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Anouck Adrot, Mercedes Aguerre

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The Impact of conflicts on Data Sharing for Disaster Risk Reduction

Anouck Adrot

DRM UMR CNRS 7088
Université Paris-Dauphine PSL
Anouck.adrot@dauphine.psl.eu

Mercedes Aguerre

French Red Cross
Mercedes.aguerre@croix-rouge.fr

ABSTRACT

Cross-border regions are particularly exposed to hazards and require cooperation for Disaster Risk Reduction (DRR). Accordingly, multiple countries have been investing in technology and jointly innovate to share and process data against disasters. However, these countries' capacity to share data depends on the history and the context of the border itself. Going further, conflicts between countries – may they be past, present or future - can radically question and endanger collaborative efforts to share data for DRR. This collaborative research, involving a cohort of master students and an NGO, explores the influence of conflicts on data sharing and cooperation for DRR. Still in progress, this research examines how conflicts affect data sharing and how DRR actors manage them. It is based on exploratory archive analysis of three distinct cases of cross-border DRR collaboration within the EU borders, as well as experts and actors interviewing. Preliminary findings reveal that conflicts affect DRR at three levels: i) actors, ii) interactions with DRR actors, iii) relations between local DRR actors and institutions. The expected contribution of this research is theoretical, practical and pedagogical.

Keywords

Disaster Risk Reduction (DRR), cross-border regions, cooperation, data sharing, conflicts

INTRODUCTION

The resilience of cross-border regions - defined as territories at the jointure between distinct countries separated by a topological or administrative border - has become an international concern, all the more given climate change (United Nations, 2019). Disaster Risk Reduction (DRR) can drive the strengthening of this resilience while achieving sustainable development by preventing new and reducing existing and new disaster risks (UNDRR, 2017).

Practically, this means that countries that share a border need to jointly develop know-hows and resources to understand, anticipate and prevent local disasters, as well their associated risks and impacts. They cooperate to develop specific capabilities and reduce the exposure of populations and infrastructures to disasters. Locally, this cooperation involves ecosystems that comprise diverse organizations (including authorities, public and private companies) from multiple countries. A large spectrum of projects illustrates a growing interest in joint effort for DRR, especially given the rise of technologies that can automate the production of alerts and insights based on data. After a deadly fire season in summer 2021, Türkiye, in cooperation with other countries and the World Economic Forum (WEF) supported the creation of FireAid¹. This tool, based on machine learning and diversified data, aims at continuously improve fire prediction and alerts to populations.

A critical resource for DRR is thus reliable data (« Sendai Framework for Disaster Risk Reduction 2015-2030 » 2015). Organizations hardly dispose of data sets that address informational needs (Van Den Homberg et al., 2017). For this reason, DRR actors frequently collaborate on data sets to anticipate natural disasters (Sarker et al., 2020). Accordingly, many countries have put efforts in sharing data, for instance through local, early warning systems, data ecosystems (van Esch, 2021) and open data (Kanbara, Shaw, 2021).

For multiple reasons, these initiatives remain insufficient to effectively share data for DRR in cross-border

¹ <https://www.weforum.org/press/2023/01/successful-pilot-shows-how-artificial-intelligence-can-fight-wildfires>

regions. One reason is that cross-border DRR has been increasingly affected by conflicts between countries (Harris et al., 2013; Mena & Hilhorst, 2021; Peters et al., 2019). Even when disputes and tensions belong to the past, conflicts' legacies still obstacle cooperation between countries (Besley and Reynal-Querol 2014). They render data sharing for cross-border DRR more vulnerable to disruptions (Koukis et al., 2016).

Unsurprisingly, data has become a critical political asset, which sharing can easily collapse. It informs about infrastructures, territories, demography and resources that countries might willing not to share when their interests misalign (Stavrianaki & Kelman, 2019). That said, examples of DRR cooperation – including data sharing - between conflicting countries abound (Martin et al., 2011). Therefore, it remains difficult to understand how conflicts practically affect data sharing for DRR over time. Therefore, this research aims at addressing the following research question: “*How do organizations from distinct countries involved in DRR at a specific cross-border region practically tackle conflicts between the countries and its impact on data sharing for DRR?*”

To address this research question, we have been conducting a research project in collaboration with the French Red Cross. The research process comprises four major steps and involves collaboration with a cohort of master students. We have been collecting and analyzing qualitative data through exploratory analysis of European cases, interviews and focus groups. Because this research is primarily exploratory and inductive, we have been relying on grounded theory principles and methodology to collect and analyze data (Glaser & Strauss, 1967). Our main concern covers how conflicts manifest in DRR cooperation and data sharing. We have also analyzed how DRR actors practically handle the effect of conflicts on data sharing. Our preliminary findings still require development and refinement. However, they outline three levels of conflicts at borders: i) at a micro-level within DRR actors themselves, ii) at a meso-level between DRR actors and third, iii) at a macro-level between DRR actors and institutions.

The expected contribution of this work is theoretical, practical and pedagogical. From a theoretical perspective, we address recent calls for a more comprehensive understanding of DRR (Cook & Lourdes Melo Zurita, 2016). We also complement existing research on DRR and conflicts by focusing on unarmed conflicts. From a practical perspective, our findings help analyze and avoid the failure of DRR cooperation at borders. The third contribution is pedagogical. Based on the collaborative design of this research - involving cohorts of master students and an international Non-Profit Organization (NGO) – our research aims at supporting the reflexivity of future DRR actors, paving the way for good practices in a sustainable future.

LITERATURE REVIEW

Resilience, DRR and data in cross-border regions

Cross-border territories are particularly exposed to disasters. They usually comprise natural borders (such as rivers, mountains, forests or deserts) subject to incidents, all the more with climate change. In addition, they often host critical infrastructures such as nuclear and industrial plants. Despite strong vulnerability to disasters, cross-border regions are crucial for cooperation, commerce and diplomacy between countries. Unsurprisingly, the EU has highlighted the role of these regions in Europe integration and has been supporting them financially (through the INTERREG mechanisms) since 1990 (*Boosting Growth and Cohesion in EU Border Regions*, 2017).

Data is a crucial input to understand disasters and prevent their impacts. For instance, topological data helps identify locations that can be flooded or reached by fire. Combined with demographic data, it provides more precise insights on disaster exposure. Lately, images have been frequently extracted from social media to support the understanding of how a climate phenomenon can become critical. To develop data preparedness, e.g. the opportunity to deploy data sets and tools ex ante (Van Den Homberg, Visser, & Van Der Veen, 2017), organizations need to collaborate well before the disaster, by sharing and processing data altogether. Therefore, international institutions such as the UN have advocated the creation of data sets and services in a structured way (ranging from the sending of data sets to the creation of a full data ecosystem). But data remains at the center of political stakes between countries. The rise of cyberattacks has highlighted data as a threatened asset. Thankfully, DRR comprises a large spectrum of internationally appraised tools and standards that can guide DRR actors in their efforts to share data through guidelines and projects.

Conflicts' legacies as a burden for DRR cooperation and data sharing

DRR actors apply methods, resources and frameworks in the context of a specific territory, with unique topological, historical, political, institutional and cultural characteristics. Past conflicts can affect for a long time a territory, thereby impeding its DRR (Marktanner et al., 2015). Stated otherwise, conflicts and tensions between countries leave a persistent footprint that impregnate territories and their organizations. We approach these footprints as legacy.

Cross-border regions make no exception. Cross-border regions are frequently influenced by past and/or present conflicts (Gleditsch et al., 2006). First, these regions are exposed to competition for resources, which drives for disputes and conflicts between countries (Gleditsch et al., 2006). The reason is that the distribution for natural assets (from rivers, forests, mountains) and infrastructures is frequently disputed, as illustrated by the persistent disagreement between Israël, Syria and Lebanon over water resources from the Jordan River and the Sea of Galilea. Countries can also disclaim the borders. Worse, conflicts represent a risk that can interact with other risks and generate polycrises. For instance, in the latest years, the drought generated small shallows along the Evros river between Greece and Türkiye. This natural phenomenon changes the shape of the river and has been generating confusion over the exact place of the border. Finally, climate and political migration adds tension over the question of borders and their management (Hess & Kasparek, 2017).

While conflicts are inherent to borders, most research has focused on visible conflicts (in other terms, visible and current conflicts). No doubt that armed conflicts represent a major concern for DRR actors because they can cause massive migration, destroy infrastructures, and undermine the legitimacy of local institutions (Mena & Hilhorst, 2021; Peters et al., 2019). But conflicts do not always manifest through weapons. Unarmed conflicts illustrate in relentless defiance that can harm or stop cooperation between DRR actors. For instance, past conflicts produce long term footprints that persistently affect collaboration against disasters (Besley & Reynal-Querol, 2014). We second this view in this work by focusing on rampant conflicts that can deeply undermine cooperation between countries and jeopardize efforts to share data for DRR without notice, at the expense of cross-border resilience.

In this work we approach conflicts from the perspective of organizational communication. From this perspective, conflicts correspond to a divergence of interests between countries, whose legacy can result into avoidance and defensive reactions between organizations (Oetzel & Ting-Toomey, 2006). This means that conflicts are not exogeneous to a territory. Rather, they emerge over time through the organization and social fabric.

Data sharing is a daily and strategic practice for organizations. DRR actors rely on tools and frameworks to do so (Weichselgartner et al., 2016). However, sharing data requires consensus on data formats and supports (Abad et al., 2018). Disagreements between countries can render these consensuses harder to reach. Also, data, far from being a neutral and objective asset, is a core component of disaster diplomacy (Stavrianaki & Kelman, 2019). It can conduct organizations involved in DRR to align data sharing with national political agenda (Stavrianaki & Kelman, 2019). For all these reasons, data sharing remains sensitive to conflicts. However, how actors deal with them practically remains under investigated and motivates our research question.

METHOD

This research aims at better understanding how DRR actors practically tackle conflicts when sharing data to reduce disaster risks at borders. Given the lack of documentation on the topic, we have been following a qualitative and exploratory design. Our research also relates to a broader project that started in 2021 with the French Red Cross and is now funded by ECHO². The research comprises four major steps, including literature review, focus groups, exploration of cases and interviews. We detail here in these steps and how they informed our research

A four-step process

Literature review

First, the literature review helped identify the major concepts, definitions and potential levels of analysis. In this phase we considered scholar content (books and papers) but also international reports. We learnt that scholars predominantly examined armed conflicts and their impact on DRR. Less attention has been devoted to past and seemingly resolved conflicts. International reports echo our view by calling for further attention to alternative forms of conflicts (such as cyber-attacks). This has led us to focus on seemingly calm borders that were still affected by past, ongoing and possibly future conflicts. Based on our literature review, the team extensively discussed the essential features of conflicts, and how they empirically manifested. As a result, we chose to adopt a communicational stance on conflicts (Nicholson 1992).

Focus groups

Second, we conducted focus groups. In October 2022, we led a 1-hour workshop on conflicts, data and DRR at borders in collaboration with the German Red Cross. Interestingly, only 2 professionals participated in our workshop. We understood that our investigation was necessary but that its topic remained abstract to practitioners.

² https://civil-protection-humanitarian-aid.ec.europa.eu/index_en

In addition to this workshop, we had led a panel with professionals and academics in March 2022. Finally, we made a presentation of our preliminary findings to professionals in March 2023. On these three occasions, the professionals highlighted governance issues with data in DRR cooperation, as well as the importance of local actors for DRR. These inputs supported our research process in two ways. First, they helped us identify the main practical concern underlying our research, namely conflicts' influence on cooperation and data sharing to reduce disaster-related risks at borders. Second, they helped us identify major codes that we needed to consider in our data analysis.

Exploration of three European cases

We then relied on public archives (such as reports) to better understand how DRR actors practically cooperated and how conflicts manifested in such settings. Our rationale for choosing these cases is three-fold. First, we identified cross-border regions where cooperation existed for some years and had been institutionalized. Second, we chose cases that related somehow to the same region (or continent). We needed to find enough similarities between the cases to compare them. Finally, we selected cases where conflicts manifested at diverse degrees, from very low to intense.

By depicting and comparing the cases, we understood that, regardless of the diversity of settings, conflicts manifest in and jeopardize DRR cooperation. We abductively reflected on the cases by putting into perspective them with the literature. From this, we inferred that conflicts manifest primarily through interactions between DRR stakeholders. Furthermore, conflicts hardly start and stop at a specific time. Rather, they diffuse in cross-border regions and shape interactions involving DRR actors in the long run. They also generate uncertainty that can question without notice DRR cooperation between actors (not only States but also communities and organizations). We also understood that DRR actors deal with these conflicts and search for avenue to pursue cooperation.

First, Italy and France share a border in the Alps. This region, characterized by high relief, hosts multiple valleys and rivers. On a regular basis, this region has been struck by dramatic and highly destructive events. One of the deadliest and latest happened in October 2020. Largely known as the "Roya Valley floods", it has struck both sides of the border. The ALCOTRA consortium has been supported by the EU to gather remembrances about floods and maintain a high level of vigilance within Italian and French local populations. Even though the Italian French cross-border region has a long history of armed conflicts (until World War II), the two countries have been part of the European Union (EU) for multiple decades and experience rare political tensions. Cooperation between France and Italy for resilience has been overall growing despite local misunderstandings related to semantic and protocols.

Second, Bosnian Herzegovian-Croatian border region, at the core of the Balkans, was the stage of an armed conflicts in the nineties that lasted three years. It benefited from financial and institutional support to overcome persistent post-conflict tensions between the two countries and reduce the risks related to the Sava River Basin. The Sava River Basin is one of the most important sub-basins of the Danube River Basin. It spreads over Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro and Albania. Approximately 9 million people from these countries (Albania excepted) resides close to the rivers. Several organizational initiatives have been put in place to unite DRR actors and strengthen cooperation to face these risks in the long run. This border vividly illustrates how conflicts through their legacy, linked to persistent tensions and animosities between communities.

Finally, Greece and Türkiye share a long-term dispute over several territories (including Cyprus, the Aegean sea) and have been at times on the brink of war (Sönmez & Üstün, 2021). However, they have been collaborating for DRR since 1999. Greece and Türkiye share land and maritime border, the Aegean Sea. They also share natural hazards, including earthquakes, forest fires, drought, flash floods (to be differentiated from floods), mucilage (impact on fisheries resources) and volcano eruptions. However, the relationship between the two countries is marked by a strong historical antagonism which undermines the DRR. Recent political tensions questioned past cooperative agreements on DRR.

Experts and actors interviewing

Finally, we completed seven interviews with operational staff and experts of conflicts and/or DRR. We diversified the sample of subjects by considering actors with international experience, from various organizations (NGOs, public organizations, etc.), at various hierarchical levels and positions. The interviews lasted between 45 and 90 minutes. These interviews represent the core source of primary data in our work.

Data collection and analysis

Archives, focus groups and interviews allowed the collection of primary and secondary data. Data analysis is based on grounded theory principles, which has strong implication in the research design and our data collection.

We based our design on the discovery a *main concern*, which corresponds to the practical issue that the subjects of the study intend to address (Glaser, Strauss, 1976). Our main concern emerged from data collected from focus groups in March and October 2022. In these focus groups, actors revealed how conflicts and tensions could influence the sharing of data in DRR projects. From this, we have been elaborating a theme dictionary based on this data and a literature review on conflicts, DRR and data sharing.

We have been collaboratively coding interviews and some archives by using MaxQDA. The team has been relying on dialogical reasoning to refine its analysis, meeting once a week for 2 months to improve the coding. We thus refined the dictionary theme iteratively.

The research team has been relying on interactions with professionals, students and experts to support the reliability of our analysis. The students presented the project to their peers in February 2023. Finally, a more formal presentation to the university instances (i.e. a committee of students, professors and managers dedicated to concertation on sustainability) and formal presentation of the workshop at the French Red Cross helped us refine our analysis.

PRELIMINARY FINDINGS

At this stage, we are still collecting and analyzing data. However, some preliminary findings have already emerged from the collected data. Our empirical analysis reveals that conflicts affect DRR at cross-border at three levels. First, they shape the actors' approach to DRR. Second, conflicts affect interactions between DRR actors themselves. Third, conflicts can impede mutual understanding between local DRR actors and institutions.

First level: Actor-level

Conflicts' footprint on resources

We argue here that conflicts undermine essential resources to DRR, coming from distrust, time, money and energy.

A conflict's escalation can leave a persistent footprint on its stakeholders. For instance, Bosnian and Croatian History textbooks do not provide the same narration of the 1992 conflicts. In particular, cross-border regions (its delimitation and resources) can remain a source of dispute and defiance. As explained by an expert mentioning a specific border, latent doubts regarding resources at border can promptly question DRR cooperation in actors' minds.

"What resources will be shared or not? The North side of the border was concerned that the South side relied on the North's resources to stop preparing [against disasters]. The two sides debated over resources' distribution". [Exp_03]

Conflicts footprints can generate or aggravate distrust from actors involved in DRR cooperation actions (communities, states...). However, DRR actors hardly develop a clear understanding of how the remains of a conflict shape their view on DRR cooperation. One reason is that the very notion of conflict is usually put aside from the reflection on disasters. As illustrated by this verbatim from an expert, conflicts can aggravate exposure to disasters and vice versa:

"I was in the Northern part of South Sudan, and people were telling me "yeah we have droughts (...) We know them. If we cannot farm we take the excess of animal that we have and we go to the market and we sell the market to buy what we couldn't produce". It's a challenging situation for local communities, but they know how to manage with it. "However", they said, "this drought is different than we're saying. This is a disaster. What changed, is we cannot go to the market anymore because this is unsafe, because of the conflict in South Sudan. We have less men to carry water and do the heavy work, because many of the other men, also the younger men, were taken, or willingly joined war groups, or rebel groups etc. (...) So what for them was a natural phenomenon, drought, nothing as a big disaster. Something, yes a social problem... now due to the conflict, it turned into something that is disastrous for them". (Exp_04)

In different ways, conflicts prevent local communities from finding practical solutions to cope with climate phenomena. In addition, they undermine the actors' capability to use money and time to deal with natural phenomena. We infer from this the need to further grasp the link between disasters and conflicts to raise awareness

of the effects or even biases that conflicts create between actors' relationships.

Data as conflict

Data has become a strategic asset. It has become the subject of potential conflicts because it can provide a large spectrum of confidential and semi-confidential information (including demographics and infrastructures). Data can also become the source of narratives that can participate in disinformation, negotiation and confrontation between countries. An expert details this aspect of data and explains how data can divert DRR actors from cooperation.

“So data is not data. Data is information about something that happened or might happen and it's controlling narratives. So what I have seen and what the literature also says is that people is more afraid about the narrative than sharing the data. So is the data saying that I'm good at it? It's going to say that I'm under control, it's going to say that I'm not under control in the case, it's saying that I'm capable to do something. So it's about the narrative, the data more than the technicality of how to share data. The other part that is more technical, but it's not just technicalities is about data for itself. Although it's a narrative, it doesn't talk for itself and that's what a lot of actors are really afraid of sharing data because if you don't know the context in which the data was collected, for which purposes, you can quite easily misuse it or misunderstand it and it's almost super difficult to explain all the context. (...) [Data's] power is narrative (...) it doesn't tell the whole story”. [Exp_04]

In addition, data's reliability and completeness depends on geo-strategic disputes and the protection of a nation's interests:

“it's really common also the cohort of this kind of surveys why you focus on this group and on these others and that information is not in any report or in any database. So not only who you selected, but who you didn't select for which reasons and sometimes there are good reasons, maybe they're operational reasons, sometimes they are constraints, sometimes donors are inviting you to see one way. So I think there is different layers and I completely agree with you and data is complicated. (...). So people are actually quite cautious in how they share data in that sense, yeah, I mean, I can think much more about data as well”. [Exp_04]

Finally, our interviews suggest that for DRR actors, data a priori remains a technical object. This appreciation aggravates DRR actors' defiance towards data-based cooperation. Many of our requests for an interview received a negative answer, which operators and experts justified by a lack of knowledge regarding data. Yet, several reports such as those of the World Economic Forum evidence the necessity of data sharing, thus encouraging each actor to explore and master this resource.

Identity contradictions posed by DRR

DRR involves new tasks and missions that can come at odds with the original professional identity of actors. Practically, DRR implies new responsibilities in addition to regular duties. In some cases, actors get overwhelmed with duties while missing crucial resources and means. The army does not make exception to this evolution. An expert explains why the army's involvement in DRR at borders can become counterproductive.

“I see a major concern. There is a double political message. On the one hand the military's presence conveys the State's legitimacy on the field and reassures the population about its safety. On the other hand, the profusion of new missions distributed to the military confronts the lack of resources and can eventually result into failure. (...). Can you imagine the reputational impact for military organizations, internally and externally? I am convinced that no one will be willing to become a military in these conditions”. [Exp_04]

According to this expert, the lack of means at hand, in addition to work overload can impede DRR's involvement into cooperation.

Second level: Between actors

Withdrawing on respective interpretative frameworks

Each DRR actor tends to rely on its own interpretative frameworks. For instance, some experts explained that military organizations anticipate disasters in regions that matter for national defense. On the contrary, civil organizations collect data to track and forecast movements of populations and vulnerability hotspots (Wisner et al. 2004).

This gap might question DRR actors' capability to find common ground, such as vocabulary, joint aims, etc. It finds its root not only in culture and history but also vocabulary. Both practitioners and experts highlighted how

organizations tended to use different terms to evoke the protection of the civil population. As an expert explains:

“There is something particular in France that is different from Italy and Spain. At borders there might be some confusion regarding civil protection and civil safety, with or without armed forces. Other European countries, in contrary to France do not use armed forces for civil matters at first intention”. [Exp_01]

Persistent rivalries

In addition to siloed interpretative frameworks, DRR actors might compete in terms of missions and territories. This competition manifests across borders but also between organizations (from the same side of the border). These rivalries embody or generate invisible borders that can add complexity and jeopardize cooperation. An expert illustrates this point by detailing the tensions between civil and military organizations and their implications.

“Civil forces are not overly happy witnessing their mandate being expanded to the military. Plus, there is a rivalry between the various ministries. Even within a ministry, there can be rivalry between civil and military staff”. [Exp_01]

Rivalries also occur within the same organization across a border: *“Regarding this disaster, there was competition between the various armies. I mean, between the various resources on site. One reason is the incompatibility between the equipment from each country”.* [Exp_06]

That said, actors do not necessarily clash. Rather, they strive to overcome rivalries to serve the populations’ interests and safety: *“Everyone searches for some appeal. This can happen, you have to be honest, but ... we understand each other quite easily, because we know it's for the sake of the victims. So very quickly, there's no um... how would I say it, no coercion or um... I'm searching for the term but um... We don't clash. Between rescue units, we don't clash, basically...”.* [Op_01]

Rivalries are not surprising given that borders represent a political stake. Once a disaster strikes, public opinion – no matter on which side of a border - pays a lot of attention to national authorities’ preparation for and response to a disaster. This media exposure can compromise operational cooperation. As an operational with significant experience of cross-border disasters explains, when national authorities accept or provide support at borders, operational staff must deal with nation’s legitimacy and power.

“One of the biggest difficulties [to respond to disasters] is living room for other actors and accepting that other countries help populations beyond their borders. This situation can convey the image of weak state”. [Exp_01]

Interviewees also outline that, even when rivalries are not patent, the lack of interoperability can be detrimental to efficiency:

“In the worst case of rivalry, my major concern goes to inefficiency. The lack of political willingness to coordinate (...) will question data sharing and can make operations fail”. [Exp_01]

Siloed governance

Actors working on cross-border disasters tend to form an ecosystem over time. However, their responsibilities and duties are scarcely defined at the level of this ecosystem. Some actors (such as local authorities, communities and NGOs) tend to nurture collaborative ties with each other, which supports collegial governance. For instance, cross-border actors around the Sara River reflected on the best organization to federate and govern them. However, many interviewees mention a “silo-type governance” that might appear in cases where some small sets of organizations co-constrict their own rules. As an expert explains, disasters compel actors to further embrace transversal governance:

“You are in your own silo, with your own hierarchical rules, your own subordinates. You do not understand the silo next to you. Crises make siloes explode. They compel actors to generate a transversal connection so that they make sense of what they are doing and ways not to complete the same task twice.” [Exp_06]

However, the absence of purely transversal governance remains an issue. For instance, the responsibility for maintaining the Danube waterways has remained unclearly and uncommonly defined, thereby irritating some DRR actors. Implementing cross-actor governance would permit greater efficiency of DRR by limiting competition and redundancies.

Finally, defining governance remains challenging across borders. It requires that actors abide by common and international standards. For instance, some international agreements and norms are systematically re-negotiated by some countries. As an expert explains, federating both sides of a border on a common rule remains a major

political challenge.

“Dealing with agreements that define who does what is complicated. However, practically, I think that from a political stance, ... Well, sometimes cooperation and coordination are even inexistent even within worldwide organizations.” [Exp_05]

Third level: between actors and institutions

Misunderstandings between local actors and international institutions embody an invisible conflict that undermines DRR cooperation. As explained here in, DRR actors comprise local authorities, NGOs (including their local antenna) and local communities that are directly impacted by disasters and their inherent risks. International organizations and institutions develop frameworks and norms that actors are supposed to implement at the local level.

Local vs international logics

Data suggests that DRR cooperation has been, so far, shaped by two contradictory logics. On the one hand, institutional organizations approach resilience and DRR from a normative stance. In line with this view, they produce tools and frameworks that represent good practices. On the other hand, local actors face very challenging settings at borders, which compels them to tackle DRR more informally, through emergent solidarity and innovation.

These two logics somehow come at odds, thereby impeding DRR practically. For instance, DRR tools are usually designed at an international level for local-level use. However, as an expert explains, international institutions’ stance on DRR might not make sense for local actors. Practically, local actors can struggle understanding in detail the finality of the frameworks and how to implement them:

“I think, the importance of these frameworks is that it needs to be translated into something that makes sense, both for the organizations that aren’t familiar, and also for the communities themselves (...) it makes more sense to kind of speak in a way that hum they are familiar with.” [Exp_02]

However, providing local actors with resources is essential to support DRR actions in cross-border regions. Local actors, still, in the end, need tools to carry out their mission. In the long run, if the two logics remain at odds, local actors might withdraw from a mission that they believe to be unable to carry out. Consequently, hybridizing logics is necessary and requires further inclusion of communities to DRR discussions.

Local actors still unheard?

Interviewees depicted communities’ persistent feeling of not having their say about their own resilience. It is important to note international institutions’ efforts in empowering local communities. As explained by an expert of conflicts, the status of communities has changed. Primarily approached as victims, their voice has become critical to understanding the practical impact of disaster and evaluate DRR actors’ responsibilities:

“Climate justice can give local communities a voice because they are the ones whose voice has the biggest impact by explaining the consequences of disasters on life, work. They can explain how they struggled to find their place in society and find a job [after a disaster]. What impact on one’s life? Some room for communities’ voice in order to confront public and private organizations’ accountability to confront their reality.” [Exp_05]

As explained by an expert with extensive experience in conflicts and disasters, the sources of misunderstanding between local actors and international institutions are double. First, local actors need to abide by resilience frameworks. But these tools require translation to become relevant in specific settings:

“I think that these frameworks as the Sendai framework and other frameworks that exist around hum disaster preparedness hum are excellent and there has been a lot of thought and work that’s been put into them (...). (...) because of the fact that conflict, and disasters are happening more and more frequently in these contexts, [local actors] have to kind of hum I guess, go into this area that they typically didn’t deal with to the same extent.” [Exp_02]

Second, local communities remain too often sidelined in the design of risk reduction projects, even though they are the ones most directly affected. Their voices are too rarely heard, while they possess empirical knowledge that must be included in decision-making processes. They must therefore be at the center of the discussion on disaster risk:

“And also... I mean communities themselves have so much knowledge, and so much experience of how to prepare and respond to disasters. Hum I think there has to be kind of a fusion between knowledge levels, from kind of the

international level where there's a lot of kind of climate science and experts that go into developing these frameworks and these processes, but at the same time also, making sure that community's voices are at the centre of this when we're working to kind of apply these in an operational context. So It has to be kind of a fusion of these two hum, of these two approaches hum. And making sure that the communities and their needs are at the centre, because a framework that's developed in somewhere in let's say Geneva doesn't necessarily make sense for community hum somewhere else in the world, that wasn't necessarily a part of that process so. So I think not that these frameworks don't have a lot of value, but it is just about making sure that they're translated in a way that makes sense and making sure they're integrated with knowledge that is developed hum from the ground up as well." [Exp_02]

Several initiatives have already been put in place to promote communities' inclusion in the design of DRR frameworks, particularly by raising awareness among local populations about the risks of disasters they face. Whether the pedagogical mechanisms are formal or informal, it is necessary for these projects to precisely target vulnerable communities and give them the place they deserve in the decision-making process.

DISCUSSION

DRR, conflicts and borders: the need to tackle invisibility

At this stage, our preliminary findings reveal some hidden but important aspects of DRR at borders. To that extent, it aims at improving our vision of disaster management in the future.

At first sight, borders merely represent a linear separation between two neighboring territories. Conversely, our data suggest that borders rather consist of porous spaces that mix organizations, worldviews and languages. Far from being inert, they host actors capable of emergent initiatives. DRR actors search for alternate ways to strengthen cooperation despite persistent defiance. This aspect of border resilience well resonates with previous literature (Andersen & Prokkola, 2021).

That said, data suggests that the complexity of borders can also lead to its fragmentation (even from one side of the borders). Cross-border regions host organizational, cultural, linguistic, political and institutional gaps and divides. Data reveals that actors might be unaware of this collection of borders and their interdependences.

The invisibility and multiplicity of borders and conflicts suggest the need for extended exploration of DRR efforts across borders (and especially data sharing). Borders can be visible or invisible, thereby deeply affecting DRR actors. Also, DRR can comprise methodological and technological border that can generate or aggravate conflicts between DRR actors. To most of our interviewees, data seemed risky, technical and untransparent. Even though its usage theoretically benefits to risk identification, data embodies a complicated border with an unmastered digital space.

Expected contribution

The expected contribution of this research is threefold: theoretical, practical but also pedagogical.

From a theoretical perspective, we primarily contribute to a better understanding of the ties between disasters and conflicts, which has remained insufficiently investigated so far. Armed conflicts can impede DRR efforts (Mena & Hilhorst, 2021) and their impact has been growingly documented. This work, though, focuses on unarmed conflicts, which have been even less documented. In the situations under study, DRR actors do not need to cope with physical violence and destruction, nor to stop their activities. However, defiance, rivalries and political tensions can impede DRR actors' involvement and puts cooperation at risk. Such situations can persist and jeopardize DRR efforts in the long term. Our work produces knowledge about situations seemingly unproblematic but still very risky by identifying three levels of conflicts.

From a practical perspective, we target a better understanding and modelling of DRR good practices. By so doing, we intend to support cross-border resilience. So far, DRR was criticized for being ideology-based and implemented based on top-down and sometimes over-simplistic planning (Cook & Lourdes Melo Zurita, 2016). Moreover, current conceptualization of DRR falls short of detail on its practical implementation on the field (Mena & Hilhorst, 2021). In this work, we propose to address this issue by proposing a situated approach to DRR at borders. This approach has two major practical implications.

First, our findings suggest that local settings matter but remain at odds or invisible to international institutions. This means the need for more visibility and empowerment of local actors, in line with international guidelines. However, we believe in the need to go further and solve the persistent tensions between local and international logics.

Second, a more situated understanding of DRR, that fully considers past conflicts as present legacies, can help organizations make sense of the failure of DRR projects at borders. By introducing the notion of conflicts and proposing a grid to better grapple with conflicts' manifestation and effects, our research is expected to nurture local DRR actors' reflexivity.

Finally, this research is pedagogical. Based on a "learning by doing approach", it will support good practices among the future professionals of DRR.

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