operations to be exclusionary, without consulting or including the affected population. Participation issues have been noticed also within the cluster system of humanitarian coordination, to the detriments of local organizations (Miles, 2012).

In the immediate response after the quake, the US military took control of the capital's airport, monitoring, obscuring, and obstructing first responders arriving from "inconvenient" countries such as Cuba and Venezuela (Bellegarde-Smith, 2011). Largest international agencies required the support of the US military for aid distributions, while smaller NGOs, with pre-existing relationships with affected communities, could not even have access to these precious non-food items, shelters, and food supplies (Miles, 2012). This military collaboration and control of humanitarian actions, or, as Colin Powell acknowledged, NGOs being a force multiplier and an important part of the US combat team (Vorbe, 2010), has been argued to be a US instrument for reinforcing the Country domination (Vorbe, 2010). The fact that 33% of US aid budget went to sustain the 30,000 military troops that massively intervened in Haiti ("uninvited" (Bellegarde-Smith, 2011)), has been another occasion for fuelling population anger – and awareness – against such dispossession of what was remaining of their sovereignty (Vorbe, 2010).

Both the Haitian population as well as many scholars (Bellegarde-Smith, 2011; Lee, 2016; Schuller & Morales, 2012) defined these overwhelming intervention as "neocolonial humanitarianism" (Vorbe, 2010), criticizing the "NGO class" of the "Republic of NGOs" of being accountable for their services solely to donors and not to Haitians (Schuller & Morales, 2012). This declaration has been reasoned after NGOs privatized basic services such as schools (80%) and clinics (90%), "bleeding the res publica" (Bellegarde-Smith, 2011) on one side, while reaching minimum signs of progress and raising controversies regarding major issues like rubble removal, campsites, and housing reconstructions (Schuller & Morales, 2012). In addition to this, the massive humanitarian intervention has been blamed for "poverty and disaster tourism" (Davis, 2012) because of the many inexperienced and young volunteers incoming to the island from western countries for a very short amount of time.

Relief and recovery have been argued also as an occasion, especially for Protestant missionaries, to increase proselytism and “civilization” efforts, through thousands of children adoption sent to the US and Canada with the declared intent of freeing them from their own “culture, religion, language, and history” (Bellegarde-Smith, 2011). Furthermore, the long-lasting humanitarian crisis and aid presence has been spoiled by various scandals and criticisms regarding the misuse of all the billions of US dollars of funding, the cholera outbreak brought from a foreign relief worker, and the sexual misconduct scandals that involved major NGOs (Hsu & Schuller, 2020).

Recovery and reconstruction efforts after the quake constituted an example of “disaster capitalism” (Barr, 2013; Klein, 2010; Schuller, 2016a; Schuller & Morales, 2012), defined as institutions’ instrumental use of catastrophes to promote private and neoliberal capitalist interests (Schuller & Morales, 2012). In a leaked conversation, the US ambassador called it a “corporate gold rush” (Barr, 2013; Schuller & Morales, 2012), an opportunity for US companies to sell their products and services (Barr, 2013). The motto “build back better” was explained by foreign representatives in the sense of re-shaping Haiti’s “long-dysfunctional government and economy”, accelerating “oft-delayed reforms”, privatizing what was “left of the country's state enterprises and infrastructure” (Barr, 2013). As a matter of fact, most of the recovery funds were tied back to their source country (Bellegarde-Smith, 2011; Lee, 2016; Schuller & Morales, 2012), with an estimate of just 2.5% of investments benefitting Haitian firms (Schuller & Morales, 2012). As an example of this predatory approach, the expensive imports of US building materials, with fixed costs higher than those back in the US, caused major problems for the reconstruction process (Lee, 2016).

Even the former president Bill Clinton, United Nations Special Envoy, appointed pro-consul, co-chairing next to the Haitian Prime Minister in the reconstruction commission, instead of demanding the reversal of this new wave of neoliberal policies, he safeguarded western investments and pushed for the development of textile export-processing zones (Barr, 2013; Bellegarde-Smith, 2011).

Opportunity to reform from outside that lead, once again, IFI’s foreign experts to prepare the Haiti Action Plan for National Recovery and Development guiding document, with poor and symbolic involvement to local experts (Vorbe, 2010), and leaving in it a secondary role to Haitian Government (Lee, 2016).

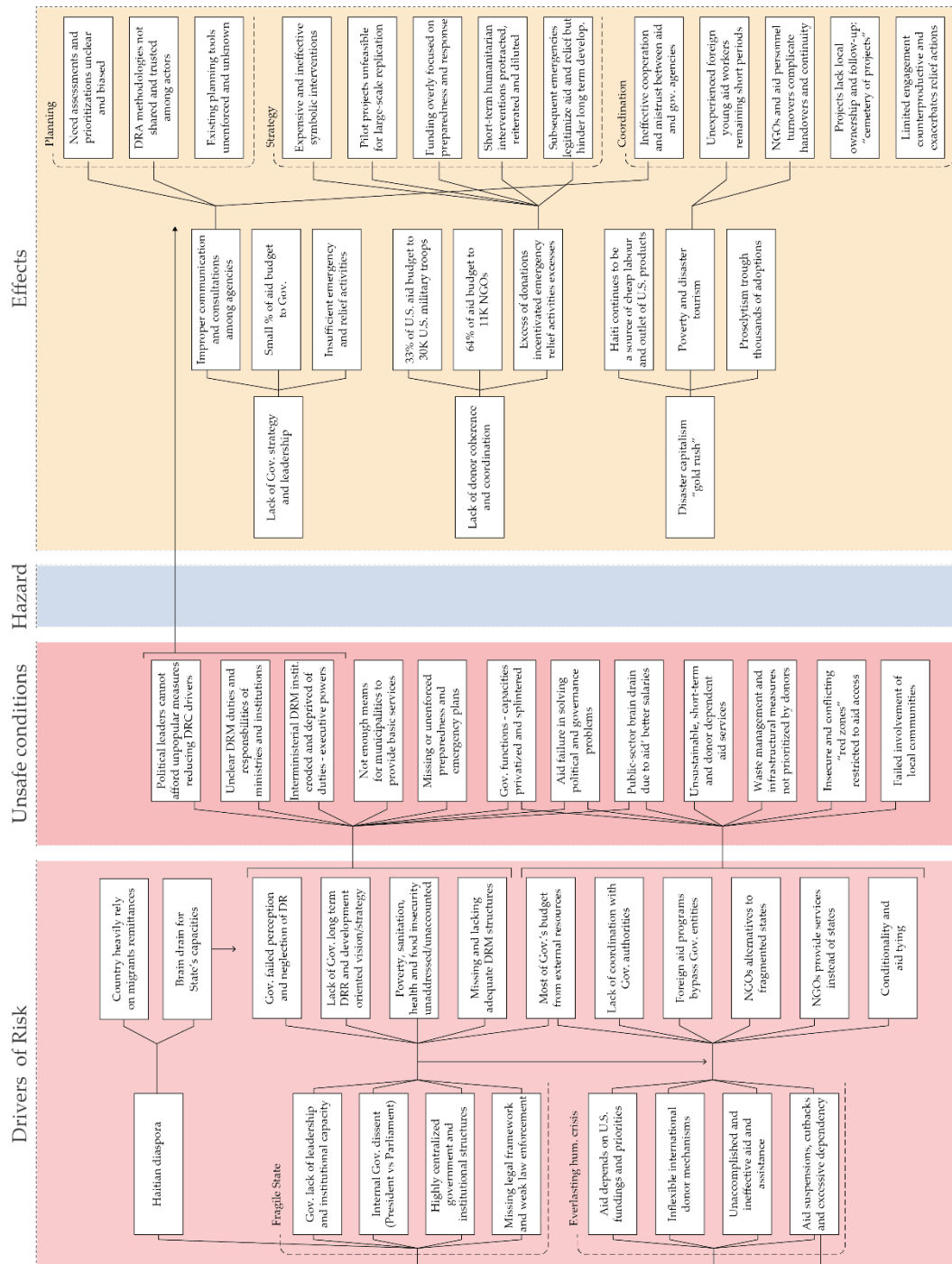


Figure 35 Risk drivers, unsafe conditions and the 2010 earthquake aftermath – focus on the political and institutional dimension of DRC

### Physical and technical dimension of the aftermath

Lacking infrastructures and proper roads within Port-au-Prince “monstrous urbanization” (Schuller, 2016a), complicated and complicates emergencies management and evacuations as well as debris and waste disposal. Debris and rubbles from past floods and terrain movements compound with unmanaged waste in shaping and furtherly warping roads and infrastructures, clogging sewage systems and blocking ravines and riverbeds (Mora Castro et al., 2010). Once again, urban risk drivers contribute to amplify DRC vicious cycles, impacting hazard’s frequency, severity as well as the exposed elements: heavy rainfall result in “overflowing sewers, rising wastewater, and the inundation of low-lying areas of cities” (Mora Castro et al., 2010).

As the earthquake exposed, building materials and techniques sub-standards concerned not only shantytowns but also government buildings and wealthy neighbourhoods which experienced a massive breakdown. An estimate of over 75% of civic buildings became inoperable (Lee, 2016), raising doubts and dilemmas on the feasibility of enforcing, at any level, any of the planning tools and building codes adopted at the time: what is the point of adopting, on paper, planning standards if they were not enforced even in governmental buildings (Lee, 2016)?

The preexisting unclear land titles and ownership structures complicated both shelters planning and the reconstruction process: “in addition to the state of the archives and the almost nonexistent cadaster, title registry, multiple claims to the same plot of land were not uncommon” (Schuller, 2016a).

As for other aid sectors, recovery and housing reconstruction lacked Governmental leadership, strategic management, and actions coordination (Davis, 2012). Reconstruction and repairs were unfeasible on large scale given the number of affected buildings. Overcrowded campsites for sheltering internally displaced people (IDP) became the starting point of other vicious cycles: tents becoming permanent settlements, dwellers forced evictions, land invasions, informal building in unsafe hazard-prone areas, and forced relocations.

Despite camps’ unsanitary conditions due to garbage loads and collapsed latrines, social tension, spread of epidemics and diseases, they constituted a point of attraction as more likely to receive aid attention and services. In the earthquake aftermath, migration continued in two directions: (a) urban-to-rural looking for

available land for settlement and for families support from the countryside; later on, (b) rural-to-urban also because of the aid-related economic opportunities.

IDPs camps presented problems in terms of land-use conflicts, lack of zoning, unregulated land parcelling, lacking infrastructures and basic services, wood logging for fires and shelters construction. Dwellers demanded services and infrastructures within the camp, which constituted a controversial matter for its contribution to longer-term settlements. Nevertheless, some campsites started as temporary solutions and became long term settlements whilst others were abandoned because of their bad, uncomfortable and unserved location.

In November 2011, Ian Davis (Davis, 2012) provided key insights on the wickedness of the recovery and reconstruction process; As an example, regarding the creation of 100.000 transitional shelters (T-shelters), Davis highlighted how they were an expensive solution nearly as much as permanent dwellings, occupied densely populated land needed for dwelling reconstruction, failed in generating local employment and were not easy to be demolished and recycled thus risking of remaining as sub-standard dwellings (Davis, 2012).

In the recovery phase, waves of unplanned, unsafe, lacking quality construction land invasions (Davis, 2012) returned to hazard-prone locations, building back vulnerability and, worst, at higher density. The build back better mantra did not and does not apply for contexts where building materials are lacking and not compliant with basic SPHERE standards. The urban sprawl of wild building reiterated after each catastrophe and slums reformed in hazard-prone areas.

Hazard-prone building raises dilemmas for the aid community also regarding upgrading interventions that might imply and cause the approval and reinforcement of such practices. On the other side, aid cannot overcome the challenge of relocating these settlements, nor even to define lands suitable for this purpose, that is why most efforts focus on mitigating the expected effects of upcoming events and on capacitating communities to cope with emergencies.

Earthquake's campsites and informal reconstructions were affected by hurricanes (particularly Hurricane Tomas), floods and mudslides in that same year and on the following ones.



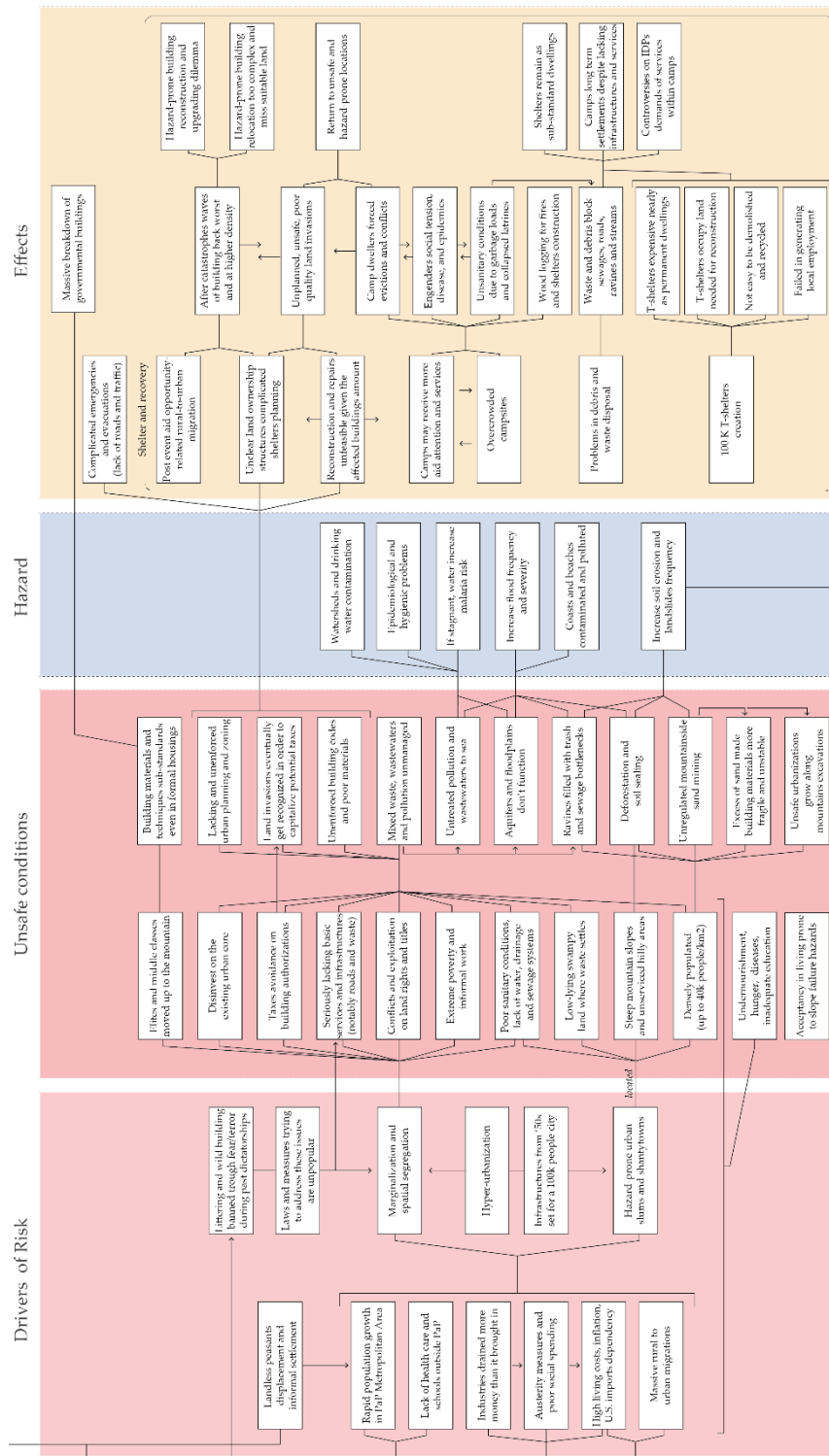


Figure 36 Risk drivers, unsafe conditions and the 2010 earthquake aftermath – focus on the physical and technical dimension of DRC

### Hurricane Matthew

Compared to the massive humanitarian efforts deployed with the earthquake and because of the related aid ineffectiveness, Hurricane Matthew, a Category 4 storm that hit Haiti on the 4th of October 2016, received considerably less funding and media coverage (Hsu & Schuller, 2020), despite being one of the most powerful hitting the country in the past sixty years. Heavy winds, rains and flooding landfall on the southwest coast and headed north affecting most of the rural areas of the Grand Anse peninsula causing more than 500 deaths, affecting over 2 million, and killing 90% of the livestock (Hsu & Schuller, 2020).

Kaiting J. Hsu and Mark Schuller (Hsu & Schuller, 2020) highlighted some of the key factors underlying the outcomes of this catastrophe and the challenges in managing its emergency and recovery:

- The emergency unravelled the level of vulnerability and neglect of affected communities in the countryside, far away from the resources and coverage of aid presence, which was deemed to be overly centralized in Port-au-Prince and of a hampered minimal response (Hsu & Schuller, 2020).
- The ongoing national election campaigns at the time of the emergency and the related US pressures for a governmental change shadowed this crisis and diverted aid distribution which got exploited by presidential candidates as a mean of propaganda (Hsu & Schuller, 2020).
- The psychological “rubbles” of the long-standing and ineffective earthquake recovery affected the management of this emergency, with donors fatigued and unenthusiastic of granting more funding, and with the Haitian Government demanding coordination and collaboration (Hsu & Schuller, 2020). The effort of avoiding past mistakes brought the government to the point of forbidding temporary shelters. Such dispossession of victims' rights brought donors (OFDA) to overstep the government and to fund IDPs camps anyway.
- Finally, international agencies and NGOs' efforts of decentralizing interventions (in contrast to critiqued past top-down approaches) entrusting local governments of aid distribution resulted ineffective in any case: those in power distributed supplies preferably to family, friends and supporters, thus reinforcing their ‘fiefdoms’ (Hsu & Schuller, 2020) and rarely reaching marginal areas and communities most in need.

This uneven and inequitable decentralized response created competition and conflicts among and within affected communities, already impoverished by long-enduring state neglect, once again forcing them to consider migrating to urban centres as the only option (Hsu & Schuller, 2020).

As happened with the earthquake relief, the “failed” government remained the main excuse to justify relief ineffectiveness, shifting the focus from foreign sovereignty violations (Hsu & Schuller, 2020), in this case, through aid, which created a client and dependent state in the first place.

#### **4.2.7 Everlasting humanitarian crisis status**

Most of the DR drivers detailed so far, regarding the Haitian context both before and after the catastrophes of the past 15 years, have been compounding the current conditions of unsafety, therefore constituting the DR status for any upcoming hazardous event and crises. Against such levels of exposure and vulnerability, another layer of DRC emerged from interviews: the share resulting from recent humanitarian and development aid actions.

Because of the chosen source of data collection, i.e., the stakeholders of the arena of intervention, specific dynamics were often highlighted concerning aid and relief ineffectiveness even in the relative “peacetime situation” at the time of the interviews (with ongoing creeping, extensive and low-intensity crises). Such self-criticisms seem particularly common in the aid and DRM arenas, often undergoing ethical debates, efforts of revisions and renovation; all of which is understandable given the complexity of the socio-economic contexts they work in.

Those presented below are mostly general matters common to the aid world and widely discussed in its sectorial literature, but somehow emerged in a less structured way in the literature debating DRC in Haiti, more focused on the historical processes. This is quite interesting if we consider that these daily challenges, still ongoing in aid practices and interventions, do contribute to reinforce inequality, opacity, unaccountability, and result in local community competition, fragmentation, and widespread distrust to internationally led funding management. After 50 years of humanitarian and development aid permanently established in the Country, aid contribution to DRC should be taken into serious consideration, especially because Haitians proved to be sick and tired of foreign paternalist teachings and of the everlasting dependency on externally managed funding.

Integrating what some of the authors quoted so far (Buss & Gardner, 2005; Lee, 2016; Schuller, 2009) already explained regarding aid ineffectiveness, what follows concern everyday gaps along with aid and DRM project management's life cycle: donor and coordination mechanisms, evaluation of needs and prioritizations of interventions, competition over funding bids, duplication of services, lack of ownership etc.

One recurrent criticism refers to the unclear and biased definition of needs and priority areas for funding allocation. As an example, the physical presence (or absence) of NGOs in an area might be considered as a key variable and discriminating factor for prioritizing and funding interventions, while leaving out neighbouring territories with analogue conditions but without existing contact points. Speaking of aid physical presence, the "entry point of contact" in marginal and informal settlements may itself raise controversies regarding the involvement of "informal governments" – local gangs – in order to be able to enter and operate in that area.

Besides need assessments and prioritizations being influenced by self-absorbed interests, also methodologies for DR evaluations and mappings are not always shared nor trusted among actors, with results often not taken for granted or completely reliable, forcing different NGOs to repeat and overlap the mapping efforts. Despite the widespread debate and acknowledgement of DR drivers and unsafe conditions, most elements discussed in this chapter have not been mapped in any way nor have land-use conflicts been integrated into DRA.

Analogously, due to the overcrowding of projects and interventions, NGOs and stakeholders are not fully aware of all the existing planning tools and documents, nor of past projects similar or relevant to those they are carrying on. This further complicates meeting the challenge of capitalizing, benefitting, and following up on previous projects and intervention, avoiding fragmentation and duplications.

The poor and lacking coordination of projects, both in terms of time (e.g., past analogue interventions in the same area) and space (e.g., similar interventions in the same or in neighbouring areas), remains a great barrier within the arena, despite the several existing mechanisms already in place to overcome it, and has been explained in relation to some key factors:

- The competition for grants and funding is often the tip of the balance in favour either of stakeholders' coordination or innovation; Most of aid workers' time and energy are consumed by bureaucracy, networking, grant-winning all project management life cycle, leaving less time for DRM-specific technical preparation where they often lack;
- Also due to funding mechanisms, NGOs, as well as their personnel, often have rapid turnovers in their areas of intervention, complicating handovers and dissemination of data, information, contacts, and networks between actors;
- Effective cooperation and collaboration between aid and governmental agencies tend to be considered unusual and may undermine each other efforts;
- Lack of local community's ownership in projects implementation and, consequently, in the follow-up, contributes to the establishment of the "cemetery of projects" and incentivizes newcomers to start over from scratch;
- Due to the local scale (at the community level) of NGOs interventions and to a missing strategic bigger picture, projects hardly coordinate with neighbour areas and miss the opportunity of increasing their positive externalities.

Overall, grants and funding appeared to be too focused on emergencies related interventions, on preparedness and response activities because of the higher feasibility and more immediate political gains and media coverage. The overlap and subsequence of crisis and emergencies legitimized humanitarian aid's short-term projects and interventions, approaches that tend to be protracted and diluted afterwards due to the urgency and size of the problem. This interventionist mindset hinders longer-term vision and strategies and degenerates in dependency and addiction dynamics, raising questions regarding how long aid should last, fearing for the decrease of financing outside declared emergencies, when humanitarian funding may do not apply.

On the other hand, intervening, funding, and addressing DRC driving forces, and the complexity of extremely poor and vulnerable areas, is still an inconvenient and troublesome task, particularly since relevant risk drivers, such as the unmanaged waste, are excluded and deemed external from DRM discourses.

Furthermore, “structural-hard” interventions have been described as externally funded and imposed, often not feasible and too expensive for the context, difficult to manage and maintain in the long term, lacking local ownership.

Products of these approaches, the recurring to-do list, leaflets, guidelines and workshops for individual preparedness may eventually sound like an effort of externalizing/offsetting responsibilities to the population: “you have been trained and informed on how to behave during an emergency, now it’s up to you!”. This applies also to the many existing mapping and planning guidelines aimed at building capacities, within local governments, for preparing and adopting DRM plans, whilst neglecting the structural constraints, for those same institutions, that hinder any effort of enforcing such measures.

On top of these, some of the analysed planning tools, guidelines, and policy documents, produced by foreign consulting agencies, presented examples and references from western contexts far away and not applicable for the Haitian complexity, such as the case of UNDP’s methodological DRR guide (UNDP, 2015). An analogue copy and paste approach applies also in the implementation of best practices taken from different and not applicable contexts, that often result counterproductive and ineffective.

The following are some of the examples arisen from participant observations on the ground:

- Due to the personnel turnover, a donor approved and funded a project for mapping DR at the local level, without considering that an identical effort, operated by another international organization, was about to conclude for the very same area. Luckily, once consulted the national centre for geospatial information, they pointed out the duplication of efforts and proposed a follow-up of the previous project.
- The construction of safer boardwalks for crossing channels in a marginal and flood-prone neighbourhood raised issues of poor coordination with another aid project, in the same area, which was financing buildings and slums upgrading that obstructed the way for the boardwalks.
- The distribution of non-food items, in a poor, marginal, and hazard-prone neighbourhood, operated by the local municipality, degenerated in a mass rush due to the ineffective crowd control measures, an

escalation that brought the security service to intervene with the force. The aid distribution, aimed at enhancing physical and social capital for disaster preparedness, did not take enough into account how, in a densely populated, extremely poor neighbourhood, the news of free goods delivery could spread fast and raise tension and competition among chosen beneficiaries and those excluded.



Figure 37 Crowd escalation during aid delivery (photos taken by the author).

### 4.3 Conclusion: Coordination, justice, and reparations

This chapter constitutes my first analytical attempt of recomposing an updated understanding of the Haitian DRC debate based on the integration of interviews inputs and insights with the many secondary sources available. The research's secondary objectives have been to open a debate with aid and DRM stakeholders regarding their understanding and usages of the DRC theoretical construct, and to

reflect on the barriers and challenges in addressing such complexity within their work.

The very existence of several documents and articles explaining and referring to DRC long before the 2010 catastrophe, the persistence of these dynamics after the quake and in present days, tells a lot regarding the untapped potential of this theoretical construct. Depending on the authors and the analytical perspective, DRC in Haiti has been summarized according to different focuses and stressing on specific "faults": the odious French debt, US neo-colonialism, IFIs imposed neoliberal policies, aid ineffectiveness and dependency, government and elites' corruption and self-interests, and the dangerous daily behaviours of the Haitian population. In doing so, a clash (or a reciprocal integration) outlines between the academia (especially anthropologists and activists) and policy documents produced by international organizations: the former report causes and culprits of DRC processes, the latter highlight the behaviours that drive and manifest DR, often omitting that those are the results of historical political choices international and national institutions themselves contributed to. Such different focuses and fault blaming constitute a methodological result concerning the different and partial explanations that arise and consolidate behind fixed and shared theoretical terms (i.e., underlying risk factor, root causes, risk driver, social construction of DR, etc.).

The other methodological implication concerns the adopted analytical lens, based on PAR model (Blaikie et al., 2004), which achieves to trace just a snapshot of DRC historical evolution and cyclic nature, and would require periodical updates to gather new components, linkages and changes: DRC components evolve and change phase, past processes reinforce and consolidate, relief and recoveries get mixed up and reproduce vulnerabilities.

Beginning to understand the interconnectedness of the many driving forces in place and their effects in historical chains and on the different component of DR, furtherly take down more mainstream static and quantitative DR evaluations. As a matter of fact, reports and policy documents (e.g. (Joseph et al., 2017; Mathieu et al., 2003; Mora Castro et al., 2010; SNGRD, 2014)) analysing DR do mention some of the underlying risk factors (the term appearing more often), mostly stressing the seriousness of deforestation, hazard-prone shantytowns, and unmanaged waste, but they did and do not attempt to include these elements quantitatively in the assessment nor spatially in mapping efforts. Because of its complex and fast-growing urban setting, efforts of mapping exposures, fragility,



and vulnerability to the many hazardous events of Haitian cities are not feasible, which makes charting theoretically the processes that constructed DR even more relevant. In addition to the need to include and evaluate the weight of individual pressures (e.g., how much a certain development policy or economic activity influenced people to migrate to cities) within the DRC complexity, it is also essential to start including interventions and projects, considering their negative impact and their contribution to amplify DR in the short, medium, and long term.

These reflections on the Haitian DRC and on its relations to the earthquake response and attempted recovery, are useful also to advocate for a transformation of humanitarian intervention patterns (Beauvoir-Dominique, 2012) that, similarly to Haiti, keep happening all around the world. As seen, the effort of recomposing different visions and perspectives on DRC and its management within the arena of intervention has led to the definition of a new layer of the framework. Aid not only disregarded (Vorbe, 2010) the social nature of the earthquake's outcomes in the humanitarian intervention but also, being NGOs a "gluer of globalization" (Schuller, 2009) they have been (willingly and unwillingly) agents of the same neocolonial pressures that guided and drove the history of DRC. If we consider the bigger picture of DRC, of which interviewees proved a good level of awareness, aid and DRM measures appear cosmetic, symbolic, and short-term, leaving unharmed foreign interferences for domination and exploitation (Vorbe, 2010) that trigger DRC vicious circles in the first place. Despite the endless fervour within the international political agenda in tackling theoretically aid dependency and ineffectiveness (e.g., see "Do no harm" principle), all the failures accumulated in decades of humanitarianism and IFIs-led neoliberal policies require a switch in aid from "charity to justice" (Valentini, 2013). This would mean to acknowledge aid agency having contributed to DRC plight (Valentini, 2013), and Haitians rights to be repaired for these wrongs.

The assembled awareness of the Haitian's DRC status quo, may constitutes a shift in the DR "blame game" (Schuller, 2016b): from IFIs and governments blaming victims because of their living in the "wrong place", turned over to victims demanding reparations to the driving agents of their historical impoverishment and marginalization. As suggested by many of the authors quoted, tracing the history of vulnerability pushes towards a quite clear statement: Haiti is not poor nor vulnerable, instead, it has been impoverished through imposed "structural and social weaknesses, mistakenly identified as 'vulnerability'" (Mowat, 2011). Haiti is a creditor, not a debtor (Klein, 2010), a

victim of foreign powers' interests and of the broader neoliberal capitalist system, and therefore Haitians should keep asking for justice and reparations for their DRC status, for the unequal historical distribution of environmental benefit and environmental risk (Schuller, 2016a). This partially constituted a case, in the past decades, for the Haitian Government, as well as for many other Caribbean states, to formally attempt a call for reparations against former colonial motherlands' slavery (Schuller, 2016a). Though, this right to reparations should be widened up to the effects on DRC, as discussed so far, of centuries of colonial exploitations, embargos, foreign corporate extractivism and political interferences. A DRC-informed demand for justice that might integrate the existing concept of "climate debt" that wealthy countries, that caused the climate crisis, own to developing countries that are facing its disproportionated effects (Klein, 2010).

Concluding, this understanding of DRC, and of reliefs and recoveries past mistakes, has strong implications also on the definition of a more complete, strategic, coordinated, and long-term DRM planning, requiring elements usually (at least so far) deemed at the margins and external:

- The adoption of a shared, updated, and participated understanding of DRC, analogue to what attempted in this chapter, to complement national DR evaluations and management plans.
- The inclusion of waste reduction and management strategies in DR governance, thus partially tackling DRC's environmental degradation dimension.
- A strategic rethinking of aid coordination based on interventions' positive (effectiveness) and negative (side effects) contribution to DRC.
- An impact assessment of extractive projects and development policies that account for their contributions to DRC, so not only on the environment, but also on populations' exposure and vulnerability to DR.



## **Chapter 5**

# **The Guatemalan experience: understanding and framing the Disaster Risk Creation debate**

### **5.1 Introduction**

Guatemala constituted another “classic” (Blaikie et al., 2004) Disaster Risk Creation (DRC) case study, where DR conditions have been argued to be socially generated and due to unresolved development problems (Gellert et al., 2001). This was the starting point and one of the reasons that brought me to attempt a second proof of concept analysis of the DRC status quo. The decision of repeating the analysis in this Country was due also to the ongoing debate related to the 2018 El Fuego Volcano eruption, and to the more accessible (in terms of language) and productive local academic contributions.

The analysis presented in this chapter results from recomposing an updated understanding of the DRC theoretical construct for Guatemala, integrating perspectives coming from academic contributions, newspapers articles, policy documents and stakeholders' views and explanations. This effort aimed at linking partial understandings from documents pertaining to different fields of expertise and timeframes, and from stakeholders' own viewpoints and degree of attachment to the topic.

The resulting Guatemalan current DRC setting remains an “implosion of underlying risk factors”, as resumed in an interview, where the Country's skewed development itself constitutes the main catastrophe, and the permanent situation of overlapped crises hinder and reduce the opportunities of effective recovery. The adopted unsustainable development model is argued to be the key driving force of DRC, as it has been redistributing its negative externalities mainly to the most vulnerable social groups, indigenous in particular. On top of it, centuries of internal violence, ethnic dispossession, marginalization and exclusion, forced impoverished communities to adopt unsafe coping mechanisms: settling in hazard-prone lands unsuitable for construction, deforesting and cultivating on steep slopes and riverbanks, and concentrating in overcrowded slums lacking basic services and infrastructures (Gellert et al., 2001). The impacts and losses of the many crises and catastrophes of Guatemala's ‘permanent disaster’ condition (Blaikie et al., 2004), constitute an indicator (Gellert et al., 2001) of such unsustainable history of political violence and injustice, land dispossession and rights abuses for Mayan indigenous communities.

The outline of DRC resembles the Haitian one, with imposed foreign agro-exporting and extractive economies constituting the main underlying factors, but with a major “revealing” earthquake already back in 1976. The earthquake aftermath and the civil war ongoing at the time drove decades of internal violence and impoverishment, which paved the way to foreign-led structural adjustments and to aid permanent establishment.

Differently from the Haitian context, Guatemala's has been benefitting, since 1996, from the establishment of a more structured national agency coordinating civil protection and DRR: Coordinating Agency for Disaster Reduction, CONRED. Furthermore, a peculiarity of this Country is the solidarity and support received from regional organizations, at Centro American as well as Latin American level, specifically dedicated to DR studies, coordination, and

cooperation: e.g., the Coordination Centre for Natural Disaster Prevention in Central America (CEPREDENAC), the Central American Integration System (SICA), and the LA RED Network of Social Studies in the Prevention of Disasters in Latin America.

The analysis is presented in the section 5.2, divided according to the different DRC phases and dimensions, with in-depth examples of some of Guatemala's major past catastrophes. In this occasion, the effort of sketching causal links and interconnections has been devoted to three specific catastrophes of the past decade.

### **An overview of Guatemala DR**

Guatemala's vulnerable and impoverished population have been diffculted by the absence of real safe locations in a Country lying on three different tectonic plates, concerned by four actively erupting volcanoes, tropical cyclones and storms triggering floods and landslides every year, and decades long extended droughts.

Besides its geographical dangerous location, Guatemalan communities have been suffering also from more localized, creeping, and less visible crises. These forgotten disasters (Gellert et al., 2001), e.g., famines, desertification, rivers contamination, and wildfires, had less visibility and media coverage but kept eroding communities' capacities and self-sufficiency. Community-level DR perception often appears as low and biased, sidetracked as a secondary issue due to the everyday needs and threats constituted by hunger, extreme poverty, and violence high rates.

The following graphs give an idea of the insistent series of catastrophic events that have been plaguing the country in the past fifty years, affecting millions of people and killing thousands.

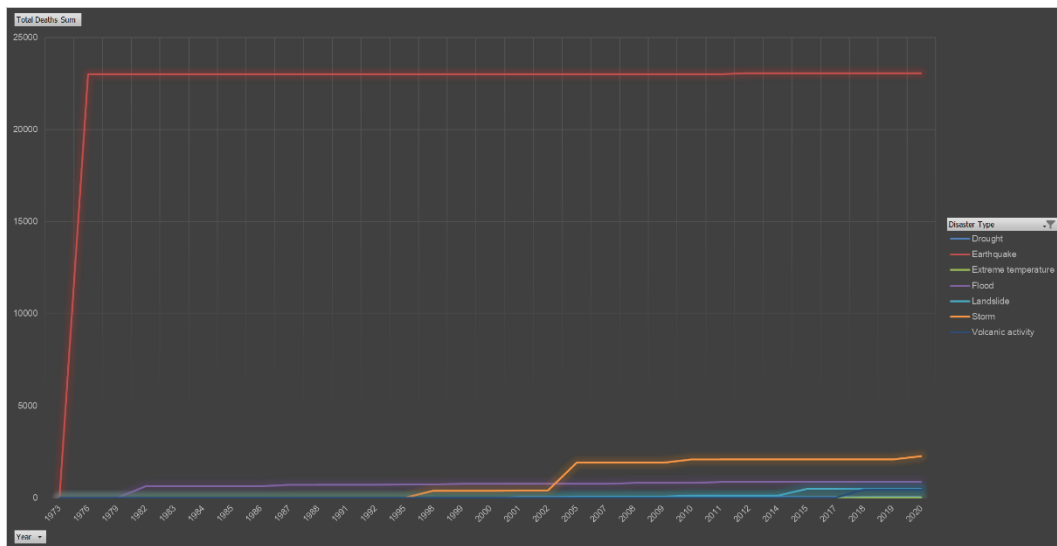


Figure 38 Graph showing cumulated sums of total deaths accounts from 1972 to 2020 per disaster type, in Guatemala - data source Emergency Events Database (EM-DAT).

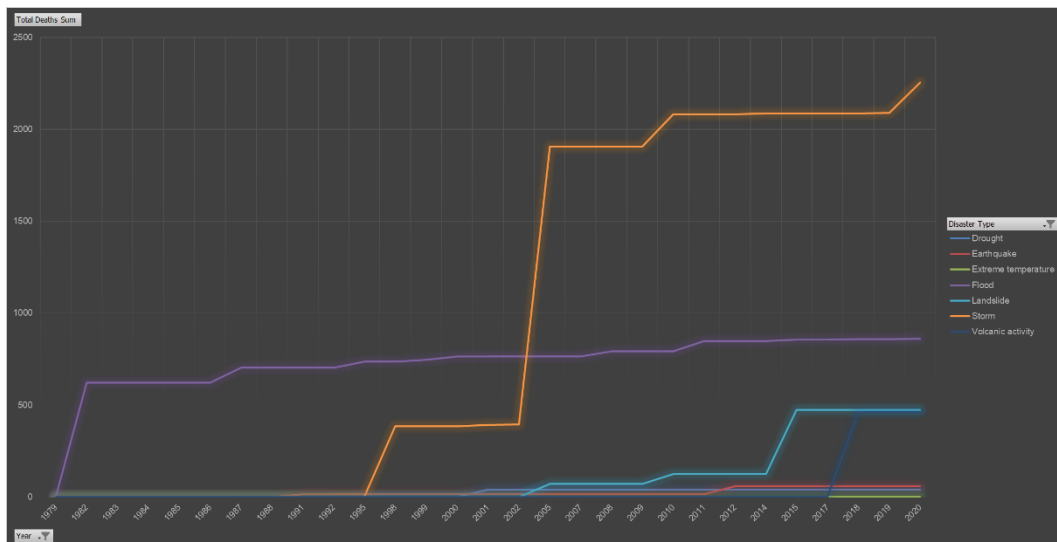


Figure 39 Graph showing cumulated sums of total deaths accounts from 1978 to 2020 (without the 1976 earthquake) per disaster type, in Guatemala - data source Emergency Events Database (EM-DAT).

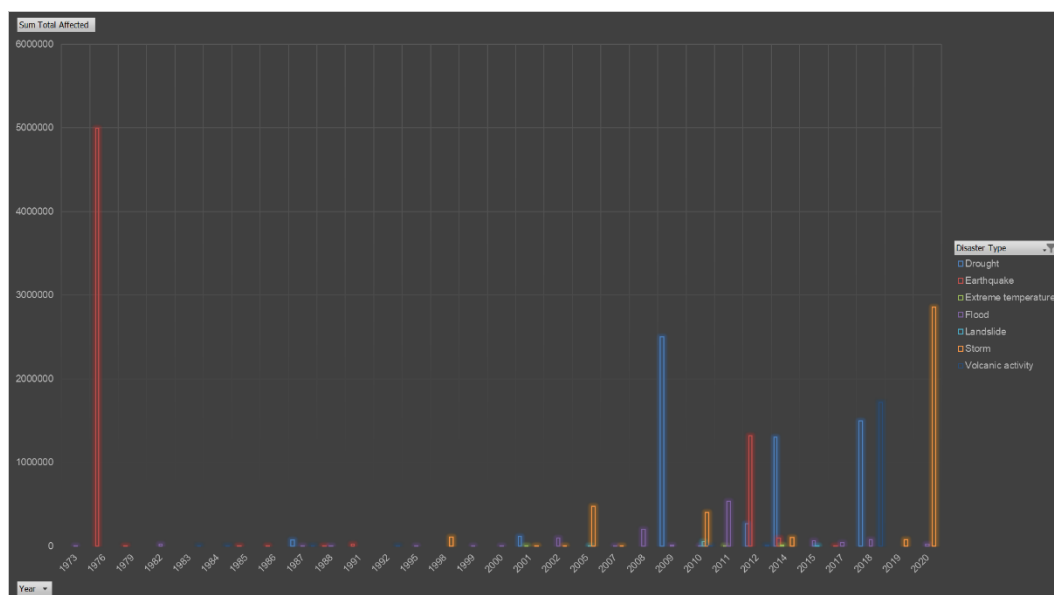


Figure 40 Graph showing total affected people accounts from 1972 to 2020 per disaster type, in Guatemala - data source Emergency Events Database (EM-DAT).

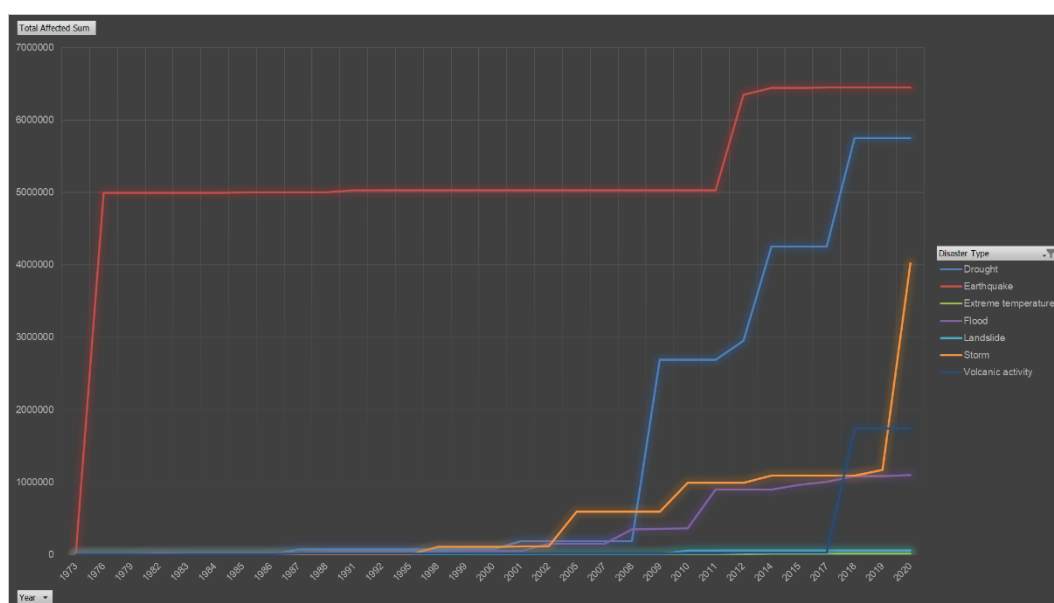


Figure 41 Graph showing cumulated sums of totally affected people accounts from 1972 to 2020 per disaster type, in Guatemala - data source Emergency Events Database (EM-DAT).



Out of all these events, this chapter gathered reflections, explanation and analysis of some of the most catastrophic ones (in bold in the table below), given the many references encountered in the literature and during interviews.

Table 5 List of major catastrophic events, affecting a total of at least 1000 people, from 1972 to 2020 in Haiti - data source Emergency Events Database (EM-DAT).

Year	Disaster Type	Disaster Subtype	Event Name	Tot. Deaths	Tot. Affected
1973	Flood			5	1000
1976	<b>Earthquake</b>	<b>Ground movement</b>		<b>23000</b>	<b>4993000</b>
1979	Earthquake	Ground movement			2040
1982	Flood			620	20256
1983	Volcanic activity	Ash fall	Santiaquito		3500
1984	Volcanic activity	Ash fall	Zaltenango		3000
1985	Earthquake	Ground movement			5000
1986	Earthquake	Ground movement			2500
1987	Volcanic activity	Ash fall	Pacayo		3035
1987	Drought	Drought			73000
1987	Flood			84	6515
1988	Earthquake	Ground movement			1550
1988	Flood				6000
1991	Earthquake	Ground movement		14	23890
1991	Epidemic	Bacterial disease	Cholera	180	26800
1992	Volcanic activity	Ash fall	Pacaya		5000
1995	Epidemic	Viral disease	Dengue fever		3402
1995	Flood			31	7435
1998	<b>Storm</b>	<b>Tropical cyclone</b>	<b>Mitch</b>	<b>384</b>	<b>105700</b>
1998	Epidemic	Bacterial disease	Cholera	17	1345
1999	Flood			12	6023
2000	Flood	Riverine flood		16	2524
2001	Drought	Drought		41	113596
2001	Storm	Tropical cyclone	Iris	8	6446
2001	Extreme temperature	Cold wave			1850
2002	Flood	Riverine flood			98740
2002	Storm	Tropical cyclone	Isidore	2	1500
2002	Epidemic	Viral disease	Dengue	1	2042
2005	<b>Storm</b>	<b>Tropical cyclone</b>	<b>Stan</b>	<b>1513</b>	<b>475314</b>
2005	Landslide	Landslide		63	1535
2005	Landslide	Landslide		7	1000
2007	Storm	Tropical cyclone	Felix		3905
2007	Flood	Riverine flood			1440
2008	Flood	Riverine flood		27	17300
2008	Flood	Riverine flood	Trop. Depr. Sixteen	3	180000
2009	Mass movement (dry)	Landslide		36	3028
2009	Flood	Riverine flood			10800
2010	Flood	Riverine flood			3270
2010	Volcanic activity	Ash fall	Pacaya volcano		1800
2010	Landslide	Landslide		53	50696
2011	Flood	Riverine flood		43	528753
2011	Flood	Riverine flood		11	6075
2009	Drought	Drought			2500000
2010	Storm	Tropical cyclone	Hurricane Agatha	174	397962
2010	Storm	Tropical cyclone	Trop. storm "Alex"		2180
2011	Extreme temperature	Cold wave			2643

2012	Drought	Drought			266485
2012	Earthquake	Ground movement		44	1321742
2012	Volcanic activity	Ash fall			10000
2013	Epidemic	Viral disease	Dengue	8	1977
2014	Storm	Tropical cyclone	Boris	5	100000
2014	Earthquake	Ground movement		1	94783
2014	Extreme temperature	Severe winter			8141
2014	Drought	Drought			1300000
2015	Flood	Riverine flood		2	56845
2015	<b>Landslide</b>	<b>Landslide</b>		<b>350</b>	<b>1112</b>
2015	Epidemic	Viral disease	Chikungunya		15211
2015	Industrial accident	Oil spill			12017
2015	Flood			6	8291
2017	Earthquake	Ground movement			3601
2017	Flood				10080
2017	Flood				1000
2017	Flood				31319
2018	<b>Volcanic activity</b>	<b>Pyroclastic flow</b>	<b>Volcan de Fuego</b>	<b>461</b>	<b>1714414</b>
2018	Flood	Flash flood		2	76845
2018	Drought	Drought			1500000
2019	Storm	Convective storm		2	15000
2019	Storm	Convective storm		2	63453
2019	Epidemic	Viral disease	Dengue	17	6264
2020	Storm	Tropical cyclone	Hurricane 'Eta'	160	2415888
2020	Flood			3	16000
2020	Storm	Tropical cyclone	Trop. storm 'Amanda'	2	306886
2020	Flood				4070
2020	Storm	Tropical cyclone	Hurricane 'Iota'	2	131298

## 5.2 Framing DRC's dimensions in Guatemala

### Data sourcing: perspectives and existing contributions on DRC processes

The institutional adoption of DRC constructs in policy documents and in the arena of intervention's lexicon is related mostly to DR drivers and unsafe conditions, often referred to as vulnerability dimensions. Thanks to past political and institutional trends, DRM has been socially oriented for some time, and DRC's terminology integrated in CONRED's policy and normative documents.

More in-depth analysis dealing with DR as socially constructed, tracing root causes and underlying factors, have been carried out by local scholars (e.g., the anthropologist Roberto Barrios) and La RED members. In particular, one of La RED's local representatives, Prof. Gisela Gellert, geographer, German-born, has

been pioneering Guatemala's disaster studies since the 80s and providing key insights DRC history in the region.

A last cluster of contributions gathered case-specific academic and newspaper explanations and stakeholders' reflections regarding past disaster outcomes and failed recoveries.

Table 6 Reviewed contributions describing and discussing Guatemala's DRC components.

Source	Authors	Terms, explanations, and components of DRC
Atención de desastres en Guatemala	(Gellert, 1996a)	Vulnerability's spheres, conditions, determinants, and effects
Comunidades Vulnerables a Desastres en el Area Metropolitana de Guatemala.	(Gellert, 1996b)	Vulnerability dimensions
Guatemala: hacia la gestión de riesgos a desastres en el contexto de un desarrollo sostenible	(Gellert et al., 2001)	Processes generating DR conditions
Medidas de mejoramiento de viviendas y de urbanismo como parte de la gestión local de riesgo	(Wamsler, 2001)	Human settlements' vulnerability factors and indicators
Determinación de Vulnerabilidades temáticas en cuatro asentamientos humanos del área metropolitana de Guatemala ante la amenaza de deslizamientos. Un aporte a la antropología urbana.	(Fuentes & Suseth, 2002)	DRC, classification of vulnerability
Environmental degradation and regional vulnerability: lessons from Hurricane Mitch	(Giro, 2002) [Central America]	Vulnerability and the Social Construction of Risk; Root Causes of Disaster Vulnerability
Segundo Informe sobre Desarrollo Humano en Centroamérica y Panamá - Chapter "Desafío de la Gestión Ambiental"	(PNUD, 2003) [Central America]	The social construction of risk and the explanation of disasters
At Risk: Natural Hazards, People's Vulnerability and Disasters	(Blaikie et al., 2004)	Inequitable DR social impacts
Desastres y Desarrollo: Hacia un Entendimiento de las Formas de Construcción Social de un Desastre	(A. Lavell, 2005) [Central America]	The social construction of disaster risk
¿Por qué tanta destrucción? Las amenazas naturales y estructurales:	(Morales, 2006)	The reasons behind much DR destructive impacts:

sistematización de la vulnerabilidad, la negligencia y la exclusión regional del altiplano occidental en la tormenta asociada Stan.		threats and vulnerability
De desastre en desastre ... ¿cuánto hemos aprendido?	(Gellert, 2006a)	Social and essential causes of disasters
Hurricane Stan Lifts the Lid on Guatemala's Vulnerability	(Gellert, 2006b)	Contexts determining DR
La organización en torno a la prevención y mitigación de desastres en la aldea El Volcán, Camotán, Chiquimula	(Garrido, 2007)	Vulnerability understandings – PAR model
Informe Técnico sobre Desastres en la Región: 1999-2009. Riesgo, Desastre y Gestión del Riesgo en Centroamérica: 1999-2010	(C. Lavell & Lavell, 2010) [Central America]	DR and its social construction process; DR in a historical dimension
Disaster Risk Management in Latin America and the Caribbean Region: GFDRR Country Notes - Guatemala	(World Bank, 2012)	Determinants of vulnerability to adverse natural events
Risk Reduction Index. Analysis of the Capacities and Conditions for Disaster Risk Reduction.	(DARA, 2011)	Analysis of the conditions and capacities for risk reduction; Risk Drivers
Perfil Ambiental de Guatemala 2010-2012: Vulnerabilidad local y creciente construcción de riesgo	(IARNA-URL, 2014)	The systemic vulnerability of Guatemala; Risk multipliers and local vulnerability
La Vulnerabilidad Asociada a los Desastres. “Un Marco Conceptual para Guatemala” 2012	(Maldonado et al., 2014)	Vulnerability dimensions and perspectives; Criteria for establishing vulnerability indicators
Informe sobre la gestión integral del riesgo de desastres en Guatemala 2013	(CEPRENAC & UNISDR, 2013)	Vulnerability dimensions; reduction of underlying risk factors
Gestión integral de riesgo desde la preparación y respuesta, experiencia DIPECHO en Guatemala 2013, p. 67	(DIPECHO, 2013)	Underlying causes; Advances and limitations in reducing underlying risk factors
El conflicto social como oportunidad para identificar qué constituye un desastre	(Fernandez, 2015)	DR underlying and constituting factors
Censo de Asentamientos Informales. Guatemala	(TECHO - Guatemala, 2015)	Social Construction of DR
La construcción social del riesgo en Guatemala	(Méndez, 2015)	Social Construction of DR
Por qué El Cambray II no es solo	(Berganza, 2015)	Social Construction of DR

culpa del Estado.		
Guatemala: Vivir en y con vulnerabilidad	(Hernández, 2016a)	Vulnerability construction
¿Se repetirá la tragedia de El Cambray?	(Berganza, 2016)	DR construction and determining factors
Cause Or Consequence?: Reframing Violence and Displacement in Guatemala	(Millard & Lara-Florian, 2018)	Causes and drivers of displacement
Gisela Gellert: Guatemala es un país con amplia gama de amenazas naturales	(Gellert, 2018)	DR results of construction processes
The Anthropology of Disasters that has yet to be: The case of Central America	(Barrios & Batres, 2019)	History and political ecology of vulnerability to disasters;
Forensic Analysis of the Conditions of Disaster Risk in the 2018 Volcano of Fire (Volcán de Fuego) Eruption : Opportunities for the Strengthening of Disaster Risk Management in Guatemala	(The World Bank, 2019b)	Forensic analysis of the conditions of disaster risk

### 5.2.1 Roots of vulnerabilities: a story of dispossession and marginalization

Guatemala's history of Mayans' land dispossession, segregations and "ruralization" (Barrios & Batres, 2019) started in the early colonial times (16th century) with the Spanish institution of Indigenous reduction and forced concentration (*reducciones de Indios*): "required indigenous people to move from their traditional communities into localized settlements, guaranteeing early Spanish conquistadores a steady supply of taxes and solidifying a workforce for use on their haciendas" (Barrios & Batres, 2019).

The relegation and exclusion of indigenous population applied for political and economic decisions as well as for the settlement distribution (in rural and less profitable areas) and design (denser, hazard-prone, unhealthy):

"As Spanish architects designed new colonial spaces, they introduced European architectural techniques and aesthetics, material construction, and city planning, helping them reinforce the "ruralization" of indigenous communities and relegating them to haphazard living conditions (Guzman Backler & Herbert, 1970; Martinez Peldez, 2009). Pre-Columbian rural indigenous settlement patterns followed a scattered village pattern, which allowed ample

separation between households. The reducciones imposed squalor on many indigenous families and created denser settlements that, when combined with imposed malnutrition, forced labor, and new pathogens like smallpox, resulted in virulent epidemics that destroyed large parts of the native population” (Barrios & Batres, 2019).

Along with the colonial domination, the resulting geographical dispersion and isolation of indigenous settlements have been explained also as a coping strategy to escape the control of the Spanish and from forced exploitations in the plantations (Gellert, 2006b).

After 1821 Centro American countries' independences from Spain, non-indigenous political leaders established new liberal policies that could maintain Guatemala's main agricultural exports – coffee in particular – within the international capitalist system of commercial trade, consequently consolidating indigenous lands dispossession (Barrios & Batres, 2019). This increased and reinforced the disproportional colonial inheritance of social and economic vulnerabilities for indigenous groups (Barrios & Batres, 2019): once again, “population being subjected to a forced displacement from their communities and facilitated their exploitation as a workforce for the coffee plantations (Alvarez, 1994)” (Barrios & Batres, 2019).

The very history of Guatemala capital city's locations has been strongly interrelated with the exposure to volcanos and earthquakes that forced to move it in three occasions: the first settlement (today Ciudad Vieja) was destroyed in 1541 by a great avalanche that came down from the slopes of the Agua volcano (Gellert, 1996a); the later founded city of Santiago (today La Antigua) was abandoned in 1775 after suffering from several calamities (volcanic eruptions and strong earthquakes), which culminated in the major Santa Marta earthquake in 1773 (Gellert, 1996a). The new city of Guatemala was founded about 45 km away from La Antigua, in a valley that was supposedly safer due to the greater distance of the Fuego volcano, since the belief was that the constant tremors and earthquakes were caused by its activities (Gellert, 1996a). In reality, the new capital was more exposed to seismic threats due to its foundation on a valley (more specifically, a graben) where different geological fault systems coincide (Gellert, 1996a).

The 1902 year has been quite representative of the degree of hazard severity in the country, first with a major 8.2 Richter scale magnitude earthquake killing more than 2000 people and in the same area, six months later, with one of the

largest volcanic eruptions of the past centuries. The Santa María volcano, which had been inactive until then, exploded expelling eight cubic kilometres of sand and ash in 36 hours and covering the surrounding municipalities and cities, causing the death of at least 1000 people (Gellert, 1996a). Interestingly enough, as noted by Gisela Gellert, is that the dictator in power at the time prevented, for political purposes, the dissemination of information about the event in all the national media, causing, consequently, a blank in the national collective memory of the catastrophes of that period (Gellert, 1996a).

The first historical attempt to promote free elections, a political and economic change, and a more independent national development strategy, arrived just with the 1944 Revolution and ended ten years later with mercenary troops invasion, supported by the United States (Gellert, 1996a). This political regression strengthened back the model of authoritarian and military regimes, electoral rigging, agro-exporting and dependent economy, and attempt of industrialization linked, from the very beginning, to foreign market-oriented transnational companies (Gellert, 1996a).

The consequent discontent against the political regime, the conditions of exclusion and exploitation were brutally repressed (Gellert, 1996a), setting the basis for three decades of civil war, starting from the 1960s, between popular guerrilla movements and military governments. As noted by Barrios & Batres (2019), the civil war, one of Latin America bloodiest (Gellert, 2006b), “featured a clandestinely US-backed ethnocidal counterinsurgency campaign that specifically targeted rural Maya communities. During this conflict [...] it was the already vulnerable indigenous population that would pay the greatest price in terms of lives lost (over 166,000 of the 200,000 lulled), disappearances, and displacements (Guatemala, Memory of Silence, 1999)” (Barrios & Batres, 2019). The thousands of killings and disappearances, more than half of Mayan ethnicity, and a million of internally displaced people, led to the complete disappearance of more than 600 villages (Gellert, 2006b).

### The 1976 earthquake

In addition to decades of violence, exclusion, and marginalization, in 1976 Guatemalan vulnerable and impoverished groups were hit by a 7.5 Richter scale magnitude earthquake. This catastrophe, with the civil war still ongoing at the

time, resulted in the death of 23.000 people (Barrios & Batres, 2019), with the highest mortality affecting indigenous villages living in the rural highlands (nearly 20.000 killed) as well as those impoverished communities settled in the capital's slums and ravines. Such a markedly selective impact (Blaikie et al., 2004) brought journalist and scholars to define it as a class-quake (Blaikie et al., 2004; Susman et al., 1983) in a context of permanent disaster (Blaikie et al., 2004).

The greatest impact of the earthquake in highlands rural areas wiped entire villages, with humble adobe houses and tile roofs (Gellert, 1996a), which lived of subsistence agriculture and lacked access to means of social and self-protection (Blaikie et al., 2004) also because of the neoliberal land appropriation and redistribution (Barrios & Batres, 2019).

In the capital, the death toll reached more than 3.000 and made homeless 90.000, victims registered mostly in precarious areas located in high-slope ravines, in old neighbourhoods with adobe houses but also, to a lesser extent, in non-earthquake-resistant, more recent, constructions (Gellert, 1996a). After 45 years, the outcomes of this event remain extremely relevant if we consider, for example, that the current population – and related precarious and unsafe settlements – of the Guatemala Metropolitan Area has grown five times compared to the approximately 700.000 at the time of the earthquake,

After the earthquake, it has been publicly recognized that national institutions were completely unprepared and inexperienced to face and manage any emergency, much less an event of that magnitude (Gellert, 1996a). Ian Davis, who visited Guatemala a few days after the quake, noted how relief agencies, rushing in the provision of first aid and shelters, were acting independently, attempted to coordinate just after weeks of intervention, and did not have enough competence for the technical decisions regarding the reconstruction strategy (Davis, 1977). Such lack of capacity and preparedness has been explained (Gellert, 1996a) in relation to the hyper-centralization of the administrative apparatus that concentrated resources and emergency attentions in the capital. Such centralization furtherly debilitated dispersed and rural affected communities that lacked any regional and local institutions managing their relief and representing their interests.

Earthquake's relief, recovery, and reconstruction raised analogue criticisms to those encountered, more than 3 decades later, in Haiti as follow.



- a. Aid delivery and relief activities:
  - Excess and dispersion in aid distribution (UN HABITAT & IFRC, 2010);
  - International organizations involving large number s of foreign volunteers (UN HABITAT & IFRC, 2010);
  - Excess of emergency activities carried out “under pressure and without proper consultation” (UN HABITAT & IFRC, 2010) of affected communities;
  - Lack of reliable information and coordination mechanisms between government’s many administrative units (Gellert, 1996a);
  - Duplication of efforts and activities operated by different institutions (Gellert, 1996a);
- b. Reconstruction process:
  - Listed interventions not addressing the structural causes of vulnerability (Gellert, 1996a);
  - Poor involvement of Government’s Reconstruction Committee for reconstruction projects (UN HABITAT & IFRC, 2010);
  - Interventions carried out with no prior consultation, nor shared definition of sectoral and geographic priorities (Gellert, 1996a);
  - Excess, over the total, of temporary houses construction (UN HABITAT & IFRC, 2010);
  - Reconstruction pace that slowed down with the time and was even hampered by the political election period in 1978 (Gellert, 1996a);
  - The private sector attracted, with better salaries, trained professionals and qualified construction workers, and made construction materials more expensive (Gellert, 1996a).

In the earthquake aftermath, the concentration of recovery efforts and aid-related job opportunities in the capital, coupled with the effects of the ongoing civil war in rural areas (Barrios & Batres, 2019), brought thousands of victims (150 thousand just in the six months after the quake (Gellert, 1996a)) to migrate to Guatemala City. These influxes of internal displacement to the capital complicated the reconstruction efforts, revealing the pre-existing urban planning and land use shortcomings: lack of safe locations and adequate building techniques (UN HABITAT & IFRC, 2010), of workforce (Barrios & Batres,

2019) and of subsidizes housing solutions (Gellert, 1996a) for such a complex recovery. The “lack of available housing (and eventually a lack of opportunities after the city’s population exploded and reconstruction efforts slowed) led to the growth of unplanned settlements, which cropped up in whatever marginal spaces were available” (Barrios & Batres, 2019). As a result, a census just a few months after the earthquake reported the emergence of 126 precarious settlements with a total of around 20 thousand families (Gellert, 1996a). Survivors and displaced families’ illegal invasions of (sometimes) safer locations were tolerated by governmental authorities also due to the large media coverage at the time of the emergency (Blaikie et al., 2004). Though, when these occupations were eventually granted legal land titles, settlers began to build substituting lightweight materials (e.g. corrugated iron sheet roofing) with heavier ones (concrete structures) (Blaikie et al., 2004), which made houses potentially less resistant and more harmful to another earthquake.

### Systematic violence

In this context of multiple crises, the insurgence of popular and social movements demanding indigenous rights and unionized labour were confronted by the government’s systematic violence (Barrios & Batres, 2019), inflaming new peaks of the civil war. The political and institutional crisis of those decades led to one of the most repressive regimes in the history of Guatemala (1978), to the international isolation of the country, electoral frauds (1982), conflicts within the army, several military coups, and regimes (Gellert, 1996a).

The counterinsurgency strategies adopted from these repressive and military governments aimed at “modernizing” indigenous and countryside communities and condensing their settlements in a manner that facilitated population management and control (Barrios & Batres, 2019). Agribusinesses’ expansion and land privatization displaced these population out of their ancestral productive lands, forcing them to inhabit mountainous and less productive areas (Barrios & Batres, 2019). The catastrophic impact of this internal conflict affected almost exclusively Maya indigenous communities, to the point of defining it as a “premeditated ethnocide” (Gellert, 1996a): “50.000 to 70.000 people killed or disappeared, 440 villages destroyed, hundreds of thousands of people displaced within the country, more than 100.000 refugees in other countries, 60.000 relocated in model villages, at least 500,000 had to live within of Development Poles”

(Gellert, 1996a). In sum, military and government strategies have been forcing, directly and indirectly, Mayan communities to a condition of extreme vulnerability through discrimination, exploitation, marginalization, exclusion, and disarticulation of their collective social organization (Gellert, 1996a).

### **5.2.2 DRC drivers and pressures: imposed structural adjustments VS survival strategies.**

As happened for Haiti and many other dependent economies, Guatemala committed to international financial institutions (IFIs) to implement monetary stabilization policies and structural adjustment measures. These implementations resulted late, fragmentary, inefficient, and counterproductive (Gellert, 1996a): the cost of living increased, the population lost purchasing power, public spending on welfare state was reduced, and the job market declined (Gellert, 1996a).

The government's economic policies of structural adjustments furtherly weakened the traditional indigenous economy through the intensive exploitation of available land and cheap labour, and the agricultural introduction of fertilizers, insecticides, and chemical defoliants, worsening land degradation (Gellert, 1996a). The political "vision" for indigenous communities has been to reorient their self-sufficient economy towards (a) non-traditional crops for export, (b) clothing maquiladora factories (exploiting indigenous traditional abilities with textiles), both in favour of foreign companies (Gellert, 1996a). The consequent greater dependence and food insecurity were also due to the untaxed import of basic grains and food aid supplies and donations, especially after the earthquake (Riding, 1977), which caused the decline and bankruptcy of almost 80% of small wheat and corn producers (Gellert, 1996a).

The affected impoverished population adopted their own "adjustment measures", i.e. survival strategies to highly vulnerable conditions (Gellert, 1996a), which were expressed in the informalization of economic activities, migratory flows to the United States, and in more urban migrants settling irregularly in unsafe, hazard-prone, ravines. Due to the lack of available fertile and farmable lands, another survival option for displaced communities has been their own "colonization" of the state's forests (especially in the vast forested department of El Petén) and the expansion of the agricultural frontier (Gellert, 1996a, 2006b): this short-term solution forced peasants to clear larger and larger areas to cultivate, which constituted the country main driver of deforestation.

### 1998 Hurricane Mitch and 2005 Hurricane Stan

The occasion of these two tropical storms repeated, on wider scales, what recurrent medium impact disasters already did for many areas of the country every year, furtherly burdening their difficult development processes. The two major disaster recoveries redrew the attention on indigenous communities' historical injustices and government's lack of attention for their needs (Barrios & Batres, 2019).

The 1998 Hurricane Mitch (October – November), and the related heavy rains, floods, landslides, mudflows, have been one of the first paradigmatic occasion, for the whole Central American region, for revealing the vulnerabilities resulted from these marginalization and neglection (Gellert, 2006b) processes. This regional-scale disaster (Barrios & Batres, 2019) severely hit Honduras, Nicaragua, and, to a lesser extent, Guatemala, and El Salvador. Hurricane Mitch, which reached a Category 5 peak off Honduras' coasts, claimed at least 14.000 lives (sum of dead and missing people according to (Giro, 2002)) just in that country. By the time it reached Guatemala, the hurricane had downgraded to a tropical storm category, but caused serious damages and losses due to the two weeks of heavy rains that had been cumulating on soils already soaked at the end of the rainy season (Tamasiunas et al., 2002). Major losses affected especially Maya Cho'rti' communities (2,500 killed by mudslides (Barrios & Batres, 2019)) on the eastern border with Honduras, and marginal settlements on Guatemala City's ravines, destroyed by floods, debris flows and mudslides generated by rains on deforested and eroded hillsides (Giro, 2002). The hundred thousand damaged and displaced people caused by this disaster showed, once again, Guatemala's level of cumulated vulnerabilities when facing long-lasting, heavy rains periods (Gellert et al., 2001).

As for 2005 Hurricane Stan (October – November), despite being less severe than Mitch, it cumulated high quantities (between 400 and 650mm – (Tamasiunas et al., 2002)) of torrential rains (once again, at the end of the rainy season) along Guatemala's western highlands and pacific coast, causing floods, landslides, and mudflows. The direct number of deaths and disappearances of the tropical storm amounted to 2.000 (Barrios & Batres, 2019), but the consequent hydrometeorological events flooded and buried many more. The most affected and hardest hit were the thousands of rural communities widely dispersed on the

highlands, most of which located on unsafe mountain slopes (Gellert, 2006b). Such dispersed locations in dangerous and difficult terrains have been explained (Gellert, 2006b) with the lack of other options for displaced and impoverished indigenous communities, worsened by their subsistence agriculture's deforestation and soil erosion, and by the territorial exclusion of the inadequate road network (Gellert, 2006b). During the emergency, this lack of accessibility and proper infrastructures furtherly diffculted reaching, rescuing and assisting survivors and victims (Gellert, 2006b). In the aftermath, lands dispossession that forced communities to settle in unsafe locations in the past, complicated recovery and reconstruction efforts for the thousands of affected families: it has been "extremely difficult for the government to find safe areas for relocation, as the best land – was – privately owned and prices – had – soared in anticipation of post-disaster resettlement" (Gellert, 2006b).

#### Historical factors underlying institutional and political vulnerabilities

Gisella Gellert's post-disaster assessments and evaluations of these three events (1976 earthquake, Hurricane Mitch, and Stan) highlighted the institutional and political weaknesses that affected the Guatemalan State apparatus, lacking preparedness and capacity, coordination mechanisms (both among interventions and institutions), orientation towards DR reduction and prevention, and prone, during emergencies, to states of exception that favoured military control.

Twenty years after the 1976 earthquake, referring to the institutional weaknesses in DRM, she reported that (Gellert, 1996a):

- Emergency response officials were poorly prepared and capacitated for their job, unaware of the importance and size of the task;
- Lack of regulations and mechanisms for DRM coordination and cooperation, in terms of roles and responsibilities, that could address institutional improvisation and fragmentation, jurisdiction conflicts, and functions duplication;
- Confusion and absence of control mechanisms regarding existing laws and regulations related, indirectly, to DR, e.g., building codes and land use regulations, to which public institutions did not comply in the first place;

- The almost absolute absence or inaccessibility to DR archives, information, or data banks.

After 1996 Peace Agreements' programs and Hurricane Mitch relief and recovery activities, more development constraints emerged (Gellert et al., 2001):

- The existence of two recovery processes, from the civil war and the hurricane, led to confusion regarding funds usages and assignments and to an ineffective implementation, complicating any achievements monitoring and accountability assessment;
- Government, international organizations and NGOs programs and projects were uncomprehensive and poorly coordinated, lacking a common and shared strategy, following different goals, and operating on different DRM sectors in a fragmented and isolated way;
- Despite the declared "vulnerabilities reduction" strategy, most interventions were mainly oriented to emergency preparedness and to infrastructural projects, and directed exclusively to the areas affected by the tropical storm, disregarding the surrounding, equally vulnerable communities;
- Highly politicized and centralized government investments, with different public institutions, intersecting and overlapping on the same sectors of intervention;
- Conflict and contradictions between development visions, the neoliberal oriented to exports, financially supported by international banks, and the one oriented to extreme poverty eradication, strengthening local governments, supported by aid and grassroots organizations; where the former feed and hinders the latter with marginalization and exclusion, causing more poverty and vulnerability;
- Inadequate environmental and disaster related normative frameworks, lacking incorporation of DRM in development plans, policies, programs, and projects.

As an example, initiatives performed for displaced communities' land access and housing provision, presented a certain amount of "inconveniences" (Gellert et al., 2001):

- Housing distribution produced speculation on allotments' prices, favoured private interests, corruption, and, occasionally, led to the wrongful provision to not targeted beneficiaries;
- Exclusion of the poorest and most marginalized beneficiaries that could not access to loans nor afford banks' interests;
- Housing projects often did not comply with minimum building standards and security codes;
- Past land dispossessions of indigenous communities operated by the army were not returned nor addressed with regulations so to avoid new similar injustices.

Also due to some of the critical and weak matters outlined so far, from the beginning of the 2000s and even more after Hurricane Stan, there have been many more efforts incentivising decentralization and participation. The flourishing of Development Councils (established by law already in the 80s) at the municipal and community level, involving disasters affected communities, unveiled conflicts, vulnerability and exclusion that characterized Guatemala's rurality: many of the participants were illiterate, only spoke a Mayan language, and lacked the necessary expertise and experience (Gellert, 2006b).

### **5.2.3 Institutional and political drivers and unsafe conditions**

The political dimension of vulnerability in Guatemala has been explained as a permanent lack of political will, institutional leadership, and financial resources to prioritize effective DRR and sustainable development policies (DIPECHO, 2013). This manifests in the overconcentration of decision-making processes, frequent cases of corruption and law infringement, in the high turnover of governmental personnel at every election, highly centralized governmental organization as opposed to the poor autonomy of regional, local and community entities (Maldonado et al., 2014). All of which prevents consistently facing the complexity of DRC. Such lack of political will and interest, particularly in peace time, has been proved also by decades without a specific budget assigned to DRM for most institutions (DIPECHO, 2013).

The institutional dimension of vulnerability is related to institutions' bureaucratization, obsolescence, and inflexibility, and to the subordination to economic, political, and self-interested powers and criteria (IARNA-URL, 2014; Maldonado et al., 2014) that prevent adequate and agile responses to DR. The

consequences of this inability to provide appropriate public services and to face the creeping environmental, social, and housing crisis, are citizens' discredit and distrust towards institutions and their actions, which periodically lead to protests and uprisings that worsen the ungovernability status (IARNA-URL, 2014).

Guatemala's political and institutional "unsafe conditions" result from a compound of barriers and challenges that hinder an effective DRR, and fail in reaching the speed and amount of DRC processes:

- lack of national laws requiring commitments and intervention to reduce and mitigate DR (CEPREDENAC & UNISDR, 2013);
- lacking agreement and alignment of governmental agendas among each other and to international donor's priorities;
- lack of specific requisites for political candidates to include DRM in their agenda, so, once they are in power, if their actions amplify vulnerabilities and/or constitute a threat to the vulnerable, it gets much more complicated to stop such processes;
- political candidates, to gain votes and consolidate forms of clientelism, might exploit recovery processes and communities' needs in disaster aftermaths, as well as not prioritize and exclude for interventions certain areas because of their favour to opposing political parties;
- lack of systematic investment program and specific budget allocation financing development and DRR plans to support exposed and vulnerable communities (CEPREDENAC & UNISDR, 2013);
- limited installed capacities, poor coordination and communication among different government levels (DARA, 2011), lack of a strategic vision that brought institutions to use just a fraction of the available governmental funding;
- lack of monitoring and effectiveness evaluation for DR related projects and sectoral investments, making more difficult to assess and track DRM improvements (World Bank, 2012);
- lack of effectively capacitated local and municipal authorities to DR prevention and reduction (to a lesser extent, DR preparedness), which contribute to confusion regarding their DR role, duties, and responsibilities;



- authorities' legal responsibilities and faults related to DRC are addressed just after major losses and impacts;
- political mandate and election lead to the turnover of already DRM-capacitated technicians and personnel, in favour of newcomers that probably need new preparations, capacitation, and experience on the field;
- lack of trained personnel for monitoring compliances of existing legislations as well as for reporting environmental problems and conflicts around the country (CEPREDENAC & UNISDR, 2013);
- environmental and human rights activists and community defenders getting criminalize and risking becoming political prisoners for their opposition to governmental and corporates' contributions to DRC.

The ad hoc coordinating agency for DRR, CONRED, presents its own biases and barriers: as a starting point, CONRED's constitutional law did not give coercive and sanctioning power to the institution. Therefore, despite awareness and existing DR analysis officially acknowledging and explaining DRC's "vulnerability's dimensions", CONRED can only recommend taking action but lacks a disaster vulnerability reduction strategy, the legal competence, a dedicated budget and the necessary material resources for the many humanitarian crises (Romano, 2019). Due to political turns and instability, the very role of this agency, in charge, on paper, for DR prevention, reduction and mitigation, retreated to centralized, military, reactive and emergency focused approaches.

#### **5.2.4 Environmental dimension: resource capture, scarcity, and degradation**

The environmental dimension of vulnerability refers to a history of land uses that did and do not consider environment's own recovery capacity, nor the consequent negative externalities on ecosystems, i.e., depletion, deterioration, and contamination (IARNA-URL, 2014).

The key resuming driving forces underlying this vulnerability dimension have been (DARA, 2011):

- Extractive industries' overexploitation of land, forests, and water resources that degrade and impoverish ecosystems and soils, dispossess and displace local communities;

- Governmental authorities that, also for the high and many interests at stake, do not intervene effectively to ensure environmental protection, nor enforce land uses regulations;
- Climate variations, storms and droughts worsening (in frequency and severity), and multiplying DR effects on agricultural practices, all of which reduce communities' resources to self-sustain, and capacities to adapt, forcing further deforestation and environmental overexploitation.

The most significant and recurrent consequences (or manifestations) for the environment are: air pollution, water bodies and resources contamination, waste and wastewaters uncontrolled production and mismanagement, marine and coastal zones degradation, soils (agricultural and forested) erosion, impoverishment, and contamination, deforestation, extinction of plants and animal species (IARNA-URL, 2014).

Guatemala is among the countries with the highest rates of natural resources extraction. Agricultural, livestock, energy, and mining industries are responsible for the overconsumption of at least 15% of the national territory, eroding more than 3 times of soil for each ton of extracted material (IARNA-URL, 2014).

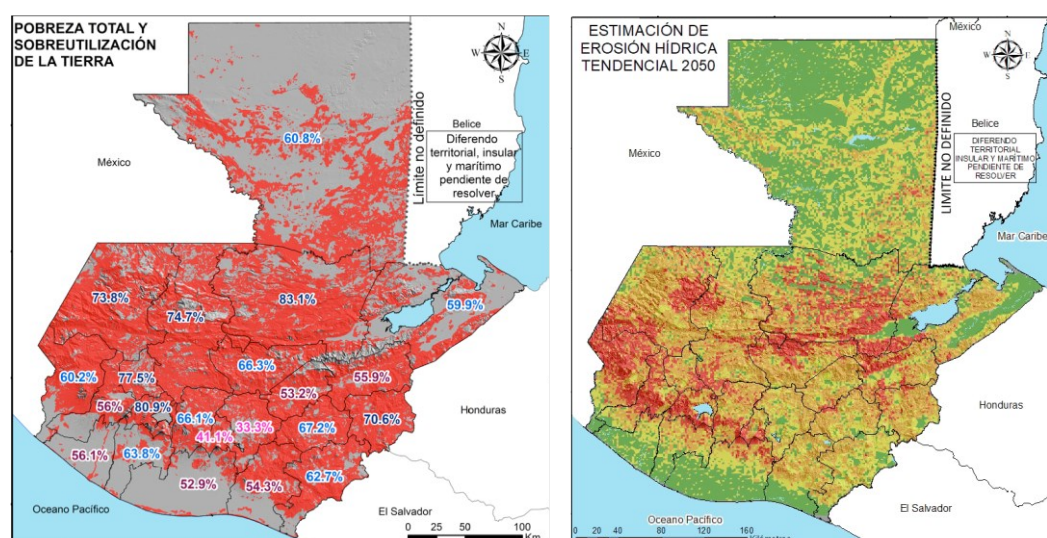


Figure 42 On the left, land overexploitation (in red) and departmental poverty rates over the total; On the right, estimates of soil erosion (in red more than 200 ha per year) for 2050 in a tendencial scenario (Source: (Ministerio de Ambiente y Recursos Naturales, 2017))

Extractive industries and agribusinesses export goods out of Guatemala to western countries, and “import” environmental degradation, pollution, and depletion. Nevertheless, such liabilities, costs, and impacts (*pasivos ambientales*)

are not accounted as part of DR matters, nor are the consequent social and environmental conflicts with affected and damaged indigenous communities. Extractive industries do exacerbate the condition of neighbouring communities and agricultural activities through pollution and contamination (e.g., fumigations, soil impoverishment, river pollution), introduction and worsening of hazardous events (e.g., controlled fires that get wild, river depletion or diversion enhancing droughts and desertification), and force rural to urban migrations. The dominant agricultural exploitations, sugar cane and palm oil, led to the replacement of previous agricultural models, i.e., medium size *finca* with farming labour force living within the property, reducing self-sufficiency options and increasing communities' displacements.

Another alarming driving force of DRC is the accelerated deforestation process which has been undergoing in the past 50 years: one of Guatemala's peculiarities were the forested lands that covered 70% of the country, with only 26% suitable (and therefore grabbed) for intensive agricultural productions (Gellert, 1996a). These forested lands have been reduced of the 60% in the 1960-2010 period, with a yearly average of 100.000 hectares erased (Gellert, 1996a; IARNA-URL, 2014). Besides agriculture and livestock expansion, the other factors underlying deforestation have been the urban growth and its high firewood consumption (84% of households using it as fuel (IARNA-URL, 2014)), and the lucrative timber business (mahogany in particular), both legal and illegal, that has been using heavy machinery that destroyed, collaterally, many other tree species (Gellert, 1996a).

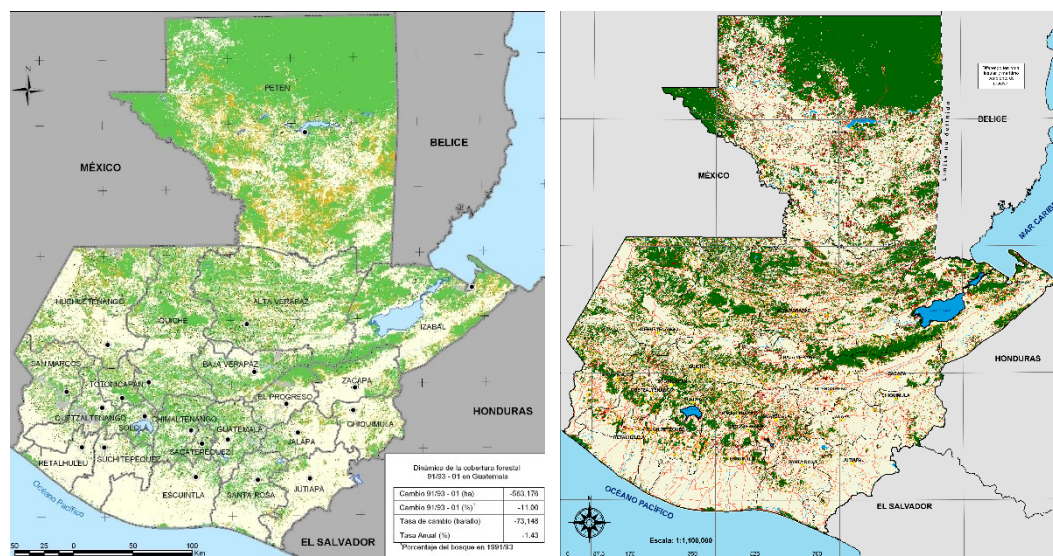


Figure 43 Forest land cover comparisons, based on 1991,1993,2001 data on the left, 2010-2016 data (in red the recent forest losses) on the right (Source: SIFGUA)

The lack of regulations and long-term management strategies applies also to water sources usages, especially in the context of intensive-extensive agricultural productions and mining sites, denying an equitable and efficient provision for all types of national demands (where human consumption accounts only for 2.5%) (IARNA-URL, 2014). In general, the usage of surface waters and groundwaters is anarchic: as an example, sugar cane farming requires irrigations for which rivers are diverted and wells excavated excessively deep, contributing to the lowering of groundwater levels and exacerbating drought crisis. Foreign-led hydroelectric power plants also raise controversies and negative externalities in terms of water bodies pollution, affecting water levels and availability, worsening the occurrence and severity of floods, dispossessing, and displacing communities surrounding the site.

These conditions of environmental impoverishment and degradation take part in vicious cycles (IARNA-URL, 2014) of reciprocal exacerbation with the climatic phenomena affecting the country (climate variability and change), above all droughts and the consequent famine that plagued Central America's dry corridor. The "*corredor seco*" crises, undergoing now for decades, are the result of the multiplying effects (IARNA-URL, 2014) of lack of water resources and the prolonged dry seasons of the El Niño-Southern Oscillation (ENSO) phenomenon when encountering contaminating land uses, unfertile crops, and ecosystems' adaptive capacities losses.

As will be discussed in the following “tale”, waste and rubbish too have a role in land degradation, with waste accumulating on slopes near settlements, raising landslides risk (creation of “rubbish avalanches” during raining days), and water sources contamination, clogging riverbeds, polluting shores, worsening floods severity. This constituted a case already in 1998, during Hurricane Mitch emergency, when terrain and rubbish movements and flows blocked aid and civil protection access to the affected areas.

Motagua River basin: extractivism, environmental degradation, and waste mismanagement in the Guatemalan Dry Corridor

[Sources: interviews, reports, and articles (Brenes, 2017; EFE noticias, 2019b, 2019a; Elías, 2015; elPeriodico de Guatemala, 2019b, 2019a, 2019c; Tamasiunas et al., 2002; Van der Zee Arias et al., 2012)]

The Motagua River, one of Guatemala’s biggest, running from inland to the Caribbean Sea on the border with Honduras, gathers within its watershed different environmental pressures that amplify and exacerbate the effect of the extended severe droughts and, therefore, famine humanitarian crises in the region.

The lack of regulations for land and water sources’ uses allowed extractive industries’ (hydroelectric, mines, wood, monocultures...) environmental endangerment and degradation: deforestation, water, and soil depletion and contamination. On top of it, the Motagua river recollects, from one of its tributaries, most of the urban and industrial waste and wastewaters of the whole Guatemala City’s metropolitan area, contaminating 470 km of its course until Honduras’ coasts and beaches, poisoning fisheries, and causing gastrointestinal diseases to neighbouring communities. These communities, already impoverished and lacking agricultural self-sufficiency, are permanently susceptible to the convergence of climate variability with the pressures resulting from environmental degradation: water pollution, soil erosion, losses in crops, fertility, water retention and infiltration capacity.





Figure 44 Guatemala City's waste accumulating along the Las Vacas river, one of Motagua's tributaries (Source: CONRED)

Part of the Central America Dry Corridor, the Motagua river basin is severely affected by droughts' impacts of the ENSO phenomenon, which, in the past 10 years, repetitively and severely hit Guatemala impacting the lives of more than 5 million people. The anomalies and shortages in rainwaters of prolonged droughts furtherly worsened water scarcity and agricultural losses, compounding health diseases, famine, and child malnutrition crises, ultimately intensifying rural to urban migration.

These emergencies channelled a large number of humanitarian aid interventions for food security and nutrition, which temporarily alleviated just the symptoms of the problem. Due to the political barriers and many interests at stake, underlying factors such as land degradation, waste mismanagement, and contamination remain misdiagnosed and unchallenged. Moreover, given the national (and international) extension of the crisis, delivering goods and supplies to all communities in need has been unfeasible, and prioritizations of interventions led to the oblivion and exclusion of certain areas. Most food security humanitarian efforts focused on the area affected by the droughts, though, more recent sampling assessments of food access and malnutrition nationwide revealed that other geographical areas have been neglected despite being in analogue or more severe conditions.

As for the recollection of the waste accumulated along the river, the few attempts made were performed mostly because of the political crisis with Honduras which was receiving the littering along its Caribbean coasts. Still, waste recollection and sustainable management remain a major challenge for Guatemala City and its surroundings.

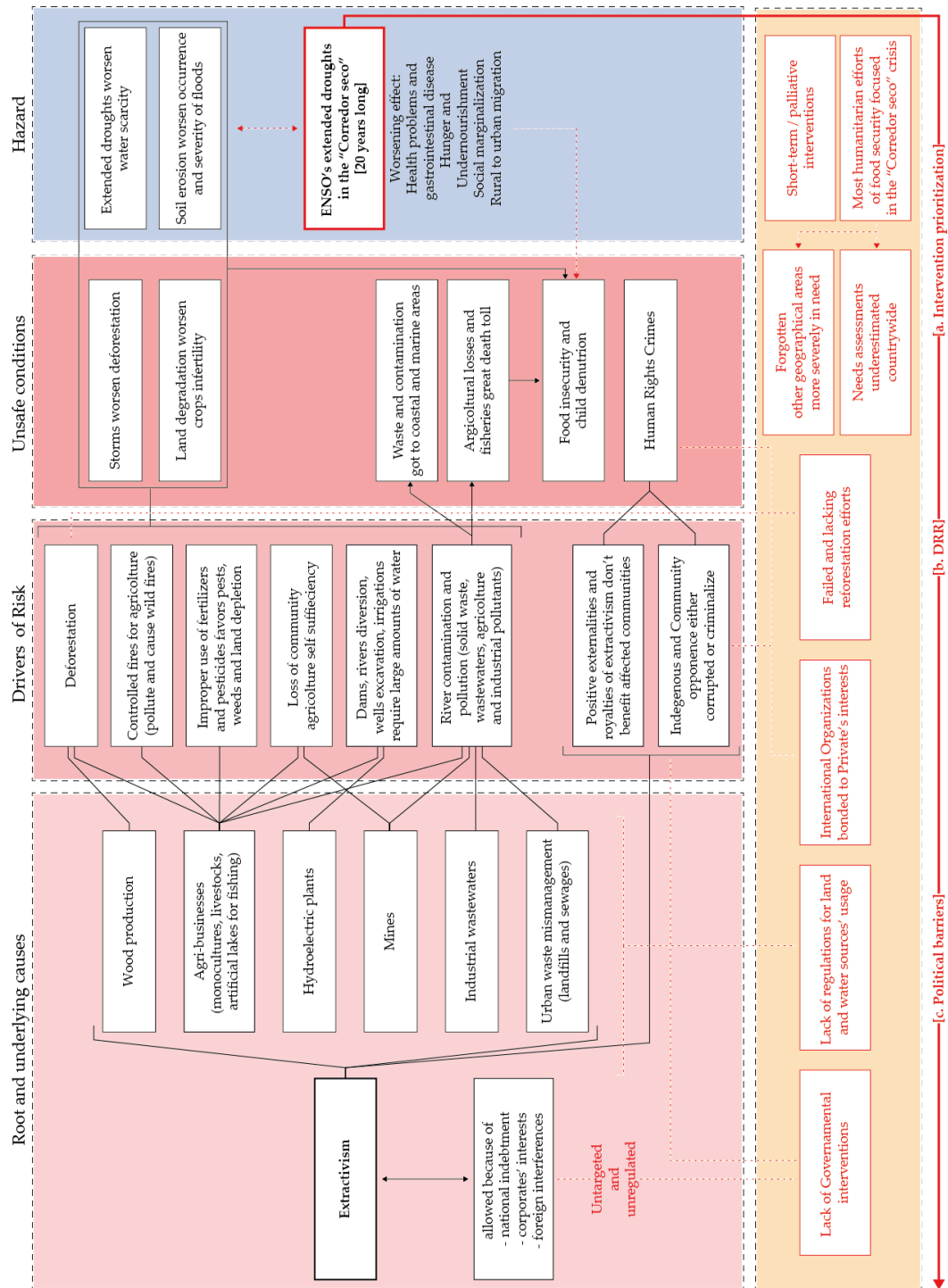


Figure 45 Motagua river basin: sketching the DRC (in black) process and DRM efforts (in red).



### 5.2.5 Physical and technical dimension of vulnerability

Another cluster of barriers and vicious circles increasing vulnerability in the Country has been constructed throughout decades of unplanned and densely populated urban growth. In cities lacking popular housing projects and policies, impoverished displaced communities have been forced to illegal invasions on land unsuitable for housing in terms of basic services, infrastructures, and safety (Gellert, 1996a). Due to Governments' "memory loss and removal" of local indigenous DR culture (especially on hazardous locations), past state-led (or state-approved) communities relocations resulted in hazard-prone settlements in areas that had been historically avoided and/or legally not permitted.

These informal expansions in marginal, steep, hazard-prone areas have become permanent urban neighbourhoods, and, even if often portrayed and stereotyped negatively, they are the physical outputs of historical processes of ethnic discrimination, war and DR displacements, government's past allowances on hazard-prone relocations and lack of concern of migrants' housing and social needs (Barrios & Batres, 2019). These pressures remain (urban growth rates up to 12% yearly) and will continue at increasing rates given Guatemala's very young population (average 20 years old) that will be seeking jobs and better life opportunities, the foreseen urban expansion projects, and the recurrent crises affecting rural areas.

The resulting physical and technical dimensions of vulnerability refer to settlement in hazard-prone dangerous locations, lacking urban planning and zoning, and building codes enforcement (the physical); and housing and infrastructures inadequate construction techniques (the technical) (Maldonado et al., 2014). The driving forces underlying this inadequate and weak planning system have been outlined by scholars (Gellert et al., 2001; Wamsler, 2001) and interviewees as:

- Lack of comprehensive building and urban planning regulations, with adopted DRR building codes and standards that do not apply for existing constructions.
- Lacking zoning and land use planning tools – with recent planning efforts (*Planes de Ordenación del Territorio*, POT) that do foresee DR analysis and zoning but mainly regarding specific urban expansion projects and investments, disregarding hazard-prone and marginalized urbanizations; in

2019 there were 4 adopted POTs out of 334 municipalities, and still, implementing these plans remains the major challenge due to the governmental paralysis and conflicting interests involved.

- Lacking or poor enforcement of existing laws and regulations – a laissez-faire and no-intervention policy, specifically regarding hazard-prone settlements, that have been justified by the overwhelming housing needs after past catastrophes and internal conflicts, in conjunction with lacking financial resources and access to safe locations.
- Lack of social housing's financing and implementation programs – despite the many political promises, the housing market did and do not manage to provide adequate solutions (incentives, welfare, loans...) to incoming poor masses, so to prevent further informal growths and urbanizations.
- Lack of an effective cadastre addressing land titles injustices and conflicts, formalizing land parcels ownerships.
- Inadequate technical infrastructure (bridges, road access), services (electricity, communication networks, water, sanitation), and public institutions (hospital, firefighters) provision for such a complex and rapid urban growth.
- Lack of recognition of the informal building sector, that built up to 80% of existing constructions. These individual building investments, also thanks to emigrates remittances (up to 8/10 million US dollars each year), have been assessed of better quality compared to other contexts, but have not been addressed by institutions nor NGOs as an opportunity for more coordinated, planned, and agreed endeavours.
- Lack of coordination and communication between relevant institutions.
- Urban expansions compounding narcotraffic money laundry housing investments, unregulated informal settlements, and new public and private housing investments, resulting in a speculative bubble and soil values distortion in Guatemala City.

To this regard, Christine Wamsler, eminent urban planning and disaster scholar, listed, in 2004, the core indicators of the physical and technical conditions of unsafety resulting from such unplanned and informal urban growth (Wamsler, 2001):

- Unsuitable land for construction – on steep slopes, prone to floods, landslides, and earthquakes – with less than 10% of Guatemala City's

settlements being located in suitable land for urbanization (TECHO - Guatemala, 2015);

- Unsafe location – proximity to dangerous elements such as rivers, ravines, gas pipes, landfills, industrial zones, natural resources, and other factors that pose a risk to the settlement; E.g., settlements on lots that used to serve as solid waste landfills and clandestine garbage dumps (TECHO - Guatemala, 2015) raising vulnerability levels in terms of health diseases and ground instability.
- High population density and unfavourable and informal property possession condition;
- Inappropriate or poor-quality building material and construction elements; inadequate building techniques if considered the existing threats settlements are exposed to;
- Lack of electricity and water supply, inadequate or missing sewage system, sanitation services, and wastewater treatment – in a context where water contamination and related health diseases have one of the higher mortality rates
- Lack of communication, civil protection committees, and appropriate road accesses complicate and hinder evacuations and emergencies management;
- Socio-economic barriers that impede fulfilling even basic and daily needs.

These unsafe conditions have been explained in the interviews also as compounded by cultural local behaviours and beliefs, such as people's priority on land ownership titles, the consequent distrust on condos, and the widespread practice of gradually expanding one-floor buildings (of poor construction materials) accordingly to family needs, reinforcing structural fragility. Furthermore, an enquiry carried out in the informal settlements of Guatemala City Metropolitan Areas (TECHO - Guatemala, 2015), points out how community leaders have a certain level of awareness and perception of the threats they are exposed to, especially those related to landslide-prone areas, steep slopes, ravines, and informal garbage dumps. Though, as seen, such unsafe practices are the result of processes of exclusion and impoverishment that force displaced and damaged families, hit by several catastrophes and crises, to rebuild their houses in the same, overly exposed, locations.

As for Haiti, these uncontrolled development processes contribute to environmental degradation and pollution, and to worsening hydrometeorological events in severity and occurrence, e.g., due to: urbanization-driven deforestation, soil sealing, and riverbeds covering; inappropriate waste disposal and lacking canalization (Wamsler, 2001) clogging rivers' flows; wastewaters mismanagement leading to ravine erosion and rivers contamination. This unsustainable urban growth is argued to continue, especially if we consider that the National Development Plan K'atun 2032 foresees a megacities-oriented future for Guatemala, despite the lack of resources and current inequal and unsafe urban patterns.

Intervening in these unsafe, hazard-prone, informal settlements presents wickedness and barriers that impede an effective reduction of DR. The main constraint of slum upgrading efforts relates to the disproportioned funding requirements for integral interventions. If considered just the Guatemala City Metropolitan Area, there are around 470 informal settlements built in high slopes areas, highly prone to terrain movements, landslides, floods, and earthquakes, for which interventions would require an estimate of over 1000 million US dollars. Such complex interventions awaken further issues in terms of institutional responsibilities and coordination between municipal and national governmental agencies.



Figure 46 Drone view of the *El Incienso* bridge, few hundred meters away from Guatemala City's historical city center (up-right in the photo), with different impoverished communities who have been settling in the high slope ravines (Source: [https://www.facebook.com/permalink.php?story\\_fbid=208221893004180&id=112524452573925](https://www.facebook.com/permalink.php?story_fbid=208221893004180&id=112524452573925)).

Furthermore, interventions in high DR settlements were forbidden by law (Ley 179/2001) in order not to reinforce these behaviours, which complicated mitigating physical exposure and vulnerability as well as responding to infrastructural breakdowns during and after emergencies. For such “red” areas, indeed the most marginalized, exposed, and vulnerable, apart from relocation, the options of interventions are few and lacking. Resettlements themselves may increase segregation and inequalities, and in some cases, communities got back to live in unsafe areas, voiding relocation efforts.

Finally, past pilot efforts of slum upgrading and renewal, especially for community infrastructures and common spaces, may get forgotten and neglected, hindering, and voiding previous achievements. One foreseeable, unintended result of slum upgrading projects and urban planning restrictions is the internal

migration towards (a) areas addressed and prioritized for interventions or (b) neighbouring municipalities with less strict regulations.

#### Cambray II settlement's 2015 landslides

[Sources: interviews, reports, and articles (Barrios & Batres, 2019; Berganza, 2015, 2016, 2020; Colussi, 2015; De León & Monterroso, 2016; Guerrero, 2015; Hernández, 2016a, 2016b; Lebeau, 2015)]

As hundreds of many others in Guatemala, the Cambray II settlement was the result of both the housing crisis and the untargeted internal displacements to Guatemala City peri-urban areas, which settled in unsafe lands along ravines' steep slopes, prone to heavy rains, floods, and terrain movements. In this settlement, terrain instability and rains already triggered landslides and caused losses in the past, which have been forgotten despite Government's declarations of high risk for the entire area, to prevent any other investment. Due to the institutional paralysis – interested in settlers tax revenues but unable to provide safer relocations – and lack of binding instruments regarding hazard-prone informal settlements, existing risks had not been reduced nor new urbanizations prevented. Even when, in 2014, the risk has been assessed as imminent and warned by CONRED, the eviction could not be enforced.

On the night of October 1, 2015, rainwaters – and decades of mismanaged wastewaters soaking the soil – triggered a major landslide, destroying and burying the whole sector, killing 350 people and displacing hundreds of families.





Figure 47 Cambray II landslide: before and after (Source: CONRED)



Figure 48 Cambray II landslide: search and rescue activities (Source: Reuters)

The tragedy ignited public debates regarding responsibilities and faults for allowing the settlement, for the lack of perception and awareness and for how the warning and the emergency were being managed. As a result, the judicial processes for addressing responsibilities as well as the relocation of the affected families have been politically exploited. The debate continued also because of the 2 years long resettlement process that brought the El Cambray community 20 km away from their original location, raising questions on the risk of return to hazard-prone areas for these families. As of today, the needs for safe housing for hundreds of analogue settlements in the Guatemala City metropolitan area's ravines remains unsolved; also, some of the Cambray II disasters victims got back building in that very same area, due to its strategic location.



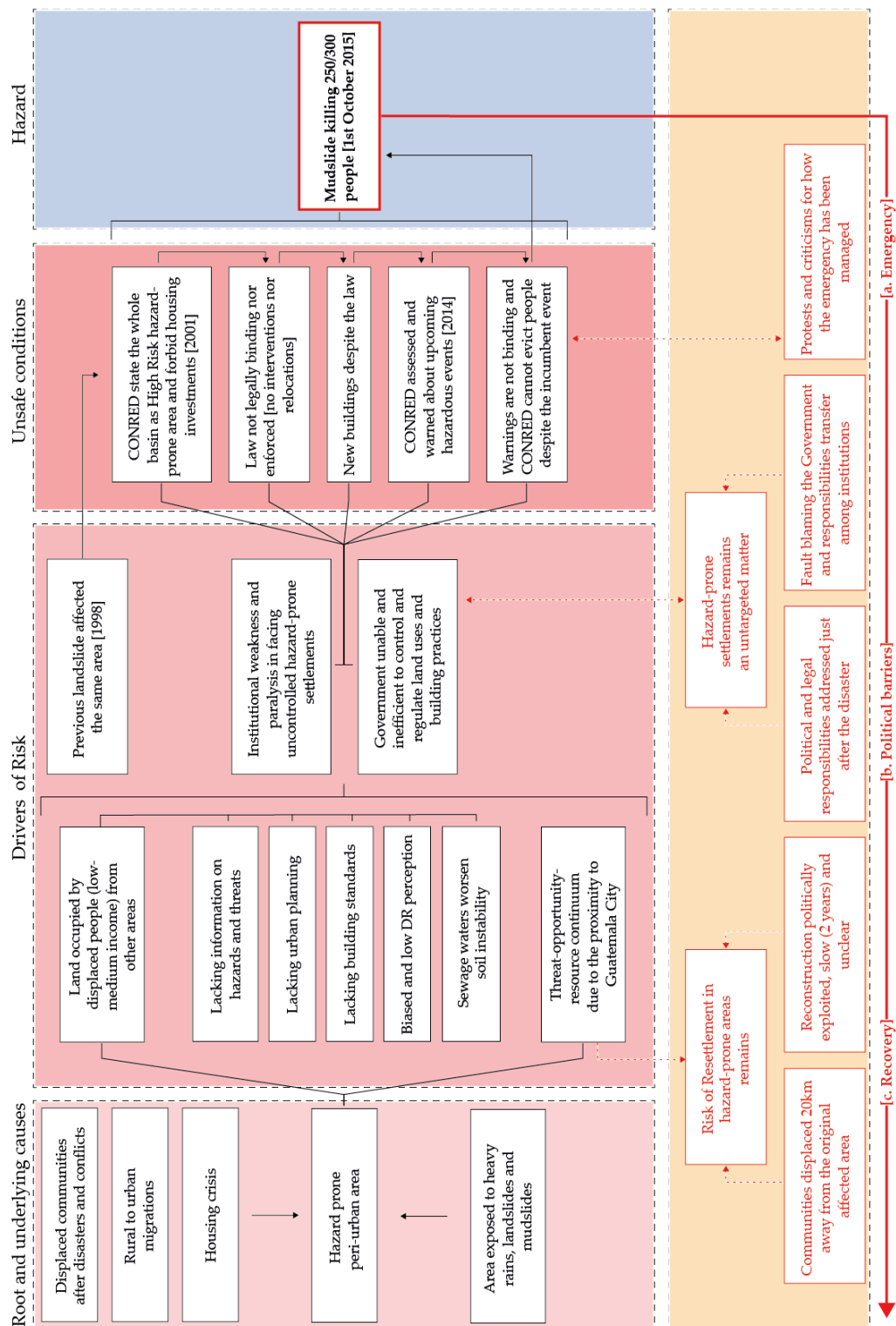


Figure 49 Cambray II landslides: sketching the DRC (in black) process and DRM efforts (in red).

### 5.2.6 Aid, Planning and DRM dimension

Stakeholders' interviews, besides explaining and confirming "conventional" DRC factors and drivers, reflected on their experiences on the field and sketched a side-cluster of DRC dynamics: the active, but often unintended, exacerbating contribution of aid and DRM actions. As for Haiti, the 1976 earthquake and hurricanes Mitch and Stan's emergency and relief operations, decades of humanitarian and development aid interventions experienced several biases, errors, and ineffective results. The duplicated and overlapping efforts, overly saturated areas of intervention and forgotten ones, have been due to funding mechanisms, institutional and political constraints, and to an overall lack of coordination and common strategies, all institutional barriers that are being reported already since the 70s (Davis, 1977; Gellert, 1996a).

Donors' requirements for funding have been described as overly bureaucratic, specific, complex, and detailed, which contribute to scattering and delaying aid efforts. As an example, projects' funding and implementation can take place even two years after the initial proposal to donors. Also, these strengthen controversial tendencies for NGOs, such as competing for aid bids, copy and pasting interventions from non-applicable cultural contexts, and moving from overly addressed topics to new and "less beaten" ones to exploit different funding sources.

The lack of funding and long-term DRC oriented strategy results in DR being often addressed locally and "explicitly" by specific and designated actors, incoherently with its wider scale and more complex nature, which should be integrated and mainstreamed, therefore "implicitly", within each governance sector. These constraints explain, and get nourished in turn, the overall confusion in terms of projects planning, coordination, and sustainable management:

- needs assessment, disaster risk analysis and mapping being performed by different actors, without a shared methodology, in different scales, and based on DR understandings that sometimes differ with local and indigenous knowledge and perceptions;
- protocols, guidelines, and plans are oversaturated, poorly followed and implemented, which applies also for emergency responses and relief activities;

- best practices and past successes, as well as mistakes and failures, in aid and DRM have not been systematized and disseminated, hindering ownership, monitoring, and follow-up.

Consequently, what emerges is a patchwork of evaluations, maps and pilot projects, overlapping in certain hotspots and forgetting others, whose results are not always disseminated nor satisfactory, and data usually not open to access; all of which makes assessing and prioritizing communities most in need, versus those already trained and supported, an even more complicated task.

Once again, NGOs support and efforts for DR prevention and reduction have been assessed as palliative and mainly focused on providing basic services, education, and preparedness-related training, which get dispersed also because of the weakness and lack of political will at the municipal and local level (e.g., DRM training for municipal authorities being deserted). As an example, the TECHO enquiry in the Guatemala City Metropolitan Area highlighted how DRM municipal plans, adopted at the time, foresaw mainly preparedness measures such as local committees for prevention and emergency response, evacuation routes definition, and just to a minor extent physical structures reducing flood and landslides hazard (TECHO - Guatemala, 2015).

The priority challenge of community engagement and bottom-up approach for DRM institutionalization remains far from a successful implementation and produced its own unforeseen effect of relieving responsibilities from competent national institutions. As an example, recently, communities have been legally requested to establish DRM and development planning local committees (i.e., COLRED and COCODE) even though lacking adequate means, preparation, capacities, and without the necessary support from a structured government system. This contributes to the excess and redundancy of departments and offices at both municipal and local level, often depending on voluntary unpaid jobs, that municipalities cannot manage nor coordinate. Conversely, voluntary-based local grassroots organizations dealing with security, civil protection and environmental rights are not always institutionalized and can be considered as politically uncomfortable.

### The 2018 El Fuego Volcano eruption

[Source: interviews, conferences, reports, and articles (Barrios & Batres, 2019; Gunasekera et al., 2019; Narvaez Marulanda et al., 2018, 2020; Romano, 2019; The World Bank, 2019a, 2019b)]

Due to its fertile soils, geothermal energy sources, touristic attractiveness, and low volcanic activities of the past decades, the El Fuego Volcano (just 40 km southwest of the capital city) gathered more than 50 thousand inhabitants living in its immediate surroundings. After 1974 last major eruption, most of the people who settled around El Fuego resulted from the civil conflict and political violence's internal displacements and migrations, with Government allowance and recognition despite the hazard-prone location.

Besides the poor information regarding the hazard in terms of zoning, land uses, and early warning systems (EWS), depending on the economic status, exposed populations had different levels of awareness and coping capacity. Unsurprisingly, in case of an emergency, just the agricultural and touristic private investors were insured and had their warning and evacuation mechanisms in place.

On the morning of June 3, 2018, El Fuego Volcano began an explosive eruption followed, later that same day, by pyroclastic flows, lahars, and ash falls. Despite previous preparedness projects and emergency simulations in the surrounding villages, the local population was used, with a certain degree of acceptancy, to living exposed to minor but frequent volcanic activities, which contributed to the slower evacuations of the first hours. Following the eruption, the competent governmental institutions were conflicting on whether to issue the official alarm, and have been publicly criticized for the negligent, insufficient, and late evacuations warnings.

The two locations majorly destroyed and buried by the pyroclastic flow have been the La Reunión Golf Resort, evacuated on time and with no casualties, and the San Miguel Los Lotes village, where losses were more than 400 (178 dead bodies and 250 reported missing). The threats constituted by mudslides, ash falls, and smoke following the eruption further complicated the start of rescue and relief activities.



Figure 50 El Fuego Volcano, lahar's impact over affected villages (source: <https://youtu.be/hkKkP6NbV7I>)



Figure 51 El Fuego Volcano, search, and rescue activities (source: <https://youtu.be/hkKkP6NbV7I>)

Concerning and critics regarding delays, lack of coordination and competition between governmental and nongovernmental entities in relief activities and emergency management were raised. Relief interventions led to negative externalities such as: giving rise to tensions between affected communities (traumatized by past civil conflicts) and the militaries carrying out their recovery;

duplication of questionnaires and services from different NGOs, and, consequently, the discontent of neighbour communities excluded from aid's benefits. While thousands of people sheltered in relief camps and temporary housings have gradually been abandoned and forgotten once the emergency was over, the extreme poor, unsafe and hazard-prone conditions of the many communities living in the vicinity of the Volcano remain unchallenged.

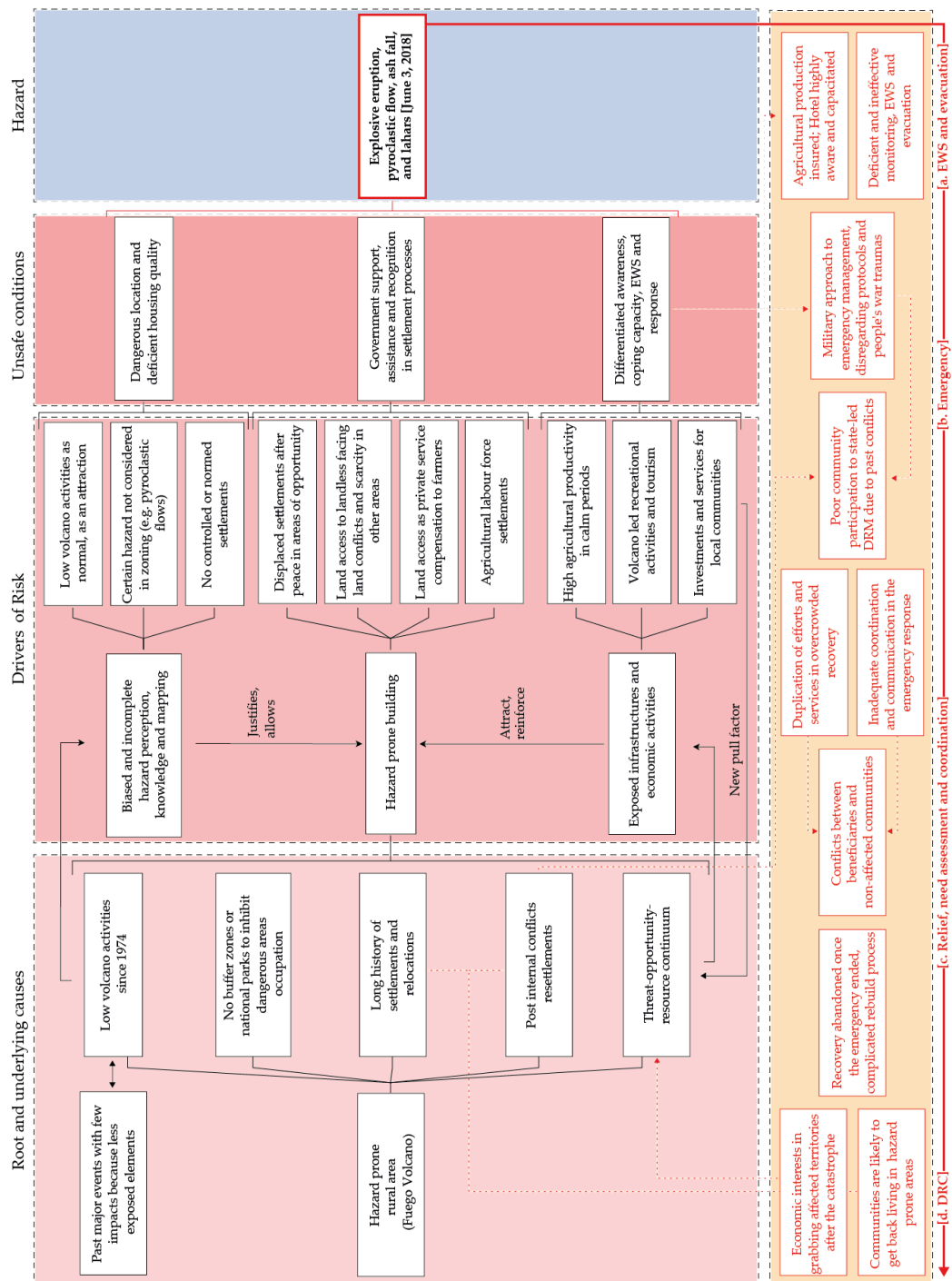


Figure 52 El Fuego Volcano's eruption: sketching the DRC (in black) process and DRM efforts (in red).

## 5.3 Conclusions

This chapter presented a second attempt to recompose and frame an updated overview of DRC historical evolution, this time in the Guatemalan context, contextualizing and understanding some of the most severe catastrophes of the past decades and reflecting on how aid and DRM have been interacting with these processes.

The past fifty years of catastrophes, humanitarian intervention and academic debates in Guatemala consolidated a certain degree of coherence on their acknowledgement and understanding of DRC and on its perpetuation and consolidation over time. The DRC debate appeared to be much more institutionalized in this country, and the examined sources more homogenic, also thanks to the efforts of Latin and Central American regional organizations, of the *La Red* network above all.

In a context undergoing overlapping and subsequent humanitarian crises, NGOs, international organizations, and governmental agencies “embraced” and make use of the DRC lexicon, still acknowledging how DRR efforts do not neutralize such vicious cycles of vulnerability accumulation. The many short-term, cosmetic, and symbolic interventions left unchallenged DRC’s roots and drivers, and failed to address populations great needs and inequalities. Therefore, in addition to the failed and insufficient recoveries (Davis, 2012) outlined after some of Guatemala’s major catastrophes (1976 earthquake, Hurricane Mitch, Stan and Agatha, the Cambray landslide, the Corridor Seco extended drought, and the 2018 El Fuego Volcano eruption), more gaps and shortcomings emerged from interviews in relation to decades of ineffective aid and DRM in a “permanent – and creeping – disaster” situation (Blaikie et al., 2004). The analyses performed for these major disaster reliefs and recoveries pointed out how violence and injustices, especially towards indigenous communities, replicate and continue in the aftermaths, reinforcing impoverishment and exclusion, and consequently DRC.

As for Haiti, the consequent recommendations relate to the need of adopting a common instrument of DRC analysis, with contributions of experts, stakeholders, and affected communities, to be updated yearly with the relevant events and dynamics. Such a tool may lay the ground for a strategy definition addressing the complexity of DRC, where all the institutions belonging to the arena of intervention can define and evaluate interventions’ coverage and outcomes.



Furthermore, the analysis outlined and confirmed a blind spot (Covarrubias & Raju, 2020), a gap, for DRC studies and DR governance: extractivism. In facts, the adopted extractive and discriminatory development model (C. Lavell & Lavell, 2010) constituted the central force and common thread of Guatemala's DRC history, characterized by a neoliberal, extractive and exporting economy that imposed structural adjustments, land and workforce exploitation, and untaxed imports of foreign goods. In return, as seen in the environmental dimension section, the Guatemalan environment accumulated deforestation, soil and water sources depletion, contamination, and erosion, while its population gained marginalization, displacements, and impoverishment. These negative externalities, both for the environment and the society, not only constructed Guatemala's vulnerability, and unsafe conditions, but also worsened hazards severity and recurrences, and complicated emergency and DR management.

Despite being extractivism, agribusinesses and land grabbing one of the current main sources of DRC, these driving forces are always generally included within the vulnerability dimension but targeted and analysed less systematically, if compared to institutional, political, and physical elements. This constituted a relevant element of divergence between DRC perspectives in terms of importance attributed to these drivers and root causes. As a matter of facts, indigenous communities' environmental conflicts against foreign hydroelectric plants, mines and agribusinesses are mentioned marginally and dealt in a compartmentalized way. According to the pertaining aid sector, they are referred to as a source of (i) community displacement (see figure below), (ii) land contamination and erosion, (iii) human rights violation, corruption, and community leaders' criminalization. Such divide calls for an integration effort of a shared understanding of the DRC-extractivism interplay, with perspectives coming also from non-disaster related aid sectors (human rights, environmental, migrations, violence).

The figure 53 below offers an example of a sectoral, migration-oriented outline of displacements processes in Guatemala, according to the Internal Displacement Monitoring Centre, that does not encompass displacement's outcomes in terms of DRC, i.e. exposing impoverished communities to unsafe and dangerous locations.

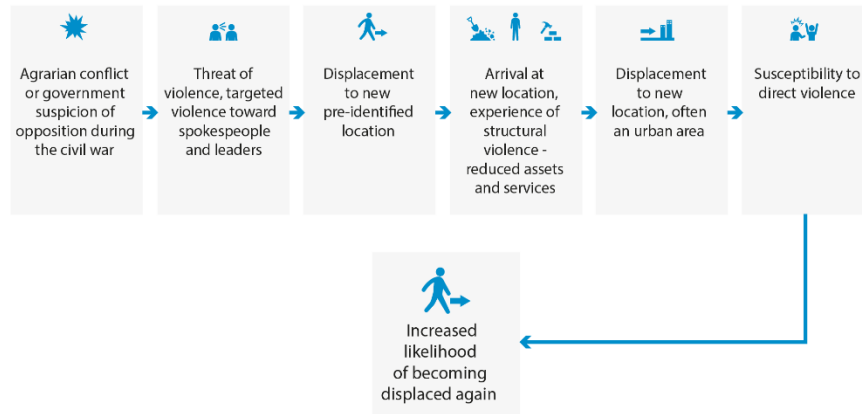


Figure 53 Government-triggered displacement cycle in Guatemala (Source: (Millard & Lara-Florian, 2018).

In Guatemala, agribusinesses are so interrelated to DR matters to have financed their institute for climate change studies and analysis, to perform DR mitigation and reduction projects for their crops and water bodies, and to have taken part and contributed to aid deliveries in disaster aftermaths.

Given that the foreign economic interests tied to this inconvenient topic are unlikely to decrease, this may constitute a great opportunity, for international organizations, for advocating a transformation in terms of extractivism negative externalities reduction and compensation towards affected communities. Considering DRC complexity, similarly to the “polluters pay” principle, royalties, and levies, as well as communities’ rights-based claims, should include forms of compensation and reparation for such negative externalities.

A reference in this direction is the attempt made in Guatemala with the “Disaster Risk Construction Crime” (*Delito de construcción de riesgo de desastres*), unsuccessfully proposed by the civil society for the new DRM policy framework in 2017 (Convergencia Ciudadana Para La Gestión del Riesgo (COCIGER), 2017); according to which whoever constructs DR should be held accountable for mitigating, correcting and compensating those risk (*Quien construye riesgo paga y rehabilita* (Convergencia Ciudadana Para La Gestión del Riesgo (COCIGER), 2017)). This principle, generally understood as authorities and citizens’ accountability for violations of land regulations and building codes and standards, might be widened up to also to those activities rooting DRC processes and bringing communities to unsafe conditions. Given the unsuccessful outcomes in enforcing DR drivers criminalization by law in other LAC Countries

(Molina & Linayo, 2017), also because of the high interests at stake, the aid sector should strengthen the advocacy for accountability and compensations for such crimes while supporting affected communities in their rights claim-making processes (Anschell, 2020). Thus, claiming for the redistribution of extractive activities' positive externalities, and not just of the negative ones, to the affected local populations.

In addition, particularly relevant implications for the aid, planning and DRM sectors should also be to guarantee corrective and prospective measures such as:

- Enforcing environmental impact assessments (lacking and rarely enforced) of development initiatives that include their spillover effects and consequences to DRC;
- Claiming corporates' social and environmental responsibilities and liabilities for triggering and contributing to DRC, criminalizing their actions, following the same principle that held accountable governmental authorities that allowed hazard-prone settlements;
- For international organizations and NGOs, advocate for a change in their "motherlands", demanding multinational companies to comply with Western standards, in term of environmental sustainability and human rights, also in the dependent economies they exploit.

The next chapter reflects on the challenges and implications arisen from the Haitian and Guatemalan experience.

## **Chapter 6**

# **Resisting Disaster Risk Creation: challenges and implications for aid and Disaster Risk Management**

### **6.1 Introduction**

Testing, discussing, and recomposing the status quo of the DRC debate in the Haitian and Guatemalan active arenas of intervention, highlighted (i) plenty of references and versions of DRC processes from academia, policy documents and project reports, (ii) widespread awareness, among interviewees, of DRC vicious cycles and (iii) self-consciousness of the poor contribution in addressing them, due to lack of long-term vision, coordination, and strategies among aid and DRM.

As outlined in the previous chapters, the arena of aid and DRM interventions has been an extremely fertile setting to measure the urgency of DRC and understand its components and system dynamics. Interviewed aid workers, NGOs

directors and governmental personnel may be portrayed as participants to a serious game, with players having different “role cards”, i.e., interests and biases, work experiences (and friendships) in and with other organizations and institutions, degree of awareness and understanding of problems. This constituted a first methodological challenge in terms of overcoming biases, cultural background, and personal interests behind each DRC explanation: different terms describing analogue processes, recurrent references to leading DRC authors, same terms blaming different driving agents, different stress on responsibilities and faults. Besides explaining each one’s view on how DR is constructed and amplified, most of the conversations also focused on and diverted to elements of blame and responsibilities, regarding all the parts involved, in reinforcing DR vulnerability and exposure.

The effort of recomposing so many sources and views, raised methodological challenges, such as that of setting a “freeze image” of decades of cyclic and overlapping DRC processes that continue to evolve, as well as theoretical doubts concerning the practical use and implications of an analytical framework usually limited to historical studies, post-event evaluations and broad DR and vulnerability analysis.

As a matter of facts, the analysis highlighted how these rooted conceptualizations are difficult to operationalize and produce a certain feeling of paralysis, for involved professionals, when facing the complexity of underlying risk factors. To this regard, the cross-cutting elements to most of the interviews have been:

- DRC relates to historical and cultural processes too complex to face or solve, i.e., the legacy of governmental violence, coercion, internal conflicts, colonialisms, etc.;
- Governmental corruption, self-interests, unclear responsibilities, and lack of political will in effectively addressing DRM matters;
- In these unequal societies, DRC keeps being driven by the will to access to unsustainable neoliberal models of extractivism, consumption and development;
- Paralysis, over innovation, and frustration in addressing the taboos of DRC;
- Awareness and ethical dilemmas regarding aid and DRM reinforcement of certain vulnerabilities;

- Acknowledgement of the competition and rivalries among DRM and aid stakeholders;
- Interventions pending due to conflictive disaster risk and needs understandings between donors, NGOs, central and local governments, and affected communities;
- Evaluations and interventions biased due to the personal and cultural background of aid workers, organizations' self-interest and to the different approaches and sectors they belong to.
- Interventions mostly short-term and temporary, overlapping in time and space;
- Widespread lack of technical capacities and awareness, among involved actors, of all existing tools, protocols, and plans;
- Cemeteries of projects, lack of coordination and ownership, aid and DRM efforts that either scatter or saturate;
- Resignation and fatalism of affected communities in remaining and rebuilding in highly exposed and prone areas despite past catastrophes.

Coherently with the data presented in chapters 4 and 5, the following section presents an overview of “classic” DRC elements, factors shared both in Haiti and Guatemala that constitute an inconvenient taboo for aid and DRM: dysfunctional governments, environmental degradation, and hazard-prone building.

Given these taboos and paralysis, the chapter thrives to deepen the challenges for the planning, DRM, and aid realms, particularly regarding their faults and responsibilities in contributing to DRC, and implications towards interventions more just and accountable to affected populations (D. Hilhorst et al., 2020). Such DRC informed implications reflect on the adopted analytical model’s potential for more comprehensive, shared and updated understandings of DRC, on the opportunity for revisioning, coordinating and assessing impacts of aid and DRM interventions, and on addressing the real forces behind population disposessions and impoverishment.

### **6.1.1 The disaster risk forcing taboos**

Proving this topic urgency and currency, root causes, and dynamic pressures highlighted from interviews matched with existing literature regarding LAC countries (Hernández Bonilla, 2017; A. Lavell, 2000; Manuel-Navarrete et al., 2007; Oliver-Smith et al., 2016; E. L. F. Schipper, 2006; Wamsler, 2001; Wisner,

2001; Witting, 2013), and are clustered here in 3 main sources of DRC: dysfunctional governments, environmental degradation and hazard-prone building. These dimensions correspond to those angles of global vulnerability explained by Gustavo Wilches-Chaux already in 1989 (Wilches-Chaux, 1989, 1993); thirty years after, the challenges and paralyses in dealing with these matters still constitute a taboo for planning, DRM, development and humanitarian aid realms.

The dynamics presented in the figure below direct the spotlight onto those DRC components that are more notably regulated by urban and regional development and planning. The following three vulnerability dimensions generalize and resume some of the common features emerged from the Haitian and Guatemalan experiences, and sketch some of the key factors influencing DR exposure, vulnerability and hazards levels.

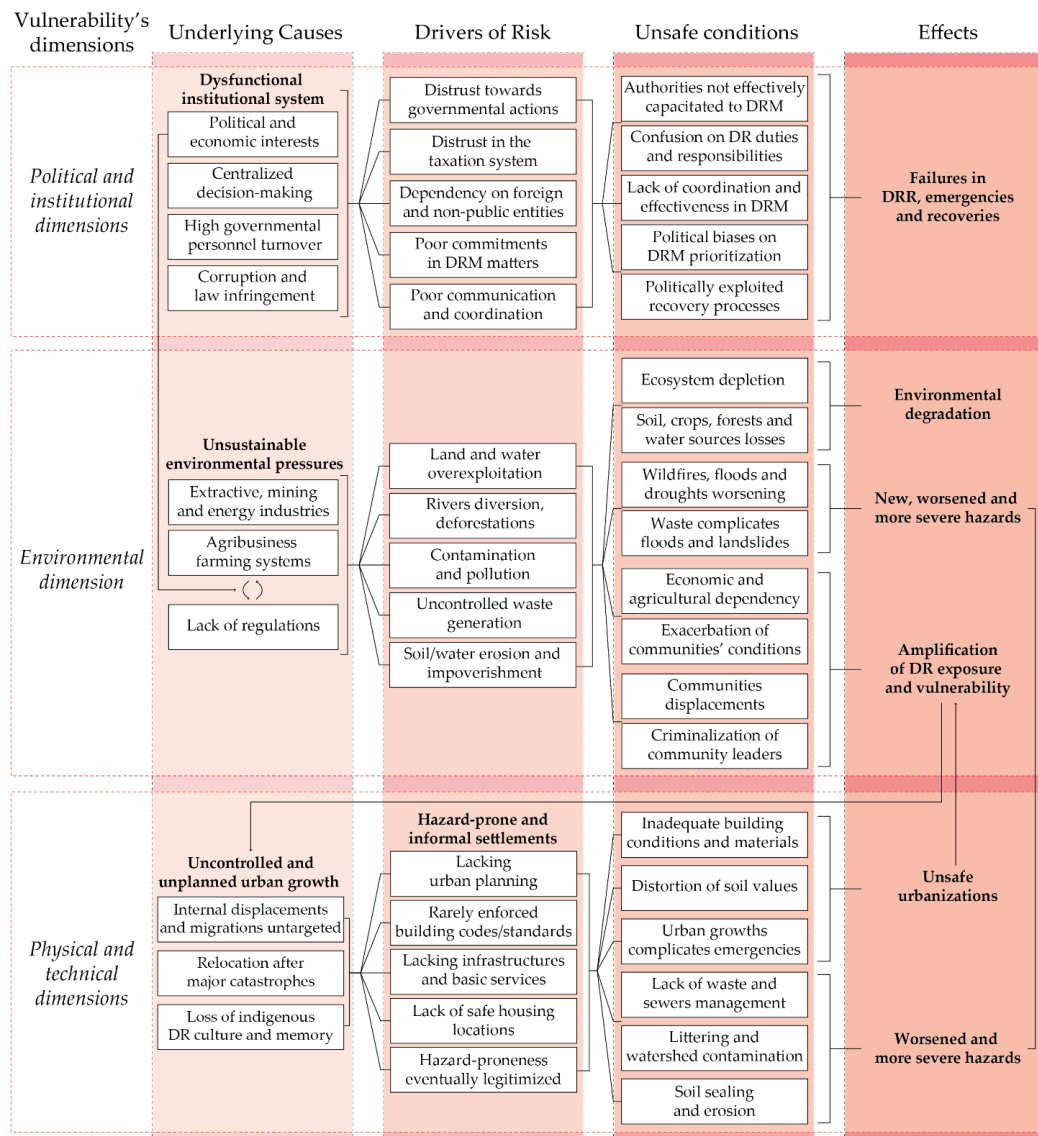


Figure 54 Shared disaster risk forcing taboos

The focus on these three specific clusters doesn't diminish the importance and relevance of social, cultural, and educational DR drivers, which usually are already addressed by humanitarian service deliveries. These include the urgency of daily threats (extreme poverty, acute and chronic malnutrition, crime) over disasters, the worsening effect of environmental pollution, unemployment, limited access to health and education, the lack of education and information regarding correct behaviours during emergencies, and the poor degree of organization and social cohesion that limits the ability to prevent, mitigate or respond to disaster situations and to form alliances for their recovery (Wamsler, 2006).



These clusters of symptoms can be generalized and understood as a pathology (Manuel-Navarrete et al., 2007) of highly exposed and vulnerable populations within multi-hazard, weak and dependent Countries affected by creeping, forgotten but everlasting crisis. The persistence of such DRC attributes is explanatory and iconic of how wicked and complicated is “saying no” (Wilches-Chaux, 1993) to DRC, i.e. succeeding in:

- eradicating corruption and political and economic interests that feed these processes (roots of the political and institutional dimensions);
- regulating and lowering extractivism, dropping development’s unsustainable practices behind environmental degradation (roots of the environmental dimension);
- enforcing effective safe social housing programs meeting local needs and demands (roots of physical and technical dimension).

The failures and paralysis in addressing such complex matters called for an in-depth analysis of the elements hindering planning, aid, and DRM, i.e. those sectors that most notably should deal with DRC, and to reflect on the related implications.

## **6.2 Implications for the DRC analytical framework: a new layer**

While recomposing aid workers’ partial (as of part of a more holistic one) understandings, memories, and perceptions of DRC, the focus of the debate often moved to the unpopularity and difficulties of addressing such root causes and drivers within their practices. This therapeutic effect of interviews brought key experts, technical actors, and institutions to explain their views, admit biases and failures and criticize aid approaches and mechanisms, mostly blaming the malfunctioning of the system they belong to. Despite the widespread acknowledgement of DRC, in retrospect, stakeholders stressed how urban planning, development, humanitarian aid, and disaster risk governance didn’t succeed not only in eradicating root causes and risk drivers presented above but also in avoiding to actively contribute to amplify them. Such results are particularly relevant because of the widespread outreach, for similar socioeconomic and political contexts, of analogue structural constraints: unstable

and not always reliable governmental institutions, lacking the political will to address extractive industries and uncontrolled (unsafe) urban growths' unsustainable environmental pressures.

This level of awareness and self-accountability of both the problem itself and the active role in reinforcing it, brought me to widen the focus of the analysis up to those failures and unintended effects that hinder a transformative DRM (Thomalla et al., 2018), i.e. that capable of eradicating risk causes, reducing and correcting existing threats/risk drivers and resisting (Wisner & Lavell, 2017) to the creation of new ones.

Referring to the realms in the spotlight of this analysis, i.e., aid, planning and DRM, the key factors underlying these malfunctioning are:

- governments depending on neo-colonial foreign interests in national natural resources and cheap labour force, and, despite the good intentions, on the permanent presence of humanitarian and development aid organizations;
- institutional paralysis in planning, enforcing and regulating territories, land uses and urban growths;
- cosmetic DRM interventions, overly focused on preparedness, emergency management, and recovery, due to catastrophes recurrence and reshuffling effects, which, overtime, stratified and overlapped several layers of risk drivers, unsafe conditions, and emergencies.

In synthesis, regarding the theoretical stances presented in the methodology, the processes belonging to the Progression of Safety (Wisner et al., 2012), those that should counteract and address DRC, i.e., planning, aid and DRM, unwillingly take part and contribute to DRC processes. An ad hoc layer should therefore be included in the analytical lens, highlighting these barriers and challenges (see Figure 55 below), explaining their effects, and linking them to their contribution to those marginalisation processes, foreseen by the same authors (Wisner et al., 2012), in each phase of DRM lifecycle.

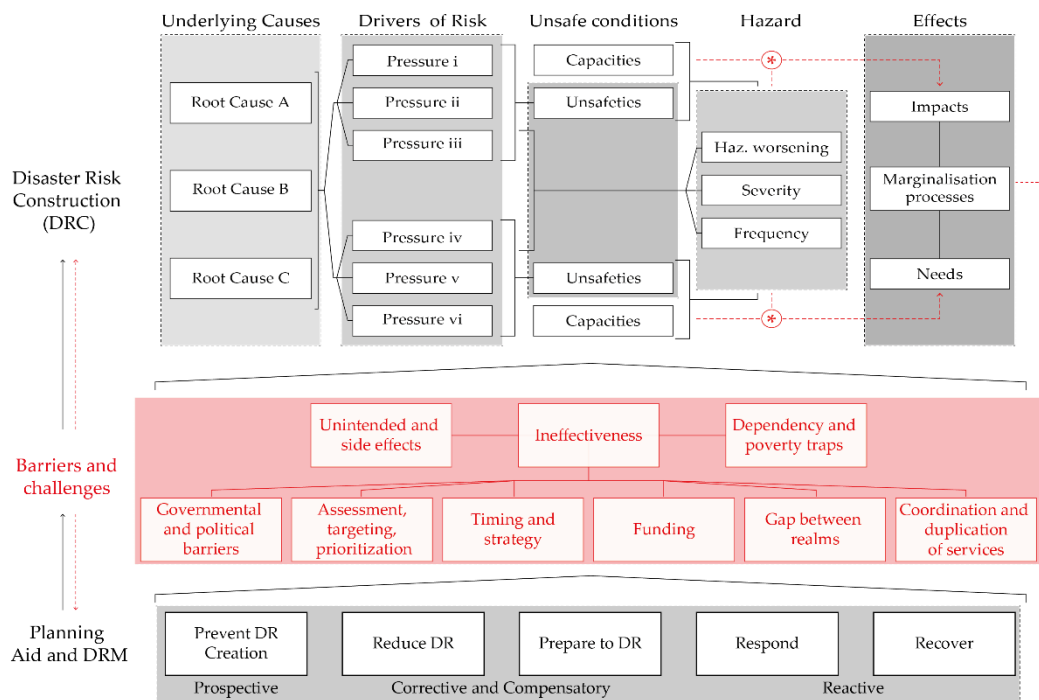


Figure 55 Broadening the analytical lens: barriers and challenges of planning, aid, and DRM interventions.

This layer of constraints has been considered within DRC analysis in a less structurally sound way, but is more widely debated and addressed, at least theoretically, in the aid international agenda: e.g., with the Do no harm aid principle (Anderson, 1999), SPHERE's protection principles and humanitarian standards (Association, 2018), the 2016 "commitments to action" of the Agenda for humanity and Grand Bargain agreements. Furthermore, part of these dynamics has been explained in relation to the international system's shortcomings in 2010 Haiti's catastrophes relief activities, and in the many recovery failures of both Countries.

It could be argued that the progressions of the Haitian and Guatemalan recoveries, have been pending in between the first three scenarios modelled by Ian Davis (Davis, 2012): (i) no recovery – "halted progress, expiry of political will and money, international agency fatigue, no vision, no leadership"; (ii) erratic recovery – "incomplete, unsafe, low-quality, limited vision, slim leadership"; (iii) return to the pre-disaster situation – "build back the vulnerable 'status quo', wrong vision, ill-informed leadership".

The issues emerged, besides being a product of recurring and overlapping crises and failed and insufficient recoveries, refer also to the problematic peculiarities of permanent humanitarian crises themselves: “too many organizations; too many different approaches; and the complexity of coordination” (Audet, 2015). Some generic root causes regarding aid and disaster governance (ineffectiveness and counter productiveness) were highlighted by the German Committee for Disaster Reduction (DKKV) (Witting, 2013) solely concerning funding and coordination mechanisms, relief activities, and humanitarian standards. Interviews’ bigger picture stressed the lack of strategy and integration also with planning tools, DR assessments, and reduction, systemic constraints and barriers pertaining to the daily functioning of these permanent arenas of intervention.

### **6.2.1 Framing results: contributions from the academia and the international agenda**

From the theoretical point of view, these reflections call for a resuming outline of the underlying reasons behind and before these patterns, feedbacks, dynamics, and puzzles (Di Baldassarre et al., 2015, 2018; Helbing et al., 2006; Liu et al., 2007), entangled within the different phases of the DRM life-cycle. It is not meant here to address such dilemmas but to reflect within their boundaries instead, focusing on governance’s specific contributions to DRC amplification.

The clusters below resume existing considerations, similar studies and alternative explanations regarding biases, lacuna, and overlapping between the professional groups of development aid people, urban specialists and planners, and those of humanitarian aid, working more on disaster preparedness, emergency relief, and recovery (Wamsler, 2006). The lack of strategy in relief activities and the exacerbation of existing vulnerabilities are mostly explained due to the confusion and poor coordination of aid professionals’ backgrounds, expertise, duties, and responsibilities in each of the DRM’s phases. This line of criticisms regarding DRR and DRM frames with broader debates surrounding foreign aid dilemmas and syndromes (Carey, 2012), i.e. aid ineffectiveness, dependency, detours and dampening effects, and to the challenges and trade-offs in successfully linking relief to development and planning activities (Otto & Weingärtner, 2013; L. Schipper & Pelling, 2006; Thomalla et al., 2018; Wamsler, 2008). Relevant contributions for understanding these dynamics come also from the climate change maladaptation’s debate (Barnett & O’Neill, 2010; Jones et al., 2015; A. Magnan, 2014; E. L. F. Schipper, 2020), the mismatches in the UN

system (Chandran et al., 2015) and the calls for conflict sensitivity (Zicherman, 2011), human rights approach (Committee, 2011) and Do No Harm (Bonis Charancle & Lucchi, 2018) in emergency responses and humanitarian's service deliveries.

Besides explaining the complexity and interconnectedness of these dynamics at different vertical scales and various governance dimensions (Hesselman & Lane, 2017), the purpose of the following paragraphs is to characterize the aid and DRM's counterproductive and side effects, and to extend the Do No Harm concept (Bonis Charancle & Lucchi, 2018) to a Do Not Construct DR.

For conceptual clarity, they have been clustered in the upcoming paragraphs as: (a) governmental and political barriers, (b) DR and needs assessment, and intervention prioritization, (c) funding, (d) lack of strategy and timing, (e) coordination, (f) gap between planning and DRM realms, and (g) ineffectiveness and unintended results.

Table 7 References and contributions from the academia and the international agenda the results.

<u>Clusters</u>		<u>References and keywords</u>
(a) governmental and political barriers	<u>Barriers and challenges of planning, aid, and DRM interventions</u>	Aid dependency and ineffectiveness
		Sustainable Humanitarianism
		Do No Harm principle
(b) DR and needs assessment, and intervention prioritization		Beyond Aid Scenarios BAS
		New humanitarianism
		Aid Proliferation and Bombardment
(c) funding		Drivers of aid ineffectiveness
		Fuelling aid – how much does it cost?
		Aid Ownership
(d) lack of strategy and timing		Conflict Sensitivity and Human Rights approaches
		NGO gluing globalization and reproducing inequalities
		Aid and DRM accountability
(e) coordination		Legacy of aid work and interventions – PLACARD framework
		Foreign aid and dependency dilemmas and syndromes
		Transformative DRR and adaptive governance
(f) gap between		Symptoms of CC maladaptation

planning and DRM realms		The traps of risk prevention and management measures
		Linking Risk Recovery to Development
		Trade-offs between development and DRR
(g) ineffectiveness and unintended results		Challenges to integrating DDR into development planning
		Interlinkages and impacts between disasters, the built environment and related planning practices

### a. Governmental and political barriers

Starting from the institutional side of DRM, governments lack a disaster vulnerability reduction and management strategy, aiming at those "vulnerability's dimensions" they defined (Maldonado et al., 2014) and acknowledge. Speaking of addressing root causes and reducing risk drivers in a context of weak and impoverished governmental systems would mean adopting unpopular measures and long-term strategies political leaders cannot afford. The lack of environmental impact assessment of major development projects and economic activities is a missed opportunity's example of what the criminalization of DRC drivers could stand for and how inconvenient to enforce it would be.

These constraints, driven by the "institutional inertia – and – limited political will to address underlying causes" (Gibson & Wisner, 2019), result in a lack of proper financial support to local governments from the central one (Witting, 2013), and in inadequate dedicated budget and implementing power for DRM institutions. In Guatemala – and much more seriously in Haiti – the national agency assigned to DRM matters, do not have coercive and sanctioning power, and can only make recommendations. Furthermore, these governmental institutions are strictly interrelated to political turnovers and agendas, particularly in terms of DRM vision and priorities, shifting periodically from social-oriented approaches to military, reactive and emergency focused mindsets.

Political and self-absorbed interests may affect governmental DRM authorities and personnel selection, manipulate interventions (Zicherman, 2011) in terms of areas and beneficiaries prioritizations, or exclusion: relief activities, aid distribution and recovery processes might be politically exploited to gain votes and consolidate forms of clientelism, or punish certain communities because of their favour of opposing political parties and candidates during previous elections.

These barriers get regularly worsened by disasters' disruptive and reshuffling effects, aggravating political stresses, raising the stakes regarding aid funding and reconstructions, "leading to increased corruption, bureaucracy, political conflicts and rivalry at all levels" (Wamsler, 2008).

### **b. Assessing and addressing needs and disaster risk**

More critical points emerged concerning needs assessments, disaster risk analysis and mapping efforts performed within complex arenas of intervention with such a multitude of involved actors: methodologies for risk evaluations and mappings are not always shared and trusted among actors, need assessments and areas prioritizations unclear and biased, and outputs often not completely reliable and/or replicable. These have been generally explained as due to "differing definitions and criteria used for determining distribution of benefits" (Thomalla et al., 2018), "poorly explained targeting" (Bonis Charancle & Lucchi, 2018) also because of the "non-disclosure of the scientific, technical, moral and ethical assumptions" behind recommended measures (Valencio & Valencio, 2017).

These barriers are also due to the aggregation and overlapping of the humanitarian, development and DRM realms, which lack a common ground for assessing and planning processes (Otto & Weingärtner, 2013) and have competing and conflicting funding, needs and goals (Thomalla et al., 2018).

This results in a patchwork of evaluations overlapping in certain hotspots and forgetting others, with different levels of details, where results and datasets are not always disseminated, open to access, or updated. Thus, untargeted areas may worsen their vulnerability and high need conditions, the beneficiaries selections give rise to tension (Bonis Charancle & Lucchi, 2018) also because of such unequal distribution of support and assistance. Such a "mismatch between the prescription for improvement and the problem" (Chandran et al., 2015), reinforce discontent and loss of trust in governmental and non-governmental agencies, negatively affecting solidarity and reciprocity (Wamsler, 2008).

### **c. Funding**

Funding constraints are mostly explained by the unbalanced relation of inferiority and dependency between NGOs, national recipient institutions and the inflexible "donors government's" budget lines and funding mechanisms (Otto & Weingärtner, 2013; Witting, 2013). National institutions often depend on foreign

funding but lack ownership and participation in foreign aid programming and prioritization, as donors and international organizations are reluctant in funding them directly, which contributes to failures in aligning donor's priorities to government strategies, often contradicting in terms of goals and policy paradigms (Brett, 2016).

Funding are generally “un-proportionately focused on first response phase in sudden-onset disasters” (Otto & Weingärtner, 2013) – also because of the more immediate political gains and media coverage – and on context-specific local variables, rather than on the political factors (Brett, 2016) underlying DRC. The unattractiveness and “low visibility of disaster risk reduction” (L. Schipper & Pelling, 2006) and unbalanced emergency and response orientation (Gibson & Wisner, 2019) are attributed to the fact that “when countries declare a state of emergency, international funds are more easily available” (L. Schipper & Pelling, 2006) and that “donor interest diminishes once the crisis is no longer in the centre of the (public) attention” (Otto & Weingärtner, 2013). As a result, addressing the complexity of the poorest and most marginalized areas is still an inconvenient task, especially outside declared crisis, or in the long-lasting ones, when humanitarian activities may not apply, and funding diminish.

On the other hand, the unwillingness to invest or prioritise ahead on prospective and corrective strategies is related to the financial and time requirements, deemed too high to invest (Jones et al., 2015), and too slow and long-term for donors and governments “chasing votes and international recognition” (L. Schipper & Pelling, 2006)

Furthermore, in order to prevent aid ineffectiveness, donors and international organizations adopt questionable and counterproductive control practices, such as tying funding to the fulfilment of given goals and criteria, threatening of cutting and suspending aid depending on progress and achievements, or in case of unfavourable political situations (Buss & Gardner, 2005). Aid tying and closed loops of aid profits applies also for projects requirements to invest and purchase from western consultancies and companies, to the detriment of local economies (Buss & Gardner, 2005; Carey, 2012).

Aid's funding and project mechanisms lead to other unintended effects, as the bureaucracy drain personnel's time and energies, foster competition, counteracting effective collaboration and integration of efforts among



organizations (Chandran et al., 2015), and dispersing efforts towards less beaten funding sources.

#### **d. Timing and lack of strategy**

Time constraints and lack of strategy have been often reported in relation to most intervention, for their being mainly short-term, responding and reacting to the subsequent emergencies, thus diluted and repeated in continual cycles.

Without adequate strategies, and with donors pushing for immediate results when longer-term approaches would be needed (Gauthier & Moita, 2010), transitions from relief to a rehabilitation and development phase “are either not adopted, adopted too early/late or not adopted at a fast enough pace” (Jones et al., 2015; Otto & Weingärtner, 2013). This turns out in conflictive DR approaches, with emergencies drawing most efforts and funding, and in structural interventions that are hard and too expensive to be maintained in the long term. Such dynamics appear in the literature also as “long-term effects of interventions not taken into consideration” (Bonis Charancle & Lucchi, 2018), related to the complex balancing and incompatibility of short versus long-term goals, costs, and impacts (Thomalla et al., 2018), and as the more general “lack of appropriate exit strategies for humanitarian aid” (Otto & Weingärtner, 2013).

A recurring key example is that of shelters and IDPs camps, temporary interventions that become permanent, constituting challenges and controversies for urban development, regarding lack of services and infrastructures, land use and zoning conflicts, and the need to be transformed or replaced to offer more permanent and safe housing solutions (Wamsler, 2008).

#### **e. Coordination**

In contexts of dependent and weak economies, where the State is sided by international organizations, rivalry, hindrances, mistrust, misuse, and lack of effective cooperation among aid and governmental agencies undermine DRM efforts and investments: reduce coping capacities, exacerbate emergency and relief activities coordination (Witting, 2013) and hinder the opportunities to link relief to development (Otto & Weingärtner, 2013).

Such lack of coordination mechanisms and joint strategic framework (Otto & Weingärtner, 2013; Witting, 2013) between DRM, urban planning, humanitarian

and development aid organizations, stakeholders, and projects has been explained in relation to:

- Donors' poor alignment to country goals, lacking interventions harmonization, duplicating services in some sectors or areas and under-funding in others (Buss & Gardner, 2005);
- difficulties to align a multitude of actors (municipal, national and international), instruments and interests (Otto & Weingärtner, 2013);
- lack of communication across scales (Wamsler, 2008; Witting, 2013), time and space;
- lack of respect, trust and collaboration between aid organisations (Bonis Charancle & Lucchi, 2018), and between donors and national governments, which often bypass in favour of NGOs for projects management, thus reinforcing the erosion of institutional capacities (Buss & Gardner, 2005);
- funding mechanisms and power distribution incentivizing competition over cooperation (Thomalla et al., 2018).

As a result, disaster risk is often addressed at the local scale and restricted to prioritized areas, incoherently with the complexity of the problem; punctual interventions hardly coordinate with neighbour communities and might lead to the oversaturation, as well as the oblivion, of certain hotspots, and to raising tension between beneficiaries and excluded communities.

The uncoordinated production of protocols, guidelines and plans oversaturated most aid sectors, to the point of not being taken into consideration, followed and implemented, and of aid workers not being fully aware of all existing planning tools, documents and relevant past projects.

Best practices and past successes, as well as mistakes and failures, in aid and DRM have not been systematized and disseminated. As a result, assessing and prioritizing the communities most in need versus those that have already be trained and supported is a complicated task. Additionally, organizations, as well as their personnel, often experience rapid turnovers in intervention areas, complicating handovers, data, information, and contacts dissemination and follow-up.

Lack of coordination, participation, and duplication of services, implies also:

- shifting of risks, intended as the negative impacts of one actor's intervention for other actors, locations, and communities (Thomalla et al., 2018);
- “confusion and inability to coordinate disaster response and disaster risk management” of disaster agencies belonging to neighbour cities that did not manage an effective institutional integration (Wamsler, 2008);
- uncoordinated adoption, between neighbouring municipalities, of planning tools regulating land uses, which may cause the migration and reinforcement (Hernández, 2016a) of unsafe and hazard-prone building practices in locations still lacking regulations;
- “cemeteries of aid projects” in contexts where recipient communities often lack local ownership in projects definition, implementation, and maintenance.

#### **f. Institutional gaps between planning and Disaster Risk Management**

The gap between planning and DRM matters is related firstly to the unsustainability of adopted development and urban growth models, that disregard existing hazard-prone and marginalized urbanizations, do not consider the erosion and overexploitation of land and natural resources, and the negative environmental externalities in terms of pollution, contamination, waste production and soil erosion.

Policies, plans, and governmental agendas regarding urban planning, development and DRM differ and are not aligned with each other, with most DRM efforts being performed separately, without integrating such interrelated topics, nor the needed common strategy and mainstreaming (Wamsler, 2006). The consequent paralysis is compounded by the overlapping of too many policies, processes, and interests, “too much to implement and report on, in pursuit of an objective that may or may not materialize” (Chandran et al., 2015); and by appointed authorities lacking the political power and adequate enforcement schemes for regulating urbanization processes on inadequate land, the informal construction sector, and the non-complying of building and planning regulations (Wamsler, 2008).

Urban planning tools do foresee risk analysis and zoning but mainly regarding specific urban expansion projects and investments and still not always considering information regarding previous hazardous events. The housing market and the governments did not and do not involve consistent social housing strategies nor provide adequate solutions (incentives, welfare, loans...) to avoid further DRC.

On the other side, interventions aiming at slum upgrading, renewal and relocation, measures voted to reduce the risk factor of informal and highly exposed urbanizations, raise other issues in terms of disproportioned funding requirements for such complex integral intervention and the institutional responsibilities for planning and coordinating them.

These shortcomings affect and raise dilemmas for aid and DRM interventions regarding:

- more complicated provision of supplies and assistance in marginalized and unsafe settlements (Wamsler, 2008);
- slum upgrading measures that might reinforce unsafe housing practices, or incentivize internal migration towards aid addressed areas;
- relocations processes that increase segregation and inequalities, to the point of getting communities to return to live in unsafe and hazard-prone conditions;
- inappropriate shelter constructions, in lands unsuitable (too small, with no space, hazard-prone) for mitigation and maintenance works (Wamsler, 2008), creating new exposure and vulnerability in those case where disaster victims remain permanently;
- housing projects for DR reconstruction and relocations igniting speculation, corruption, wrongful assignation, and exclusions of the poorest.

### **g. Ineffectiveness, unintended and side effects**

Due to the compound of barriers and shortcomings discussed so far, aid and DRM may trigger and cause unforeseen effects and negative externalities that contribute to DRC. These unintended dynamics and side effects recall those outlined from Wisner, Gaillard and Kelman (Wisner et al., 2012) as the roadmap to hell, i.e. as the marginalising effects of disaster recoveries, contributing to communities weakening (as need for adjustment), indebtment (as need for cash), neglecton (as

need for political voice) and non-local dependence (as need for assistance) (Wisner et al., 2012).

More recently, Lisa Schipper (E. L. F. Schipper, 2020) framed such negative effects within the spectrum of responses to climate risks, distinguishing whether the negative outcomes affect the targeted population or others, in fixable or irreversible terms, from ineffective adaptation to maladaptation.

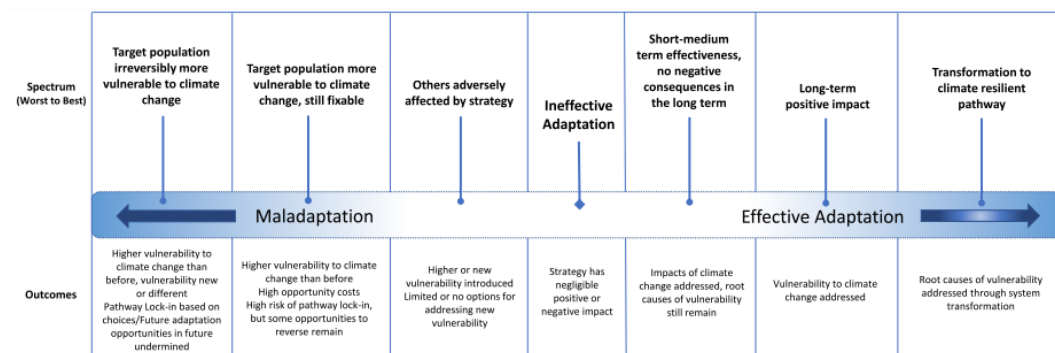


Figure 56 Extract of the Spectrum of responses from adaptation to maladaptation (Source: (E. L. F. Schipper, 2020)).

Such effects have been generally explained with humanitarian aid working in “emergency mode” for too long” (Otto & Weingärtner, 2013), lacking criticism towards foreign investments (Carey, 2012), undermining development efforts and inhibiting growth, reducing recipient autonomy, and increasing resentment against neo-colonialism and cultural imperialism (Carey, 2012).

Aid and DRM’s palliative and band-aid solutions risk to create more complicated problems than the symptoms they purport to address (Chandran et al., 2015), this includes, and results from: inadequately implemented intervention approaches/methods, creation of expectations to which interventions do not respond, interference in community functioning, lack of respect in relationships and to the cultural context, and long-term implications not taken into consideration (Bonis Charancle & Lucchi, 2018). Most DR prevention and reduction efforts are focused on providing, sometimes unevenly, basic services, education, and preparedness training; whereas structural and more “conventional” DRM measures are difficult to maintain and may induce communities to a false perception of safety. This approach led to the establishment of municipal and local committees, for civil protection, DRM and development planning, that cannot self-sustain once projects are over, as lacking adequate means, preparation and capacities, and without the necessary support from a structured government

system. This results in excess and redundancy of departments and offices, often depending on voluntary and unpaid jobs, difficult to manage and coordinate, which on top may justify the responsibility removal for competent national institutions. Furthermore, along processes of long-lasting humanitarian crises, aid's competitive salaries and working conditions brain drain public sector's personnel and educated professionals.

As seen in both countries, if included, aid-related imposed structural adjustments and foreign-led neoliberal policies may cause macro negative externalities and impacts, usually not recognised or accounted for at the time of the adoption: purchasing policies with negative impacts on local markets (Bonis Charancle & Lucchi, 2018), interventions with negative impacts on downstream users (Jones et al., 2015), dampening effects on agricultural marketization if aid interventions compete with producers (Carey, 2012), and 'locking-in' and sunk costs of development trajectories that impede the adoption of alternative strategies once one is chosen (Jones et al., 2015).

Moreover, aid and DRM strategies may "exacerbate existing structures of inequality – also because – not all recipients benefit equally" (Jones et al., 2015) due to "power and elite capture and aid detour to evil recipients" (Carey, 2012; Jones et al., 2015), and "political manipulation by warring parties, bribes, access or protection fees extortion" (Carey, 2012). The consequent marginalisation of certain social groups (Jones et al., 2015), disregard and disrespect for demands, views and community ties of the affected, the lack of infrastructures, services, and transportation in new housing areas (Valencio & Valencio, 2017), may trigger new crises and forms of discontent, violence, and migrations (Carey, 2012).

The lack of efforts and efficiency in recoveries has been explained as a form of "punishment of the vulnerable", i.e. the stigmatizations of impoverished victims, blaming them for perpetrating "self-harmful actions" and for living "in the wrong places" (Valencio & Valencio, 2017). And this is particularly relevant for the DRC discourse itself been used, at times, to blame impoverished communities for adopting unsafe behaviours and living conditions, and to raise questions and dilemmas on whether to restrict aid towards them. Because of the increased and unacceptable DR levels in slums and informal settlements, affected communities may receive skewed aid budget and reduced assistance, be evicted forcefully, resettled unsafely, and excluded from decision-making processes (Committee, 2011; Wamsler, 2008). This exacerbates failures and conflicts concerning DRM measures adoption (Wamsler, 2008), especially in frequently

affected contexts, reinforcing poverty and inequality traps that might also erode the solidarity and reciprocity within the community (Wamsler, 2008).

### **6.3 Theoretical implications**

Summarizing, despite the condition of subsequent crisis and all the related investments, efforts in DRM do not reach DRC speed nor overcome its extent and complexity. As a result, communities' response capacities are still lacking, especially in the most vulnerable and poorest areas, and many families, affected by different catastrophes (floods, hurricanes, storms, and earthquake) along the years, keep living in the same dangerous locations.

Even if disasters' aftermaths are considered and hoped to be turning points and transformative momentum, the everlasting emergency status legitimizes humanitarian interventions but weakens longer-term vision development. This may degenerate in dependency and addiction dynamics: dependency that might reduce recipient autonomy and inhibit sustainable recovery and growth (Carey, 2012).

In contexts, such as Haiti, with a widespread distrust from local (and especially recipients) populations to internationally led funding management and, more in general, towards who intervene and manage catastrophes, such dependency may increase the resentment against governmental and non-governmental organizations, giving rise to protests and tensions.

As seen above, some of the elements have been partially addressed and explained by different debates in the past, the underlying intention of the previous sections has been to recompose them and attempt to unravel the complexities of the emerged dynamics. Being these sectors so entangled, and their focuses of intervention and expertise so overlapping, the challenge they face, of resisting DRC (Wisner & Lavell, 2017) within their actions, should be considered altogether, likewise, the different explanations experts and academics have given.

These reflections on the causes and contributions of the traps (Valencio & Valencio, 2017) and failures of planning, aid, and DRM measures, go well beyond more established blaming of (a) top-down approaches based on "misunderstanding of system dynamics" (Jones et al., 2015) and on (b) "simplifying rationale of the social world in which disasters occur" (Valencio & Valencio, 2017), disregarding its complexity and the local level knowledge

(Gibson & Wisner, 2019). The criticisms towards the mindsets of adopting “action at any cost” driven by technical explanations to disasters (Valencio & Valencio, 2017), without questioning harmful practices and the maintenance of the status quo, has been accepted and digested among aid workers. This confirms the need for a more detailed understanding of all the element and dynamics constituting aid and DRM interventions that might trigger discontent, conflicts or negatively affect already vulnerable communities.

For what concern the adopted analytical lens and the PAR model (Blaikie et al., 2004), understanding the progression of vulnerability highlighted methodological implications that went beyond the expected sketch of key, but general, underlying risk factors. The historical evolution of DR through root causes, risk drivers and unsafe conditions is cyclic and should be understood as a continuous growth with new forces compounding and “fattening up” the process along time, emergency after emergency, recovery after recovery.

Causes and drivers are highly intertwined among different vulnerability dimensions: it has not been feasible to retrace all effects and impacts of the Haitian and Guatemala colonial and postcolonial legacies, but this exercise of simplification showed, even just partially, how past conditions of unsafety and efforts of developing the country, as well as aid and DRM attempts, constitute the root causes of more present statuses of DRC.

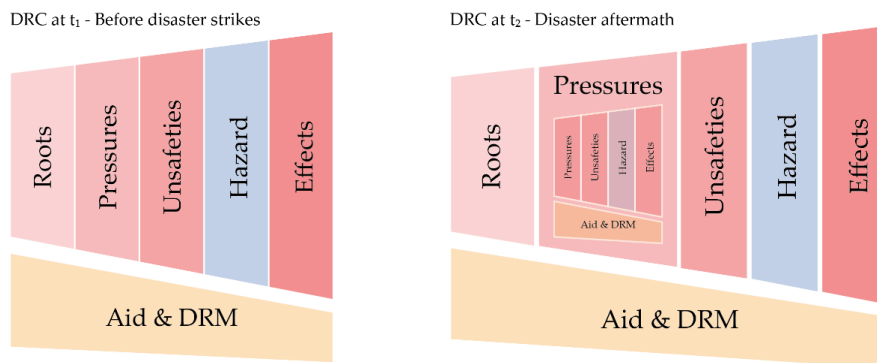


Figure 57 First sketch and conceptualization of past DRC elements taking part in a more complex DRC status in disasters aftermaths.

Such cyclic nature of DRC processes calls for a graduated, step-by-step structure for tracing its evolution through “peacetimes”, catastrophic events, attempted and failed recoveries, and over again, neglecting and/or strengthening rooted vulnerabilities, and cumulating new driving forces along the way.



An attempt to represent such cyclic and step-by-step structure was performed regarding climate-related risks' mutually reinforcing dynamic between maladaptive initiatives, exposure, sensitivity and, consequently, vulnerability levels (A. K. Magnan et al., 2016), as explained and sketched below.

“Panel A. Maladaptation (M) affects vulnerability (V) through increasing either the system's exposure (E) or its ecosystems' and /or society's sensitivity (ES and SS, respectively) to climate-related changes, both extreme events and gradual changes.

Panel B shows that in turn, the increase in vulnerability (V) exacerbates the risk of maladaptation (M), depending on the initiatives (I) undertaken to cope with vulnerability. Part a/State 1 describes the initial situation, that is, the current state of vulnerability (V1) as a result of the current combination of the system's exposure (E1) and its ecosystems' and society's sensitivity (ES1 and SS1). State 1 applies before any adaptation initiative. To cope with current risks and vulnerability, however, authorities, for example, decide for an initiative (I1) in the name of adaptation, but that in fact reveals being maladaptive (M1).”

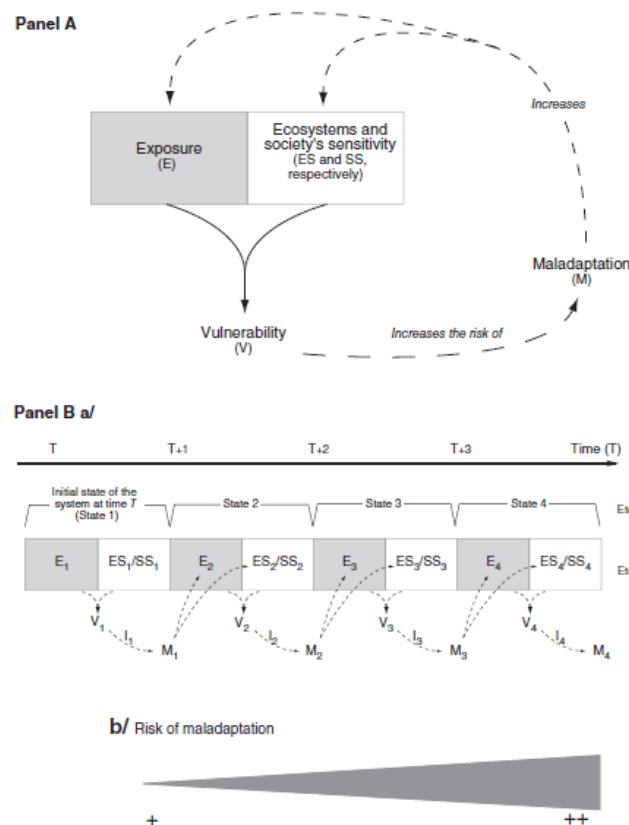


Figure 58 Interplays between maladaptation and vulnerability (Source: (A. K. Magnan et al., 2016))

This representation accounts for those loops where maladaptive initiatives negatively affect DR components, a concept that might be broadened up to those barriers and challenges regarding aid and DRM's functioning discussed so far, such as assessment and prioritizations biases, lack of coordination and common strategy, etc.

This temporal scale and cyclical structure complicate an already complex analysis and reordering processes, as certain dynamics repeat and persist over time, certain loops influence different dimensions and, finally, certain drivers or unsafe conditions become themselves root causes of future DRC processes.

## **6.4 Planning implications for a resistance to DRC**

Thinking of aid workers and disaster professionals, i.e., the source of data collection, the research focus' main open challenge relates to the lack of operative novelty and solutions to the highlighted problems and dynamics.

Building upon the status of the DRC debate resulted along with this research, some sprouts of practical implications arise, aiming not solely at a reduction of underlying risk factors, but also of a more prospective DRM and DRC-informed aid. Given the many thorough contributions already addressing DR reduction and correction solutions especially concerning the technical-physical dimension (e.g., Lizarralde, 2014; Lizarralde et al., 2009; Wamsler, 2001, 2006, 2008), this chapter concludes focusing on paths of resistance (Wisner & Lavell, 2017) to ongoing DRC processes. The following chain of practical implications, or needed step for resisting DRC and avoiding future creations, targets the aid, DRM and planning sectors and advocates for more coordinated and DRC-oriented interventions, therefore for justice to the violated human and environmental rights.

### **6.4.1 A country-level, shared, updated DRC analysis**

After these two experiences recomposing a DRC understanding through academic contributions, policy documents and stakeholders' interviews, it appears undisputable the importance and feasibility of adopting analogue shared, updated and detailed DRC-centred analysis for any arena of aid and DRM intervention. Such a cognitive tool may benefit and assemble the many existing DR evaluations and assessments available at different scales and integrate them with quantitative data and spatial information.

Also, participatory processes might weigh the importance and relevance of DRC's components, involving different groups of stakeholders and expert authorities: given the available data on exposed elements and population, and the vulnerability and hazards assessments, focus groups might proceed backwards and weigh the DR drivers' contributions along the DRC structure.

This opportunity may include elements that were not originally conceived in my data collection (due to time and resource constraints) but constituted revelatory sources of novel perspectives on DRC: affected communities' representatives, grassroots and activist organizations, workers belonging to adjoined aid sectors such as human rights, environmental rights, violence, and migrations. Widening and integrating their understanding of DRC may further detail and highlight the central role and importance of interventions deemed exogenous to DR governance, such as waste reduction and management, environmental conflicts resolution, environmental impact assessment of extractive initiatives and agribusinesses, etc.

The adoption of a shared DRC analysis may unite and consolidate many of arena of intervention's existing tools and documents, such as DR assessments, humanitarian need overviews, post-disaster needs assessments, and DR response evaluations, to be updated when needed with elements resulting from new emergencies and conflicts.

#### **6.4.2 DRC-oriented initiatives mapping and coordination matrix**

Considering the active role of aid and DRM in contributing to DRC, another implication relates to the need for adopting measures to reduce and prevent such unintended and side effects. Ideally, the different realms of disaster professionals should strengthen a common sound ground: a strategic framework or agenda. This might align governmental and non-governmental bodies, coordinating single scattered interventions as part of a long-term plan based on objective, shared and replicable DR and needs assessments, evaluations, and prioritizations. Such "bigger picture" should foster an agreement between donors, national and local government, international organizations, and NGOs, covering needs that often are conflicting, such as safe housing, environmentally and socially sustainable

development practices, humanitarian strategies addressing hunger and extreme poverty.

As framed in the barriers and challenges above, despite the shared language, commitments, theoretical frameworks, and approach to disasters (Bankoff & Hilhorst, 2009), planning, aid, and DRM stakeholders differ in their interpretations, priorities, and actions when facing the same crisis or dealing with the same territory. This contributes to misunderstandings, inefficiencies, and duplication of services.

Given the multitude of aid and DRM projects and interventions, a planning strategy should (i) agree on a common frame and evaluation of all DR driving forces at stake (section a above), (ii) define coordinating bodies at different levels, and (iii) build up a long-term strategy where all different interventions fit in. Such a strategic rethinking of aid and DRM coordination might be correlated to an assessment of interventions' counterproductive and side effects, and thus contribution in addressing DRC drivers and conditions.

Among those previously highlighted, the shortcomings that could be addressed with a common coordinating strategy could be:

- Oversaturated production of protocols, guidelines and planning tools not aligned among each other, followed nor implemented;
- Stakeholders unaware of all existing DRM policies, planning tools, analysis, or relevant past projects;
- Failures in agreeing, co-developing and aligning donor's priorities to local governments strategies;
- The patchwork of evaluations, DR analysis and zoning, not homogenously distributed and with different levels of detail, information, or targeted areas;
- Need assessments and prioritizations unclear, biased and/or influenced by self-absorbed interests, e.g., diverted by aid presence (or absence) in a certain area;
- Methodologies not shared and trusted among actors, outputs not reliable and replicable.

During my second experience in Guatemala, I attempted to draft a frame for such a DRC-oriented planning tool, an "initiatives mapping" analytical matrix, and had some preliminary discussion with involved stakeholders to understand its

potential relevance and usefulness. The main feedback was that local institutions and municipalities do not have track of all past projects performed in their territories, nor NGOs have updated information on the ownership and maintenance of past measures.

Adopting such an analytical matrix might enable case-specific and more detailed evidences regarding: (i) how and to what extent aid and DRM interventions address, cover, and solve DRC in practice, (ii) the identification of overcrowded and of forgotten DR drivers, and (iii) the opportunity of coordinating and linking planning, development aid initiatives to DRM and humanitarian ones. Furthermore, the secondary goal would be to empower one of the local institutions involved as coordinating figure, mapping and assessing aid and DRM initiatives in a given area and integrating with efforts performed by other actors belonging to sectors unrelated to DR governance.

### **Drafting a method for mapping initiatives**

The analysis in a study area would require a definition of DRC's relevant drivers and unsafe conditions, a historical overview of past events, interventions, and adopted policies and planning tools. With reference to projects' report and description, the thematic mapping analysis would require involved stakeholders, implementing institutions and recipients' representatives, to explain and assess ex-post:

- areas and type of intervention, assessment, and prioritization methods;
- coverage of DRC components and adopted approach (criminalize, oppose, permissive etc.);
- activities' outputs and outcomes in the short and medium-term, positive and negative impacts, intended or unintended long-term effects;
- replicability and sustainability in terms of local ownership, degree of adoption, maintenance, and propagation;
- potential for coordination and integration with other initiatives.

Table 8 Draft of the table assessing and evaluating projects and interventions.

		Project A
Intervention	Type (hum/dev)	
	Sector and sub-sector	
	Scale	
	Timing	
	Funding sources/mechanisms	
Targeted Risk components	Exposure	
	Vulnerability	
	Hazard	
DRM strategies	Anticipatory, Prospective, Corrective, Compensatory, Reactive	
Methods of assessment and evaluation	Disaster Risk	
	Needs	
	Local perception	
	Prioritization of intervention (area)	
	Prioritization of intervention (type)	
		Relevant activities
Approach to DRC	Targeted DR drivers and conditions	
	Criminalize, Oppose, Neutral, Permissive, Reinforce	
Considerations	Challenges	
	Outputs and outcomes: short/medium-term achievements	
	Impacts and long-term effects: positive and negative,	
	Follow up and Local ownership	
	Coherence and integration with other initiatives	
	Sustainability and replicability	

The information gathered in the table, both at project level and regarding specific interventions and activities, should support filling out the mapping matrix (sketched in figure 59 below), crossing the targeted DRC components (vertical axe) when intersecting the corresponding activity (horizontal axe). The challenge of such analysis would be to assess also quantitatively the effective impacts, coverage of DRC components, degree, and extent of follow up, and local ownership, so to understand for example:

- the number of targeted beneficiaries over the total in need, and updated estimates years after the intervention;
- the spatial and geographical distribution of an intervention;

- whether an intervention, especially pilot ones, has been forgotten/abandoned or if was maintained, protracted, and replicated.

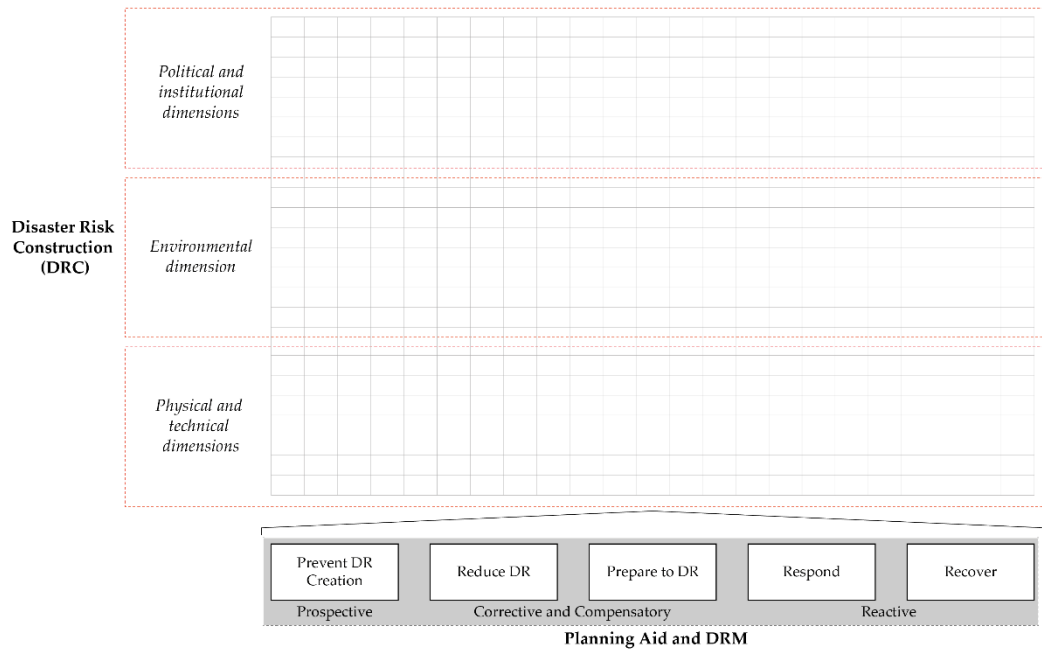


Figure 59 Sketch of the “initiatives mapping” analytical matrix

Such thematic mapping tool might support a better understanding of the complexity of the many past and present projects carried out by organizations and institutions in a given area, enhancing DRC-informed long-term strategies and prioritizations:

- coordinate and integrate ongoing efforts belonging to different initiatives;
- support projects’ monitoring processes and performance evaluations;
- identify conflicting practices and overlapping areas;
- integrate and complete past efforts;
- justify projects’ follow up or replication in analogue neighbouring areas;
- highlight forgotten and less beaten DRC conditions;
- support the adoption and enforcement of planning tools.

### 6.4.3 Extractivism out of the blind spot: framing disaster justice

Most of the DRC processes outlined in both countries can be resumed as injustices at different temporal and geographical scales. Both Haiti and Guatemala have been argued to be creditors (Klein, 2010) of exploitation and impoverishment histories operated by foreign powers, companies and international organizations which have been pointing at their natural resources, cheap workforces, strategic geographical locations, as well as at their political instabilities, conflicts, and dependency. Therefore, the population victim of such impoverishment processes should be entitled to demand justice for such crimes.

Given the DRC understandings recomposed for Haiti and Guatemala, an analogue shift appears to be fundamental within arenas of interventions, from blaming disaster victims, forced to live in impoverished and unsafe conditions, to a claim for disaster justice. The disaster justice concept, at the intersection between environmental, climate and social justices (Lukasiewicz, 2020), would imply demanding for: (a) reparations for the history of impositions, dispossessions and abuses that constructed DR; (b) accountability to those that should reduce DR, manage/recover from emergency effectively, and provide adequate and safe living conditions to all, therefore avoiding injustices within DRM; (c) including the contributions to DRC when assessing the environmental impact of an extractive initiative, and (d) advocating for reparations, reduction and disincentives to such practices, (e) redistributing their positive externalities and royalties also with the local affected communities.

In order to fully understand the extent of such reparations and redistributions, further research and efforts for all the involved sectors should address and tackle more intentional (Wisner & Lavell, 2017) and severe drivers of DRC, i.e., those triggered by large scale agribusinesses, energy (especially hydroelectric plants in Guatemala) and mining industries. Extractive economic activities and major development projects have a key role in triggering DRC causal chains, both degrading the environment and worsening hazard's severity, dispossessing local communities of their land and self-sufficiency, consequently forcing migrations to unsafe and hazard-prone urban areas. Being mines, agribusinesses and hydroelectric plants entangled in the unsustainable development model adopted, or imposed, in these fragile contexts, their role and contribution to DRC should be included, in terms of socio-economic and environmental costs and externalities, in DRC-informed environmental impact assessments.



Such transformation for disaster justice might be particularly relevant for aid and DRM practice, especially if consider the unbalance between adopted measures, often described as cosmetic, and the major cascading effects of extractive development projects. This mindset reinforces the call for cooperation with NGOs and community-based organizations involved in human and environmental rights struggles, which may complement the DRC understanding and integrate DRM strategies.

In conclusion, as happen for the maladaptation concept (A. K. Magnan et al., 2016; E. L. F. Schipper, 2020), the climate change mitigation debate, more advanced in terms of systemic and causal understandings of the “polluting” sources to reduce, provide valuable and useful references and tools for consolidating such DRC-informed justice:

- From carbon to DRC footprint assessment for major development initiative;
- From zero emissions principle to resisting DRC goal (Wisner & Lavell, 2017);
- From the polluter pays principle to DRC crime, forcing agents of DRC to correct and compensate for their contributions;
- Widening the “climate debt” demand to DRC, holding accountable foreign interests rooting the impoverishment of these fragile economies.

## Conclusions

This thesis reflected on the usage, validity and implications of DR root cause analytical models that achieved a certain establishment in the academia and international agenda but did not seem to have permeated in the mainstream mindset of DR assessment and management, most probably because of their uncomfortable focal point on wicked political, economic, and social practices and behaviours.

Looking at the canonical definition of DR, i.e., as the consequence of the interaction between a hazard and the characteristics that make people and places vulnerable and exposed to it (according to UNDRR), the thesis investigated the processes that influence, amplify, and consolidate these components. Such focus on the DRC - unsustainable development interplay analysed the Haitian and Guatemalan urban areas, where, due to histories of impoverishment, violence and injustices, the high levels of exposure and vulnerability have been in continuous growth for centuries, to the point that even minor hydro-meteorological events can have disruptive effects: streets are crumbling, riverbeds clogged with waste and

debris, and many neighbourhoods settled in high slope ravines with inadequate building materials.

Through the contributions of stakeholders, academics, and policy documents, in both Countries, the analytical efforts were devoted to (1) investigate the availability and establishment of explanations on DRC, (2) assemble an updated, complex and causal understanding of it, and (3) to debate on its usage and on the barriers of addressing it. In other words, the research involved aid workers and DRM stakeholders to contribute to an up-to-date explanation on whether disaster risk root cause analytical models can build a general overview of DRC, on why it is so difficult to counteract, say no and resist to such processes (Wilches-Chaux, 1993; Wisner & Lavell, 2017), and on their untapped planning implications. With arenas of aid and DRM intervention as the framing case study, the awareness, usage, and urgency of the DRC theoretical construct resulted as generally accepted, used especially for building explanations and assessments after catastrophes in policy documents, projects reports, in DR evaluations as well as in newspapers.

Regarding the acknowledgement and explanations of DRC (1<sup>st</sup> research question), both in Haiti and Guatemala, whilst the academic debate proves to be passionate in explaining how DR has been created and consolidated over time, crisis after crisis, DR reports and policy documents do mention certain underlying risk factors (e.g., deforestation, hazard-prone informal settlements, unmanaged waste...) but have difficulties in assessing their extent and mapping their distributions. Also due to the unfeasibility of effectively including DRC in their evaluations, understanding, charting, and tracing their causal evolutions turned out to be of fundamental importance, as is the need for a common national document analysing and reporting the DRC status.

In both Countries, the variety and multitude of documents and articles retrieved that have been explaining and referring to DRC for the past 40 years, plus the persistence and consolidation of these dynamics, are quite explanatory of its inconvenience and untapped potential, especially for the urban planning field. However, the acknowledgement of DRC hardly bridges to operative solutions applicable for aid and DRM interventions, paralysed when facing such systemic complexity and wickedness.

In contexts afflicted by subsequent and everlasting emergencies, aid efforts and resources direct mainly for corrective and compensatory DRM, i.e. targeting

“already existing risk” (A. Lavell & Maskrey, 2014), therefore somehow protecting the unsustainability of certain economic activities and development paths: “DRR has become a band-aid that is applied to development, an airbag that inflates (often too late) when there is a crisis but under other circumstances receives very little attention or finance” (A. Lavell & Maskrey, 2014). Besides this lack of criticism towards foreign investments (Carey, 2012), humanitarian aid permanent presence has been criticized also for working in “emergency mode for too long” (Otto & Weingärtner, 2013) inhibiting growth and autonomy, and reinforcing local dependency.

Furthermore, the DRC discourse and its attention for unsafe and dangerous behaviours and living conditions may legitimize, on occasions, the blame and consequent punishment of vulnerable communities (Valencio & Valencio, 2017) in the aid and DRM practice. As an example, the stigmatization of impoverished disaster victims for perpetrating “self-harmful actions” and for settling “in the wrong places” (Valencio & Valencio, 2017) lead to the counterproductive effect of restricting aid interventions, service deliveries, and relief activities for already marginalized communities.

Given the difficulties reported, for aid, DRM, and planning, in effectively addressing most key underlying risk factors and drivers (e.g., dysfunctional institutional system, housing crisis and uncontrolled development, land degradation and impoverishment, deforestation...), the research moved to analyse the “aid – DRM – DRC” interplays. These reflections outlined a certain degree of self-awareness, among interviewees, concerning aid and DRM’s own contribution to DR amplification (2<sup>nd</sup> research question). In contexts where the concepts of DRR, build back better and resilience may get distorted and not work, as they would mean heading to recover and bounce back to highly exposed and vulnerable conditions, acknowledging and understanding the role of aid and DRM in contributing to DRC is essential. Failed recoveries and ineffective aid have been contributing to migration flows, hazard-prone shelters, precarious reconstructions, dependency and marginalization dynamics, and unwittingly replicating violence and injustices on the most impoverished. Aiming at a more comprehensive understanding of such barriers and challenges, reported since the 70s (Davis, 1977; Gellert, 1996a), efforts have been devoted to assembling existing explanations from both academic and international agenda’s debates.

Framing arenas of intervention’s ineffectiveness and counterproductive dynamics as a new layer of DRC analytical structure constitutes the first

theoretical result of the analysis. Further thoughts concerned the adopted analytical framework which could not fully grasp DRC's continuous growth and cyclic conduct, compounding new components and feeding/reinforcing vulnerability throughout emergencies, recoveries, and crises.

Assembling actors' perspectives and policy documents explanations of DRC, a certain level of biases and contrasting discourses emerged in terms of importance and stress attributed to extractivism, foreign interferences and violations. This historical branch of DR driving forces, indeed more intentional (Wisner & Lavell, 2017) and severe, refers to western countries' responsibilities in underdeveloping (Susman et al., 1983) fragile and dependent economies, and therefore in rooting and triggering DRC. In Haiti and Guatemala this underdevelopment has been consolidating throughout a series of Devil Bargains (Schuller, 2016a): interferences in domestic politics, embargos, imposed structural adjustments, agribusinesses, mines and energy plants grabbing territories and natural resources, industries exploiting local cheap workforces, aid dependency, untaxed imports of foreign goods, and disasters capitalism.

Bringing extractivism and foreign interferences into the limelight of disaster governance, often overlooked in the international debate, would mean acknowledging and addressing their negative environmental and social externalities. These unsustainable and discriminatory development (C. Lavell & Lavell, 2010) practices have been grabbing lands, imposing deforestation, soil and water sources' depletion, contamination, and erosion, thus worsening hazards severities and occurrences, and forcing disposessions, displacements, and exploitation, in sum vulnerability, on local populations. This second DRC "blame game" (Schuller, 2016b) shift, from "failed" government – as main excuse for relief ineffectiveness – to foreign sovereignty violations (Hsu & Schuller, 2020) – that created a client and dependent state in the first place –, could entitle victims of demanding reparations (Klein, 2010) to their historical driving agents of disposessions and abuses.

Consistently to this shift, DR governance should orient to human rights and justice (Wisner, 2018), focusing DRM efforts also on avoiding current and future DR creations, so that short-term interventions are not neutralized by new waves of displacements and environmental degradations.

Among the many planning implications of this mindset, mines, agribusinesses, hydroelectric plants, development policies, would require DRC-

informed impact assessments, covering their social and environmental costs, and negative impacts, also in terms of DRC. Accounting all this would advocate for reducing and disincentivizing extractive initiatives and for redistributing part of the “positive” externalities with the local affected communities.

An analogue switch, from “charity to justice” (Valentini, 2013), should apply for prolonged humanitarian arenas where aid agency and ineffectiveness unwillingly contribute to DRC (Valentini, 2013). This claim for disaster justice (Lukasiewicz, 2020) would imply demanding accountability to those in charge of reducing disaster risk, of providing adequate and safe housing solutions, and of managing effectively, and recovering from, emergencies. Pivoting on the emerged stakeholders’ awareness of the problem and on the genuine intentions embedded in the aid sector, overcoming the presented limits calls for a more prospective DR governance, informed and oriented to resisting DR creation and avoiding further injustices.

Such transformation would require further strategic planning recommendations for aid and DRM practices:

1. the development of a shared, updated (with new crises and recoveries), and participated tool analysing DRC complementing existing DR evaluations and needs assessments, a multi-scale effort from the national to at least the departmental level, involving affected communities to identify, assess, quantify, and map DR drivers and unsafe conditions.
2. The adoption of a DRC based longer-term strategy, aligning all involved institutions, so to coordinate and integrate single interventions and projects with previous and neighbouring ones, with analogue efforts funded and implemented by different bodies, or pertaining to other sectors. Such a strategic rethinking and coordination should account also for interventions’ positive and negative effects, assessing their coverage in addressing the complexity of DRC.
3. DRM integration and cooperation with other aid sectors usually deemed external to disaster governance, such as with human and environmental rights NGOs and community-based organizations involved in indigenous land access rights struggles, fighting pollution and contamination, committing to water sanitation and waste management, or advocating for housing rights in urban areas.

These three levels of planning implications could each constitute the starting point of further context-specific studies aimed at reorienting aid and DRM in complex and permanent arenas of interventions.

Furthermore, this research process calls for additional investigations also into other directions.

Firstly, as proposed for aid and DRM interventions, a similar assessment should cover major economic activities and development processes, so to weigh and substantiate their role in triggering and feeding DRC causal chains: e.g., how much do sugar cane productions have contributed to environmental degradations, wildfires creations, waterbodies pollution and impoverishment, and to internal migrations in Guatemala's rural areas?

Secondly, the DRC construct and its focus on processes rather than outcomes can constitute a liaison between disaster and climate change studies, considering and framing in a whole those uses and behaviours that worsen both social and physical components. As such, reducing development initiatives' carbon footprint, assessing the complexity of their life cycles, and holding accountable those that contribute negatively to it, could widen to, and apply for disaster risk creation as well.

Finally, this thesis tested the usage, relevance, and untapped potential of DR root cause analytical frameworks in two of the geographical contexts that historically inspired and consolidated this academic debate in the first place. An analogue research process could be carried out in the European and Italian contexts, where spatial and urban planning tools reach a minimum required level of enforcement and applications, so to investigate DRC's potential role for linking the many dimensions at stake. This could be particularly relevant, for example, given that along with the COVID-19 pandemic, the Italian emergency management (as well as in other Western Countries) resembled many of the counterproductive dynamics reported in this research: competent institutions unprepared, plans outdated and unenforced, health system splintered, uneven testing, lack of coordination in implementing restrictions, limitations reproducing disproportioned inequalities on the poorest segment of the populations, biased contagion evaluations, unclear vaccination prioritization, etc..

In the meanwhile, in Haiti and Guatemala the COVID-19 additional crisis thickened, once again, the pre-existing inequalities and injustices, e.g., lack of

access to health and vaccines, of personal protective equipment, adequate living conditions and wealth for remaining in quarantine, and absence of social welfare programs.





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