Smart Urban Resilience:

Enabling Citizen Action in Disaster Risk Reduction and Emergency Response

(ESRC/CONACyT ES/S006583/1)

Civil society actors in DRR in 3 Mexican cities: engaging with digital urban technologies?

Working Paper 6; Work Package 4

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Part 1

Baseline Review:
Examining the role of Civil Society in DRR

1. Theorising Civil Society: what it is and what it does

1.1. **What we mean by civil society?**

"The idea of civil society failed because it became too popular"
(Alan Wolfe, 1997:18).

The term civil society (CS) found a growing international currency in the 1980s and 1990s when it began to be seen as non-state movements against authoritarian regimes, especially in central and Eastern Europe and Latin America, and when the number and presence of NGOs on the global stage began to rise. But, as we discuss below, CS has a much longer history going back more than 2000 years to the time of ancient Greece and Rome, before traveling to the rest of Europe during the Enlightenment.

Although it is now widely used across the world, it often means different things to different people. One dictionary definition highlights the notion of citizenship and considers CS as "a community of citizens linked by common interests and collective activity" (ref). International organisations, such as the World Bank, World Economic Forum and the European Union, often make a distinction between CS and Civil Society Organisations (CSO).

For example, for the EU, "Civil society refers to all forms of social action carried out by individuals or groups who are neither connected to, nor managed by, the State"[1] while referring to Civil Society Organisations (CSOs) as including "all non-State, not-for-profit structures, non-partisan and non-violent, through which people organise to pursue shared objectives and ideals, whether political, cultural, social or economic. Operating from the local to the national, regional and international levels, they comprise urban and rural, formal and informal organisations."[2]

The World Bank defines CS as "the wide array of non-governmental and not-for-profit organizations that have a presence in public life, expressing the interests and values of their members or others, based on ethical, cultural, political, scientific, religious or philanthropic considerations. Civil society organizations therefore refer to a wide array of organizations: community groups, NGOs, labour unions, indigenous groups, charitable organizations, faith-based organizations, professional associations, and foundations."

According to *the African Development Bank:* "The CSO comprises the full range of formal and informal organizations within society" while "Civil society encompasses a constellation of

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[1] https://eur-lex.europa.eu/summary/glossary/civil_society_organisation.html
Article 15 of the Treaty on the Functioning of the European Union recognises civil society's role in the EU's good governance. Article 11 of the Treaty on European Union stresses the need for the EU to have an open, transparent and regular dialogue with civil society organisations, e.g. when preparing proposals for EU laws.
[2] https://ec.europa.eu/europeaid/sectors/human-rights-and-governance/civil-society_en

human and associational activities operating in the public sphere outside the market and the state. It is a voluntary expression of the interests and aspirations of citizens organized and united by common interests, goals, values or traditions, and mobilized into collective action either as beneficiaries or stakeholders of the development process.

Although civil society stands apart from state and market forces, it is not necessarily in basic contradiction to them, and it ultimately influences and is influenced by both." (AfDB, 2012, p. 10). *The World Economic Forum (WEF)* (2013:8) defines CS as the "area outside the family, market and state". All of these sources definitions acknowledge that CS includes a wide range of actors, purposes, constituencies, structures, levels of organization, size, membership and resources, functions, strategies and approaches as well as cultural and ideological basis (WEF, 2013:8; AfDB, 2012:10).

1.2 Roles of Civil Society

WEF (2013:9) provides a long list of the range of roles played by CS, suggesting that they act as: watchdog (holding institutions to account); advocate / campaigner (raising awareness and lobbying governments for change); service provider (related to education, health, food and security and contributing to disaster risk management and emergency response); expert (bringing in local, experiential knowledge); capacity builder (providing education and training); incubator (developing solutions that may materialize in the long term); representative (empowering the marginalized or under-represented); championing active citizenship (motivating civic engagement and supporting citizen rights); solidarity supporter (promoting fundamental values); Definer of standards (creating norms that shape market and state activity).

Civil Societies' missions are interpreted differently by different ideological orientations. For example, Cato Institute in Washington DC which promotes libertarian ideologies considers CV's role as "fundamentally reducing the role of politics in society by expanding free markets and individual liberty" (ref). On the other hand, the Advocacy Institute considers CS as "the single most viable alternative to the authoritarian state and the tyrannical market" (ref). Between these two are many of the international organisations, such as the United Nation and the World Bank) which consider CS as the corrector of both the state and the market and a key element of good governance, and "our last, best hope" as Rifkin (XX) puts it. Despite the diversity of definition, there is almost a universal acceptance of CS as something 'good'. This has led Michael Edwards (2014:3) to suggest that, "an idea that means everything probably signifies nothing".

A similar degree of confusion about the meaning of CS exists in the academic literature. Some consider CS as the third part of a tripartite arrangement with the state and the market forming the other two parts and all working separately from each other. These views echo that of Klaus Schwab, founder and executive chairman of the WEF who stated that, a "renewed focus on the essential contribution of civil society to a resilient global system alongside government and business has emerged" (WEF, 2013, Preface). In contrast to this preface, the report itself argues that, "the changes that civil society is undergoing strongly suggest that it should no longer be viewed as a "third sector"; rather, civil society should be the glue that binds public and private activity together in such a way as to strengthen the common good." (WEF Report

2013:5). This echoes those commentators who stress the fuzziness of the boundaries between the state, market and CS.

In what follows, we draw on Edwards' extensive account of the history and different conceptualisations of CS to provide a degree of conceptual clarity and a framework for our review of the literature on the role of CS in DRR.

1.3 Genealogy of the concept: history and types of CS

As mentioned above, CS has rich and long history. For the classical philosophers there was not distinction between the state and CS. For example, Aristotle's polis (known as city-state) was as "association of associations" enabling citizens (which did not include women and slaves) to take part in the decisions that affect the city and their lives. So, "the state represented the 'civil' form of society and 'civility described the requirement of good citizenship" (Edwards, 2014:6). It was not until the mid-18th century when this view of CS began to change in the light of a changing political authorities and the rise of the market economy. Following Plato, the Enlightenment thinkers, notably Hobbs, saw the state as 'the Leviathan', with the power to intrude in the newly granted individual rights and freedoms. For them CS, as voluntary associations, was the protection against such intrusions. This view of CS was taken up by others notably Alexis de Tocqueville and much later by Ernest Gellner and Robert Putnam. Edwards (2014:7) call this school of thought "neo-Tocquevillian" and argues that they are particularly strong in the USA, with similar views about self-governance and distrust of the state as those advocated by communitarianism and localism. In critiquing neo-Tocquevillian tradition, liberal egalitarians have highlighted the unequal power relations and tensions within voluntary associations and the need for the state to maintain the 'civil'. The history of this perspective begins with Hegel and continues through the work of Karl Marx and Antoni Gramsci. The latter, according to Hodgkinson and Foley (2002:xix) "may be single-handedly responsible for the revival of the term civil society in the post-World War Two period". For Gramsci, CS was the site of resistance as well as ideological hegemony, which is enacted by various social institutions as well as civil associations and shape citizens' self-identities. Gramsci's ideas were later developed by scholars such as John Dewey and Hannah Arendt into their theorisation of 'pubic sphere' as a central component of political life and democracy (Edwards, 2014:8); an idea which was further developed by Jurgen Habermas and his theory of 'communicative action' and 'discursive democracy'. For him and other critical theorists, CS is that which "is steered by its members through shared meanings" that are constructed democratically in the public sphere (Chambers and Kymlicka 2002:94).

This brief history demonstrates the existence of multitudes of perspectives on CS, many of which are reflected in the various definitions by international organisations mentioned above. However, despite this diversity, Edwards (2014:10) identifies three contrasting schools of thought on what CS is and what it does. These are:

1) "civil society as a *part* of society (the neo-Tocquevillian school that focuses on association life)
2) civil society as a *kind* of society (Characterised by positive norms and values as well as success in meeting particular social goals), and

3) civil society as the *public sphere*".

While each of these have a long and rich intellectual history, it is the CS as associational life that has dominated the debate. "It is Alexis Tocqueville's ghost that wonders through the corridors of the World Bank, not that of Habermas or Hegel" (Edwards, 2014:10).

Civil society as associational life - a direct descendant of de Tocqueville view of the 19th century America - considers CS it as part of society that is distinct, separate and independent from the state and the market. This is often known as the 'third' or 'non-profit' sector, including every association (notably NGOs) whose membership and activities are voluntary. According to Michael Walzer (ref), CS is the "space of uncoerced human association and "the set of relational networks for the sake of family, faith, interest and ideology- that fill this space". Salamon (1993) and Matthews (1997) argue that since the 1980s there has been an "associational revolution" and significant "power shifts", with the number of registered non-profit organisations, especially in global south, increasing at an unprecedented rate many of which enabled by foreign aid investment in NGOs (Edwards, 2014: 21). The 1990s saw the rise of international NGOs and NGO networks, leading to "global CS" (Anheir et al 2012, 19). Whether it is helpful to include all NGOs into the category of 'associational life' is not clear.

The rising popularity of defining and propagating CS as associational life is closely linked to the introduction of the 'third way' or 'compassionate conservatism' in the 1990s which claimed to be the middle ground between the state oriented (welfarism) and the market oriented (neoliberalism) solution to collective problems. This sees CS as a third sector independent of the state and the market but working in partnership with them, as represented in myriads of the so called 'triple helix' diagrams and reflected in the definition of CS by the African Investment Bank, cited above.

Quite often CS as part of society is conflated with CS as a kind of society, assuming that "a healthy associational life contributes to, or even produces, the 'good society' in ways that are predictable –while public sphere is usually ignored" (ibid:10).

Another conflation has arisen between CS as ends and CS as means. This according to Edwards (2014:11) was due to a number of political changes which were epitomised by the fall of Berlin Wall in 1989 when CS "became both … a new type of society characterised by liberal democratic norms and a vehicle for achieving it".

2. How is Civil Society envisaged within DRR?

2.1 Introducing the macro trends

Moves to focus on civil society within DRR emerged as an international priority in the 1990s half way through the International Decade for Disaster Risk Reduction 1990-1999 (Wisner 2010:129). At this time, with the creation of a UN secretariat for an International Strategy Disaster Reduction (UN-ISDR), the focus on civil society came through an emphasis on ''community participation'' (Wisner 2010). Titz et al describe that the "origins of 'community-based' development (and then DRR) lay in the critique of the top-down, single-event relief operations of governments…[and] growing evidence that most hierarchical DRR and response programmes failed to address specific local needs, ignored the potential of local experiences, resources and capacities and in some cases may even have increased people's vulnerability" (Titz et al 2018:7). Gradually, as the UN developed technical task forces involving experts, academic focus on national ''platforms'' for DRR and civil society organizations lobbied for local involvement as partners, the discourse began to shift towards civil society (Wisner 2010). A Global Network of Civil Society for DRR (GNDR) formed and played an influential role in shaping the Hyogo Framework of Action (HFA), signed by 168 nations that served until 2015 "as the master plan for disaster reduction." (Wisner 2010:129). Both the Hyogo Framework for Action 2005–2015 (UNISDR 2005) and the Sendai Framework for Disaster Risk Reduction 2015–2030 (UNISDR 2015) that replaced it, emphasize community participation as a crosscutting priority (Tozier de la Poterie and Baudoin 2015).

This increasing focus on community and civil society, needs to be seen within the wider genealogy of the field of DRR, in which the early focus on natural hazard and risk with little focus on people (1980s- 1990s) was gradually superseded by a concern for vulnerability during the 2000s (c.f. Mark Pelling's 'The Vulnerability of Cities' (2003), Greg Bankoff's Mapping Vulnerability (2004), and later work on the cultural aspects of disaster by Fred Kruger and Doug Paton). Interest in vulnerability rapidly began to embrace the concept of resilience (which had a long history in engineering and ecology) but found particular resonance in DRR with increasing empirical evidence that "The relationship between vulnerability and negative outcomes is not universal" (van Breda 2018:2). Early adoption of ideas of resilience as "the ability of a system to return to equilibrium state after a temporary disturbance"(Holling, 1973:17) and ecological ideas around resilient systems being those that can absorb disturbances without collapsing (Holling, 2001) gradually came to be replaced by understandings of the need to not just bounce back, with bounce forward. This transition to an evolutionary understanding of resilience as transformation was shaped by the influence of complexity theory (Davoudi, 2012), which emphasises the normal presence of turbulence and the need for "socio-ecological systems to change, adapt, and transform in response to stress" (Carpenter et al, 2005).

Whilst at first this focus on resilience (as an outcome) led to a search for resilient characteristics - something intrinsic to the individual or society that makes them more resilient - this was soon largely overtaken by an emphasis on person-in-environment interactions (see Edgeland et al 1993) in which resilience is conceived more as a process or set of conditions that foster resilient outcomes. In the context of civil society, these shifts

within DRR condition the move from focusing on characteristics of people, and of community sectors to a focus on the strength and functioning of civil society more generally (a theme that will be examined further in section 2.4).

A key voice that has problematized the discourse of community within DRR has been Terry Cannon. He argues that the language of community – which has become a default way in which to refer to people in place – gained rapid popularity because of its implied moral attributes (Cannon 2018). Community, he argues, acts as a form of virtue signalling to others, and worryingly tends to provide a halo that grants a seal of approval to everything that goes on under its name. Cannon argues that the concept of community provides the Western and Northern external DRR researcher, donor and practitioner with an imaginary with which they feel comfortable. Yet it conveys "an assumption of a 'collective actor'" (Titz et al 2018:4) - a homogeneity that any focused study of gender, race, age, disability etc. disrupts. It evokes a sense of collaboration, communalism, and ability to co-operate at local level, which is most often absent. As such, it "avoids examining the heterogeneity of 'communities" (Titz et al 2018:3) and enables us to escape from explaining uncomfortable causes of poverty and vulnerability (Cannon 2018). For Cannon poverty and vulnerability often relate to questions of inequality in power, land ownership and class within 'communities' (Titz et al 2018:4). For others they also relate to wider geopolitical relations of neoliberalism and colonialism, which of course are often imbricated in local power structures. Evoking the language of community can be seen, therefore, to obscure rather than reveal the politics of civil society.

These rapid transitions within DRR literature within a relatively short space of time have led to a frequent lack of conceptual clarity between discourses of civil society and discourses of community. In part, this reflects an (incomplete) transition from the initial focus on community participation – i.e. people in themselves - to the role of civil society - understood as organisational attempts to represent, include, or exclude various community interests. However, there is also a spatial division between discourses of civil society vis-a-vis community. In the Global South, there has historically been emphasis on community within both practitioner and academic discourse, especially of NGOs. Whilst in the global North there is greater emphasis on civil society (with the contested association that - unlike communities, you do things *with* civil society not *to* them). In this review of the role of *civil society* in DRR literature, we navigate this boundary with community by first starting with a discussion (in 2.2) with those literatures that trace the movement from a homogenous understanding of community to disaggregating the differential needs and contributions of different sectors of community via attention to gender age disability and race. In doing so we draw out the distinct contribution that these approaches make to conceptualisations of civil society itself that we have introduced in the first part of this paper. We then bring the focus back to the concept of civil society as a form of organised collective in section 2.3 and beyond, to discuss sectoral issues pertaining to the functioning of civil society in governance.

In relation to governance however, Wagner draws attention to the commonplace yet problematic interchangeability of civil society and third sector organisations. For Wagner 'third sector' represents the "decentralisation of public administration" emerging from economic dissatisfaction with the welfare state. Whilst 'civil society' represents "the delegation of power from citizens to their state in a system of representative governance" (2012:299) building from Toquevillian understandings of political society. The former focuses

on the instrumental role that civil society organisations are playing more recently in the implementation and delivery of DRR governance. Whilst 'civil society' captures the political notion of what it means for citizens to come together and achieve political voice in matters of DRR. We agree with Wagner's insistence that it is important to distinguish between these terms for conceptual clarity. Whilst we review critiques of civil society (without changing the terminology used to third sector organisations), we focus our own interest around 'civil society' in its political sense.

2.2 Disaggregating and pluralising Civil Society

While Bradley (2017) argues that disasters literatures have long recognised that the most vulnerable are affected worst by disaster events, in 2010 Martin indicated that this academic recognition does not always translate into practice and practitioners commonly approach communities 'as a whole' rather than working with the specificities linked with age, gender, or religious and social background (Martin 2010). As Tanner et al argue, "There is a danger that a focus on 'the community' fails to look within and understand the community itself" (2009:54). In response to these critiques, and to recognition of the differential needs of people in place, forms of organised civil society emerged that focus on specific challenges facing different civil society sectors, and studies of these groups (and their cumulative and intersectional challenges) increasingly became a focus of DRR literatures. This disaggregation of civil society typically takes place around markers such as gender, age, disability and race. Of course, these ways of dividing civil society do not constitute homogeneous groups - intersectionalities and homogeneity of experiences crosscut - as many are at pains to emphasise (c.f. Delicado et al 2017). Nevertheless, in each area of scholarship, one can discern a familiar pattern of argument. First DRR has been slow to incorporate sensitivity to the particular group in question. Second, attention is warranted based on the *enhanced impacts* of disasters on each particular group (not our primary focus). Third, for the *particular contribution that greater participation of each of these sectors of civil society might* offer in DRR efforts. This forms what Delicado et al (2017) call a shift in paradigm from a discourse of (in their case, children) *at risk*, to a *participatory agenda*. And finally, in some cases, a reflection back on what taking a feminist or post-colonial approach to thinking about civil society might offer. We review these literatures in brief for the latter two contributions - examining the ways in which particular sectors of civil society become envisaged and mobilised within DRR debates and the effects that this might have in actively shaping understandings of civil society within DRR practice.

a) Gender

The increased vulnerability of women to disaster events[3], particularly in developing contexts is attributed to existing patterns of gender inequality and the way in which natural hazards compound existing social risks (c.f.Forbes-Biggs & Maartens 2012). These inequalities register through poverty, insecure land rights, reliance on agriculture, access to education and information, asset base, social marginalization, mobility and exclusion from the decision-

[3] Which may be as high as 14 times more likely to die in climate related disasters (Neumayer and Pluemper 2007)

making processes in response to a disaster (Yadav and Lal 2018:4), and bearing greater responsibility for children (Lane and McNaught 2009:72). In certain cultural contexts, there are additional intersecting cultural factors around women being less likely to know how to swim, wearing restrictive clothing, or being subject to social conditions that discourage them from leaving home alone (Alston 2013). This means that in the Pacific islands, for instance, adaption to extreme climate events is informed by "gendered divisions of labour in non-disaster or normal times" (Lane and McNaught 2009:69). Women are also more susceptible in the aftermath of disasters: to 'intangible losses' in wellbeing (Bradshaw and Fordham 2015); to undernourishment where food security is threatened as women often eat less in order to ensure their children have food (Lambrou & Nelson, 2010); to having little role in decision-making processes over resource allocations (Lane and McNaught 2009:72); and to gender-based domestic violence and sexual harassment (c.f Bradley 2017). This leads to what Bradshaw and Forham (2015) describe as a 'double disaster' - the event itself and the events triggered by that event. At the same time Lane and McNaught (2009:69-70) suggest that women often hold "local gender-specific knowledge of the environment" that is valuable within DRR. For example, women are often the first observers of changes in natural systems, which could support local warning systems (Yadav and Lal 2018:5). This has led CS practitioners, such as WWF, to explore participatory activities, such as hazard mapping, seasonal calendars, event timelines, and transect walks to identify specialised knowledge regarding potential climate change impacts and different perceptions of risk (Lane and McNaught 2009:73).

Whilst these literatures have contributed to a gender sensitive understanding within disaster rhetoric, Bradshaw and Fordman argue, "gender is still not part of mainstream disaster risk reduction and response practice" (2015:29). Even where it is implemented, they suggest that the way in which women are included may also raise concerns. For instance, in the case of recovery from Hurricane Mitch the championing of gender "thinly conceals the real focus on women as efficient service providers for the family" (Bradshaw 2002:876), and as women's involvement in community projects increased their engagement in income generating activities declined – with potential social repercussions on domestic influence that are often overlooked (Bradshaw 2002:876). Conversely, and perhaps counterintuitively, in developed contexts such as the EU and UK, Akerkar and Fordham highlight that gender sensitivity is not being used to inform DRR decision making programmes as it is assumed that gender equality law is sufficient to ensure that discrimination - on the basis of age, gender, disability etc - does not exist (2017:219). This pursuit of gender-neutral policies is they suggest, "based upon a misconception that the gender gap has been eliminated" and highlight a range of subtle gender based differences in the way that women and men experience and respond to disasters differently that are insufficiently addressed through the mere presence of gender equality laws. Such gender differences in the way women and men mobilise recovery strategies in the aftermath of disaster events they argue (not necessarily inequalities) are all pervasive (2017:219). Gaillard et al (2017) further remind us that gender concerns should not be limited to binary male-female considerations highlighting that both the Hyogo and Sendai Frameworks ignore sexual and gender minorities and that gender sensitivity is heavily biased towards "the particular needs of women, especially heterosexual women" (Gaillard et al 2017:19). The perspective of sexual minorities is only briefly mentioned in this review but re-emphasises the need for adopting what Akerkar and Fordham describe as a "critical framing which takes into account gender and diversity experiences" (2017:228).

This has specific implications for conceiving civil society. In a much earlier study, Hirshman (1998) suggests that women's perspectives should inform and challenge established understandings of civil society itself. Based on research in South Africa, he argues for a reassertion of the interconnectedness of the public and private spheres, a consideration of violence in the evaluation of civil society, and recognition of the different ways in which men and women may engage politically. For women often actively engaging in temporary ways in response to focused problems, via different modes and in different spaces of political participation and 'association' (Hirschman 1998). Hirschman's work highlights a clear risk that narrow understandings civil society as associational life can exclude "not only women's but most non-elite associational life" (1998:227). Reasserting "the personal is political" emphasises different forums of association and connects undemocratic family structures and undemocratic society structures. A Hirschman reminds us:

> "civil society is not of itself some benign phenomenon, inherently helpful to women's participation: rather it is a contested terrain in which the politics of gender play themselves out in an often competitive even conflictive and often violent manner. Space to participate in civil society opens up opportunities for women's participation, but many of the same constraints, formal and informal, that limit women's empowerment in other political spheres are to be found in this one as well" (1998:325-6).

Drawing on Fatton, Hirschman reminds us that Western conceptions of civil society, based around an "autonomous agentic individual" do not hold globally (1998:326). As such, attending to gender concerns Hirschman argues "may alter and enrich analysis, characterization and even definition of civil society in ways that go well beyond gender" (1998:227).

b) Age

As with gender, there is a focused and growing literature considering disasters and both the very young and very old. Like with gender, these begin with focusing on the additional protection needs of the old and the young, drawing out psychological and emotional as well as physical effects (Ngo 2001, Cornell et al 2012), as well as challenging assumptions that children's needs are met by meeting the needs of their parents (Peek 2008). Including how to better involve children and youth in DRR processes (Wachtendorf et al 2008, Martin 2010, Fletcher et al 2016). However, they soon move to emphasises *participation* rights in the processes and practices of DRR itself, where participation is seen to hold an outcome as well as process value.

Taking children first, emphasis on participation is based on children's "unique perceptions of the world in which they live… [and] capacity to act as agents of change" (Tannner et al 2009:54). It aims to give children a recognised voice in defining their problems, rather than having to accept the views of adults or authorities (Martin 2010) and draws from Article 12 of the UNCRC 1989, which stated that children and young people should have their opinions taken into account in all major decisions affecting their lives (Muzenda-Mudavanhu 2016). Fletcher et al (2016) suggests that children want to be involved in DRR and Wachtendorf et al

(2008) point to unique capacities that children may offer for bolstering disaster resilience. For example, Peek (2008) points to the knowledge, creativity, energy, enthusiasm, and social networks that young people bring to different phases of DRR (Peek 2008), generating positive results in the rescue, relief and rehabilitation phases of a disaster (Lopez et al 2012). And both Tanner et al (2009) and Fernandez and Shaw (2013) emphasise the role that children and young people can play in becoming a link between school, home and community to actively communicate knowledge about disaster prevention, preparedness and response. To this end, Fernandez and Shaw have explored the role of youth councils (2013) and science clubs (2015) as vehicles for youth participation in DRR processes. However, some accounts point to "discrepancies between ideal scenarios and actual youth participation in DRR in practice" (Fernandez and Shaw 2013:127). While others are sceptical of the extent to which young people appear as active subjects (see Delicado et al 2017) more often featuring as target recipients for public programs of risk awareness (Delicado et al 2017) and as useful bridging communicators of risk to other community sectors - parents, peers, governments - (Tanner et al 2009:56). As such, children are instrumental in civil society modes of DRR preparedness. Whilst youth inclusiveness recognises the responsible role that children often play in domestic and agricultural work in some countries (Liebel & Saadi 2010), Muzenda-Mudavanhu warns that children's participation in DRR should not become a replacement for adult responsibility (2016:online). Instead, both adult support and a supportive adult environment are necessary for youth participation (Fernandez and Shaw 2013). Fernandez and Shaw's account of weak implementation of youth participation in DRR at local (village) level in the Philippines, despite the country's advanced commitment to youth participation within national and international circles, highlights the importance of resources required for delivering Civil Society work, and hence its potential dependence on other sectors. This is supported by Pelling's observations that "the most successful projects built on strong pre-existing partnerships with buy-in from local and municipal government" (2011: 383) and challenges definitions of civil society as independent of the state and the market that arise through understandings of civil society as associational life.

Old age presents a different set of challenges. Although many literatures point to the neglect of elderly before, during, and after disasters (HelpAge International 2000, Kwan and Walsh 2017), the picture is not all negative. Gibson et al (2013) examine the potential for technology to promote disaster resilience for older adults across the stages of preparedness, resilience, response and recover. Taking the form of "tracking and mapping systems, intelligent building systems, medical and assistive devices, communication and notification systems, needs assessment strategies, medical support strategies, security strategies, and reconstruction strategies" (2013:3), these digital technologies offer numerous benefits at all four phases of the emergency management cycle. For example in efficient evacuation route planning, better co-ordination and interfacing of emergency response vehicles and the suitable placing of elderly with additional care needs post evacuation and missing person finding (Gibbons et al 2013). Here challenges lie in tech-accessibility and operability for older populations – a challenge with implied resolvability (Gibbons et al 2013).

c) Disability

If gender is reflected poorly within DRR Literature, even less well represented are the specific needs and additional vulnerabilities of people who are partially abled. Robinson and Kani

(2014) suggest that this is in part because disability was absent from the Millennium Development Goals (UN 2000), and also due to the focus of DRR organisations on established institutional interests (Twigg 2002). However, in line with increases in attention to gender and age, there has been increasing attention to both the specific vulnerabilities that less abled members of civil society face, and their potential contributions to civil society DRR debates. Primarily this has taken place through the Sendai Framework, in which "people with disabilities and their organizations made significant contributions in shaping the framework to reflect their experiences and needs…[in which] the role of people with disabilities is not one of passivity; rather they are recognized as partners and stakeholders (Stough and Kang 2015)". However, just as with gender, there is a gap between rhetoric and practical implementation. Global policy frameworks remaining far removed from the lived experiences of people with disabilities (Munsaka and Charnley 2013: 756; Soldatic 2013); persons with disabilities tend to remain invisible within data collection processes; and international recommendations often do not feed through to national practice – especially where conditions of social ostracism prevail (Stough and Kang 2015). The ongoing need to widen participation in civil society debates around DRR to "redress imbalances of power and voice" (Robinson and Kani, 2014:220) might be addressed through Akerkar and Fordham's critical framing around diversity of experiences (2017:228) as well as Hirschman's (1998) challenge of civil society thinking beyond gender.

d) Race

The post hurricane Katrina reconstruction is cited recurrently as an example in which social inequalities between Afro-American and white communities were reproduced and accentuated through post-disaster reconstruction decisions, exacerbating structural inequalities within civil society. Bradley (2017) describes the way in which deliberation over whether to permanently close low lying black communities to returnees, and decisions to keep them closed longer than affluent white neighbourhoods (which were also never earmarked for conversion to green space), "depressed return rates, with long term implications for their vitality. New Orleans is now whiter and more affluent than in 2005, as thousands of poor black evacuees could not access essential assistance to return and rebuild or rent a new home in an increasingly pricey city" (2017:410). Similarly, in Taiwan post typhoon Morokot, Hsu reports that the "imaginings of community reinforce rather than address risk and vulnerability for Indigenous populations" (2016:71). Hsu's account of the difficulties of translating the externally defined notions of community within indigenous Rekai language and historical culture perfectly illustrate Cannon's observations that understandings of community are often imported western concepts, externally imposed, with neither a translatable equivalent, nor any purchase for local people (Cannon 2018). In this context, we need to be alert to what importing such ideas of 'community' does, let alone whether it is sustainable (Cannon 2018).

Beyond the differential impacts of disasters and their governance on racial inequality, there is an emerging body of literature that mounts a race-based critique to the way in which notions of civil society are mobilised within DRR. Carrigan (2015) points to the way in which disaster studies as a discipline is US born, and together with the durability of the technocratic approach to management – mitigation, preparedness response recovery "continues to perpetuate critical blind spots that limit the field's global applicability"

(Carrigan 2015:120). For example, the inductive tendency of disaster research (rather than theory driven deductive approach) perpetuates scant attention to the way that vulnerability relates to history identify politics and economic restructuring (Carrigan 2015). Hsu's work in Taiwan exemplifies this blindness, documenting the way that "the slower-paced disaster of displacement, dispossession and marginalization which characterizes the colonial and post-colonial experiences of Indigenous peoples is easily overlooked in the context of "emergency" relief." (2016:72). As well as occlusions, Hsu points to the way in which, "good intentions can miss the deeply colonising effects that they [post-disaster practices] create (2016:81). She goes on to argues that "much like the colonial shaping and reshaping of peoples and their places…can be a means by which external visions rather than those of affected peoples are implemented in order to build back better—a clear instance of [Murray] Li's (2007) critique regarding experts and their "will to improve"" (2016:73). This move towards critiquing what external visions of building back better entails in post-disaster reconstruction, is given a darker edge in Naomi Klein's work on "disaster capitalism" (2007) which highlights systematic dispossession through the spread of free-market doctrine and positions the exploitation of disasters as a "deliberate neoliberal strategy" to advance radical privatization (Carrigan 2015:121).

As such, Carrigan argues that disaster studies has "yet to disentangle itself from the epistemic violence associated with its institutional birth – forged during the cold war and entwined with military industrialism's global spread" (2015:121). Accordingly, Carrigan argues that postcolonial disaster studies needs to attend to what Nixon describes as the "long emergencies of slow violence" (2011:3), to listen to non-western theorisations and experiences of disaster in relation to questions of power, and attend to what Ann Stoler calls the 'imperialist formations' that endure outside formal colonial relations to "create repositories of vulnerabilities" (2008:203). Drawing on Brathwaite (2002) and magical realism, he advocates foregrounding consideration of "the 'ongoing effects' of colonialism as a catastrophe…the intricate relations between power, exploitation, violence and disaster….and a multivalent concept of 'nature' as material and metaphysical entity (alluded to in the switch to capitalist form 'Nature'), which emphasises its historical agency" (Carrigan 2015:125). In using racial based critiques of how notions of civil society are mobilised, postcolonial, like feminist scholarship, speaks back to how notions of civil society are envisioned and mobilised within disaster research, and illuminate how specific colonial practices produce differential forms of vulnerability (Carrigan 2015).

2.3 Types and perceived roles of Civil Society within DRR, and their points of intervention

Within DRR scholarship and practice, the following types of civil society actor can be identified:

a) Formally Constituted CSOs with operations and assets

Most prominent are formal organisations such as NGOs, which may have wider remits but play strong roles in mitigation, preparedness, response and recovery. International funds are often channelled through such NGOs, and as a result they often hold strong vertical relationships with international donors as well as claiming embeddedness at the coalface of

the local community. However, Harvey (1998) points to the risk that understanding civil society institutions as simply conduits for aid money tends to create a lack of lack downward accountability. Shaw suggests that the role of NGOs is most critical where frequency of disaster events is low (2003). As the role of NGOs has increased globally, RAND (2011) draw on conference discussions at Louisiana Association of Nonprofit Organizations annual conference in August 2010 to summarize a number of challenges facing NGOs in disaster response and recovery, including limited resources, difficulties providing comprehensive direct services and gauging their responsibility level. They advocate for more clearly defined roles and responsibilities for NGOs during each phase of disaster, examining opportunities for complementarity between everyday operations and disaster planning, improving information exchange between NGOs, and between NGOs, government agencies and local residents, increase community capacity through NGO partnerships and better evaluating the costs and benefits of NGO engagement. This review points to the ways in which NGO civil society organisations are increasingly horizontally networked at a global scale.

In addition to NGOs, Wisner (2010) points to the role of formal faith based organisations (and interfaith networks) at all stages of preventing, resisting, preparing, responding, and reducing loses from disasters. Although there is an overlap faith based NGOs often play a role in monitoring and researching on disaster risk, the form of civil society differs here with faith leaders also often acting as spokespeople and lobbyists for community safety and local politics, local faith institutions often being among the first responders and providers of immediate assistance, and religious buildings often used as emergency shelters. As well as taking action, Baytiyeh (2017) points to the role that religious organisations play in integrating socio-cultural characteristics into DRR strategies, and Lindberg-Falk (2010) highlight the role of religious practice and ceremony in recovery processes. Again these typically form global Interagency Groups, for example: the joint working of ActionAid, Christian Aid, Plan UK, Practical Action and Tearfund, together with the British Red Cross/International Federation of Red Cross and Red Crescent Societies (Twigg 2009). Rumbach and Foley (2014) also point to the formal organisations of civil society within indigenous communities, which in many cases they argue could be better harnessed within DRR efforts.

b) Formal associations, collectives and Partnerships without a material base

Then come formal associations, collectives and partnerships, which often have little organisational infrastructure or material power (such as youth councils, women's groups, youth groups, science clubs). These play an important role in advocacy, preparedness communication and co-ordination of action before and after events, but need financial and delivery support through interfacing with other donors and sectors. They come in two forms – those actively formed as community based disaster organisations (c.f Ferdinand et al, 2012) or those with wider social remits (such as those listed above) that become usefully co-opted into DRR agendas. The latter group reflects an increasing pressure for civil society organisations to perform multiple roles in the face of limited staff and resources. Ferdinand et al suggest that dedicated community based disaster organisations tend to focus mainly on the response phase of a disaster, whilst accounts of youth councils, women's groups, youth groups etc. tend to emphasise the preparedness phases of awareness raising and disaster planning (c.f Fernandez and Shaw 2013, 2015). The civil society route through which funding is directed tends to shape the points of intervention within DRR cycle. For instance, corporate funded DRR interventions tend to focus on post-disaster measures compared to mitigation

and preparedness (Takaaki Miyaguchi & Shaw 2007). Ferdinand et al (2012) suggest that civil society in Latin America is characterised by a few NGOs and very many social organisations. Social organisations, and their ability to network during DRR activity is often profiled by those who advocate for the importance of social capital in disaster based resilience (Davoudi, et al, 2013). Although difficult to delimit, a the definition of social capital used by one of its key proponents Aldich is the "resources available through bonding, bridging, and linking social networks along with the norms and information transmitted through those connections" (2012:33). Aldrich advocates social capital as key to disaster recovery with an emphasis on post-disaster responses. Others such as Ferdinand (2012) emphasise its importance in preparedness as well. However, Ferdinand also signal one of the challenges of working with these instantiations of civil society, which is also grounded in a critique of the operation of social capital as well. They describe the double bind that poverty creates – whereby poor people are tied together in coping "while simultaneously the coping mechanisms make a barrier for engaging with other organisations" (Ferdinand et al 2012:84). In the case of the Winward Island that Ferdinand et al discuss, this is manifest through shortage of financial resources and a lack of volunteers, and an unwillingness to share information and guidance (Ferdinand et al 2012). In these cases a sense of competition for scarce resources is likely to promote less co-operation among civil society organisations rather than more.

c) informal, often bottom up collectives

Finally there are informal, often bottom up collectives that self-organise in response to particular needs (see Hirschman's South African women's activism). Ruszczyk highlights a risk that in the focus on NGO and dedicated DRR community initiatives, these "communities formed organically by residents fall away as an object of analysis" (Ruszczyk 2019:9). Sometimes, modes of collective action arise through the resonance between CSO interests and local needs but grew and continued to mobilise autonomously long after the involvement of the original collaboration ends. One such example is the local volcano monitoring in Ecuador described by Stone et al.'s (2014) account of the viglas. Here, civil defence practitioners identified a need to communicate early warning information, which local residents desperately wanted. As a result a team of citizen scientists was brought together to play an active role in volcano monitoring. This group self-mobilised long after the Civil Defence organisation was disbanded.

Reflecting on Edwards' three modes of thinking about civil society - associational life, good society and public sphere as an arena of contestation – civil society largely emerges within DRR in terms of associational life. Although increasingly ideas of resilience are positioning a strong and independence of civil society as vital to ideas of a 'good society'. Relatively rare is the notion of civil society as contested public sphere, with Hirshman's (1998) account offering an exception.

2.4 The Importance of Civil Society to DRR

The importance of civil society in DRR, rests in large part on the governance of DRR and how much of this governance is undertaken by the state or, if not state - which other actors? This throws into focus questions around the boundaries of civil society, and how these boundaries are produced and regulated.

a) Relationship between civil society and the state

Bradley describes that

> "Under international human rights law, there is not explicit right for individuals to benefit from state protection from disasters. Yet according to the International Law Commission, states are obliged to take appropriate measures to reduce disaster risks" (2017:408).

As such, whilst the SENDAI Framework 2015-2030 positions a central role for the state in preventing and reducing disaster risk there is little legal accountable for breaches (Bradley 2017). Drawing on Wilkinson's five key roles of the state, Jones et al suggest that the state's role in the context of earthquake risk is fivefold: 1) as a provider of DRR goods and services 2) to reduce risk e.g. through safe construction 3) as a regulator of private sector activity 4) as promotors of collective action (e.g. via decentralised programming including community based DRR) and 5) as co-ordinators of multi-stakeholder activity (2016:30). This constructs a particular configuration between the state (as strategic planner) and civil society (as delivery partner).

However, neoliberal governance shifts are increasingly, changing distributions of power between state and non-state actors (Jones et al 2014:79). This 'hollowing out' of the state is redistributing responsibilities upwards to international organisations, downwards to regional and local organisations and outwards to non-state actors (Bulkeley and Jordan 2012, Jones et al 2015). In disaster management contexts, processes of economic and political restructuring involving deregulation and state roll back has meant an "offloading of responsibilities to the private sector and civil society groups" (Jones et al 2014:79) in ways that have increased their position relative to the state (Bebbington 2005). Civil society groups, particularly "non-governmental organisations have found a new place within the neoliberal global order" (Frewer 2013 cited in Jones 2014:79) with increasing proportions of aid being channelled through NGOs (Jones 2014). International donors perceive national and international NGOs to offer greater efficiency than state organisations, as "they tend to work at the grassroots level with poorer and more marginalised groups adopting participatory approaches; they have principled motivations, clear mission and objectives, progressive development agendas , and lower overhead cost" (Jones et al 2014:79). Whilst these features often give the appearance that NGOs are "synonymous with, or representative of, 'civil society'" Jones et al point out that NGOs not only tend to reflect and reproduce the power hierarchies of their societies but are also are increasingly having to act like businesses to compete for funding in ways that serve upward hegemonic agendas over those that they serve (Jones 2014:79-80). As a result, both their particular instantiation of civil society and their relationship with the communities that they purport to serve is complex and contested. Jones et al (2014), join others (e.g. Ojha et al 2009, Goodwin 1988 and Nygren 2015) in expressing concern over the effective weakening of governance of disasters and accountability that arise with decreasing state power, increasing the complexity of actors and lines of responsibility.

On the other hand, Ozerdem and Jacoby describe situations in which the weakness of civil society can be related to the strength of the state. In Turkey the development of "collectively

determined social groups outside the authority of the state" has been restricted by Western influenced top-down economic, bureaucratic and military process that establish a patron-client relationship between state and civil society. Together with the political efficacy of Islam as "an inhibitor of civil society's capacity to resist the state", this has created a tradition of civil passivity, which they argue is "a key causal element in the ongoing vulnerability of Turkish society to the region's earthquake hazard" (2005:2). Likewise in Japan civic passivity was "born of state centralisation" whilst vulnerability is simultaneously produced through the close devolution of state functions to the market. This led to huge level of civil voluntarism in Japan in the aftermath of the Kobe earthquake, as state and market responses were seen to fail. However, these forms of civil society did not necessarily secure any greater standing with the state over the long term. In India is the "ethnic polarisation and acute social inequality" embedded at the core of bureaucracy that lies behind the state's inability to reflect or deliver against the needs or concerns of wider civil society. In all three cases, vulnerability is produced (for all or some) through a restricted civil society. As such, the importance of civil society to DRR is perhaps illustrated best by its absence.

Despite these experiences, Titz et al point out that the 'community-based' approaches laid down in the Hygo and Sendai frameworks "suppose harmonious interaction between governments at different levels and civil society actors" (2018:8, see also Heimans, 2009). This does not recognise either these dynamics between the state and the market, nor tensions that sometimes develop between government agencies and NGOs, where NGOs demonstrate contempt of states, or vice versa (Ozerdem and Jacoby 2005). Under assumptions of harmonious interaction between governments and civil society actors, there is little space for challenge, or understanding civil society as a contested public sphere.

Another important boundary between civil society and the state is via the military – especially in the relatively common context of deploying state military power in disaster response. As Jenny (2001) highlights, this form of co-operation between civil society and military is usually less contentious in environmental disasters than conflict contexts. Whilst Jenny highlights benefits of co-working from scaling up effective evacuation to encouraging conditions for the "rebirth of civil society" (Jenny 2001:25) she also highlights specific challenges that arise the fact that "an army and a humanitarian organization work with fundamentally different rationales" (2001:27). These challenges Jenny argues, arise most when boundaries become blurred – and she proposes the maintenance of clearly differentiated and respecting mandates as a solution.

b) Relationship between civil society and private sector

Difficulties in demarcating civil society from the private sector arise from two parallel trends. First, the process of neoliberal economic and political restructuring that simultaneously carves out a greater role for civil society organisations and reduces not just state provision but also state financing of services - as discussed at length above. Second, an increase in private sector funding of civil society activity especially through corporate social responsibility. As Hanlon writes, "CSR represents a further embedding of capitalist social relations and a deeper opening up of social life to the dictates of the marketplace" (2008:157). Hanlon suggests that the reason why CRS emerged in the 1990s under post-Fordism is related to observations that in Fordism's heyday there was only room for a small civil society, whilst

in the transition to post-Fordism, new modes of accumulation require new modes of legitimation (closely paraphrasing Hanlon 2008:166). Hanlon's argument is therefore that post-Fordism creates a larger civil society sector (which was not important to Fordism and so not previously existent) through CSR, which in turn acts as a "legitimating ideology for a 'new capitalism'" (2008:170). For business leaders, profitability is a social responsibility (Hanlon 2008:160) and so CSR and profitability are not antithetical. For civil society, CSR provides the material resources for social action that are lost through state withdrawal (as illustrated by Takaaki Miyaguchi & Shaw 2007). The significance of this for thinking about civil society is…. and temporal.

Temporally, Takaaki Miyaguchi & Shaw 2007 suggest that in India the majority of CSR activities were either donation or one-off technical assistance and "the corporate sector rarely forms a partnership or collaborative group with local governments or civil-based organizations" (2007:219)

c) Relationships with the non-human

So far we in our discussions of civil society we have been concerned with very human centric notions of civil society and associated ideas of citizenship. As we move towards thinking about the effect of the digital in environmental based DRR events, we acknowledge scholarship that has sought to contest the confinement of agency to the human that lies behind human centric ideas of citizenship and formation of civil society. As Hakli suggests post-humanism has placed strain on assumptions of human exceptionalism based on a "radical skepticism toward the notion of the subject and subjectivity" (2018:166) shared by actor network theory, assemblage thinking, and new materialism alike which enables possibilities for extending agency beyond the human – to both digital and animal non-humans. However Hakli argues that this "risks losing from sight the possibility of citizenship as a political agency conditioned by civil society and entangled with non-human nature, yet capable of setting its own goals" (2018:167). It is, he argues through the idea of responsibility that the human condition of civil society is maintained. Rather than a form of associational life, Hakli argues that

> "civil society refers to the socially and spatially variable contexts of normativity within which particular practices or acts may appear acceptable to some while objectionable to others, as citizenship to some and non-citizenship to others (see also Eckert, 2011; Edyvane, 2016; Nyers, 2006). This also allows for considerable scalar complexity whereby civil society can be seen at once as a local arena of political contestation between individuals and groups, and a transnational force field constituted around the question of human rights (Hakli & Kallio, 2016; McConnell, 2013; McIlwaine,2007)." (2018:167).

This positions civil society as a discursive condition, rather than an institutional or collective form. Moving beyond a forced choice between the two extremes of human only understandings of agency and more-than-human yet indiscriminate agency Hakli advocates a form of "humanised posthumanism" that "acknowledges our assembled entanglement with the non-human world but also accords an important role for humans in acknowledging these interdependencies" (2018:173). Hakli's attempts to rework notions of citizenship and civil society in light of posthumanism, and in particular his discussion of Coward (2012) and

Greenhough (2014), although operating at a more sophisticated ontological scale, finds resonance with DRR emphasis on a focus on 'person in environment' that could be further expanded.

2.5 Political critiques of the emphasis on civil society

Many critiques of the emphasis on civil society (and community) are bound up with those of resilience - and indeed with wider neoliberal strategies of reallocating responsibility away from the state to the individual. Such individualisation of responsibility demands that individuals, communities and civil society organisations "pull themselves up by their bootstraps and reinvent themselves in the face of external challenges" (Swanstrom, 2008:10). With multiple critiques that resilience theory is in the service of a neoliberal agenda (Joseph, 2013, Garrett 2016, Davoudi, 2018; Bohland et al 2019) the risk is that:

> "If the individual is thus responsible for improving her or his life context, with little or no support from the state... the state is free to disregard adverse social systems and dynamics, such as poverty, racism, lack of access to resources and poor-quality education**.** Individuals are, in effect, made responsible for dealing with collective challenges that should be dealt with by collective structures, such as the state" (van Breda 2018:6).

While civil society is by all definitions a collective structure, in the context of neoliberalism, it is not adequately resourced to pick up state responsibilities. As well as resources to act, 'civic cooperation does not appear in vacuum. It requires a state that is strong enough to formulate and enforce rules and regulations, which will allow associational life to grow and flourish' (Jalali 2002: 123). Instead, Ruszczyk describes that "The mythical resilient urban community is fashioned in the IAC [international aid community] imaginary; understanding how people create communities and what type of linkages with government urban residents desire … is missing" (Ruszczyk 2019:12). The neoliberal emphasis on the need for resilient communities supported through civil society structures that frequently operate on voluntary or charitable terms is convenient for the political economic restructuring of responsibilities away from the state, and maintains status quo power relations by directing attention away from the socio-political structural conditions that produce urban poverty and vulnerability.

Critiques of resilience question whether social conformity is a desirable outcome of resilience and prompt political questions around "Resilience of what to what (Carpenter et al 2001; Davoudi, 2012:365) for whom (Leach 2008:3), and who gets to decide?" (Porter & Davoudi, 2012: 331). They signal the way in which resilience in one space / time can lead to vulnerability in another, and what constitutes a good outcome also varies spatially and temporally –so against which baseline conditions should success be judged? When resilience is understood as bouncing back – it maintains the status quo - without questioning desirability of that 'normal' (Davoudi, 2012:306). As such it "can become a shock absorber that compensates for institutional inefficiency" (Benadusi 2014) and risks justifying policies and practices that are otherwise indefensible, negating transformative opportunities for using a disaster to break away from this undesirable normal. As Botrell outlines "How much adversity should resilient individuals endure before social arrangements rather than individuals are targeted for

intervention?" Bottrell (2009:335). As postcolonial challenges to disaster have highlighted, it is important to keep in mind that understanding disasters as a one-off 'abnormal' events rather than cumulative problems, as exceptions to the global order rather than outcomes of it - lends itself to bounce back conceptualisations of resilience. Ruszczyk (2019) suggests that whilst a focus on resilience helped to breakdown silos (by facilitating interdisciplinary conversations, and bridging between science and policy across scales), the focus on resilience within DRR tends to remove the inherently political context of vulnerability (Cannon and Muller-Mahn 2010:623) and helps to "supress deeper changes in the institutions and values that shape development and risk management" (Pelling 2011:51 cited in Ruszczyk p8). Recognising this, recent DRR emphasis is moving towards focusing on the intersectionality of poverty challenges in cities, and everyday continuums of risk.

Further critiques of civil society's mobilisation focus on the romanticisation of civil society itself. As Fernandez et al (2012) suggest "Civil society organisations do not always operate in the best interest of the wider community" (2012:85). In some cases community based organisations are not effective in getting communities to work together leading to community fragmentation (Twigg 2004), in others "civil society organisations … lacked transparency, professional ethics, accountability, a clear mandate and, in some instances, displayed a political agenda" (Fernandez et al, 2012:85). This problem is enhanced when it is not always easy to differentiate civil society and state actors (Munslow 1999). Pelling (1998) also points to the way that social capital may be used to gain power over others and can lead to restricted networking with those who are different from themselves. As Varshney (2001) points out "if communities are organized only along intraethnic lines and the interconnections with other communities are very weak (or do not exist), ethnic violence is then quite likely" (2001:362). Finally, Ruszczyk argues that in "the rush to redistribute responsibility for disaster resilience from government to communities …in many cities, there are no neighbourhood groups, or residents are excluded …owing to caste/ethnicity, socioeconomic class, or landownership status" (Ruszczyk 2019:10). In such contexts, "the more vulnerable members of society are left unseen, unheard" (Ruszczyk 2019:10).

Rather than democratising the governance of DRR, Jaegar (2007) points to the way in which notions of a 'global civil society' perform a double move to depoliticise global governance and "creates a subsystem of world politics rather than opposing the system from outside" (2007:257). Whilst civil society organisations and movements may appear to play a role in politicising certain concerns – e.g. climate change, gender abuses, poverty etc - this politicising role lies in the domain of ''distributive politics (that is, the distribution of benefits and burdens within a given social and political structure)" rather than ''constitutive politics'' understood as "those processes of decision making and social construction affecting the structure of social and political life" (both 2007:258). Further, whilst the emphasis on civil society does create a degree of debate in a newly constituted global public sphere, Jaeger argues, "this public sphere is better understood as a subsystem of the world-political system" (2007:258). As such, he argues, rather than a democratising counterweight to states and markets, it is better understood as serving "political functions, such as signalling consent and ensuring the governability of the global population" (2007:258).

3. Civil Society Dynamics, Digital Engagements, and Thinking Forwards

In this final section, we attempt to draw together what these engagements and critiques with civil society mean for mobilising concept of civil society in our approach to disasters in Mexico. We do this through considering first the possible dynamics between civil society and disasters and second between civil society and the digital.

In doing so we note that the Mexican context holds potential for an important contribution to DRR scholarship, which has predominantly emerged from research on the Indian subcontinent, Philippines, and more recently Africa.

3.1 Civil Society and Disasters: How does DRR change the nature, scope and activities of CSs?

Amid all the critiques of civil society Rebecca Solnit reminds us that it is in the most dire forms of crisis that we see civil society mobilising - "civil society is what saves people and creates immediate conditions for survival" (2009:308). One starting point for understanding the functioning of civil society in the context of DRR might have been to ask, how does the often-observed emergence and disappearance of civil society during an event change the nature of civil society, or how we understand it? Yet, from this literature review – from the parallel critiques from post colonialism over framing disasters as punctuations and from Hirschman on the everyday-ness with which women mobilise politically around particular political issues in a temporary manner, it is clear this question needs to be reframed.

Hirschman's account is a reminder that this temporality of political mobilisation is neither unique to DRR, nor should be understood as a form of exceptionality, but instead is the usual mode of civil society of many social actors whose contribution to is often obscured from traditional masculine accounts of civil society and its functioning. Recognising that this temporary mobilisation extends beyond women, Hirschman urges scholars and policymakers to "avoid defining civil society from a Western perspective and with a rigidity that further undermines the efforts of disadvantaged people struggling to exercise modest influence in their communities" (1998:237). Similarly, postcolonial accounts challenge the idea of disasters as states of exception. Disasters are not disruptions to the normal order but "rather they are artefacts of this very order" and its economic, social and political inequalities (Bradley 2017:404 – citing Woodhouse 2011). The very same inequalities that are themselves constitutive of the civil society whom is increasingly positioned as responsible for responding to the disaster to restore the appearance of normal order. In the context of DRR, this is a useful reference through which to rethink the dynamics of both disasters and civil society. As such our starting point for questioning might be different – more along the lines of how the mobilisations of civil society during DRR, and in particular their digital manifestations, might contribute towards challenging restrictive notions of civil society and expanding capacities for more inclusive participation.

3.2 Civil Society and the Digital

Tozier de la Porterie and Baudoin identify a rapid shift towards the importance placed on "science, technology, and other forms of external ''western'' expertise" in the DRR international frameworks from Yokohama to Sendai. Although "references to community participation and local knowledge remain constant throughout the three frameworks, references to science, technology, and research increase dramatically" (2015:135). As they suggest, "This new trend may reflect an increased focus, at the global scale, on science and technology as the answer to major global problems, such as those posed by disasters" (Tozier de la Porterie and Baudoin 2015:135). With these frameworks influencing flows of funding, this only strengthens our mandate to explore the extent to which digital technologies in particular might be reshaping civil society dynamics.

Gibbons et al 2013 report a shortage of studies demonstrating the value of technology in DRR. They warn of the prioritising effect of 'techno-ability': the "risk that greater reliance on technology in emergency management can lead to a paradigm where the problems that are most readily addressed by technological innovations receive the lions' share of attention, at the expense of the more difficult vulnerability and response issues (Kiefer et al., 2008)" (Gibbons et al 2013:87). With much focus on digital tech within DRR centring on early warning systems, Thomella and Larsen (2010) point to the way that these projects tend to grant considerably more attention to the technological aspects than human aspects. Meanwhile, Ikeda et al (2016) emphasise the importance of supporting local people incorporate new information into their existing knowledge base and Pelling (2011) has highlighted the way that in practice whilst "technology afforded some legitimacy to the project for local government" it "alienated local actors and proved short lived, as computers broke down" (2011:391). To this end, we might ask first what processes, tools and methodologies have been developed for Civil Society participation in DRR, and of these, which might be positively or negatively influenced by digital technologies? Second, how do digital technologies change the nature, scope, scale and activities of Civil Society? Where are the affordances and limitations for a digital citizen in the field of DRR? Jaeger (2007) points (sceptically) to the way in which new communications technologies appear to enable the injection of public opinion into a new global public sphere. Yet these do not disrupt the processes of decision making that create the structural conditions for social and political life. How might digital technologies be appropriated within understandings of civil society that embrace a contested public sphere, to create more profound forms of empowerment within DRR practice?

Part 2

Findings from 3 cities:
Civil Society in DRR in Acapulco, Queretaro and Puebla

The findings from our three cities are summarised below. For each, we offer some general observations followed by a discussion of key themes that emerged from the data.

1. ***Acapulco***

The Acapulco data set reflects the rich history of social movements in the region, including in particular the call for autonomy focused on the recovery of *ejido* lands. The impact of neoliberalism on the sale of *ejidos* is vital in understanding what motivates civil society organisation in the Acapulco Metropolitan Area. The data show forms of civil society organisation that are initially triggered by the event; some are fleeting, others morph from voluntary self-help association to advocacy, developing a social justice agenda focused on challenging the state and/or the real estate companies. Also, we see long-established civil society organisations (CSOs) focused on addressing rural poverty through self-management, which engaged very actively in DRR during and after the event, using their existing networks to provide effective aid.

The cultural punctuation marks in the Acapulco case are compelling: the boxing match featuring Canelo Álvarez which diverted attention away from weather events, the Independence Day celebrations that occupied elected officials, and the holiday atmosphere that had drawn large numbers of visitors to the resort areas. At the same time, we see a type of persistent rain that, since it happens over days in a region where people are accustomed to it, did not feel threatening, especially where people were distracted by preparing for the celebrations.

As with the other cities we looked at, the Acapulco Metropolitan Area is not just one place. Rather, it is multiple sites with very different social, political, and physical geographies. Thus, the event is not just one event, it is multiple, unfolding differently in different places and experienced differently by actors in these locations, depending on their individual circumstances, their individual dispositions, values, and concerns. Here, we concur with Žižek that, event is “not something that occurs within the world but is a change of the very frame through which we perceive the world and engage in it” (2014 p.10); we try to consider the perspectives of the interviewees in this sense.

Very relevant to our concern with the role of civil society in DRR, is the notion that catastrophe is not the flooding itself but what renders it possible, such as the change that allowed *ejido* to be sold off, or the speculative development of flood-prone areas which were clearly demarcated as such in the city’s master plan, or the ever-present violence that meant the gated communities had only one way out, or the blocking of access to privatised clean water provisions. Additionally, in tracing civil society organisation in the city context, we are mindful of the informality that constitutes the relationship between CSOs and the state in Mexico. This informality is thus a substantive issue that shapes the need for CSOs to transact with the state while challenging it, and we are constantly reminded of this in the data.

In the following sections we review the key themes that emerged from the Acapulco data, considering how people make sense of this process, how they react, and how this in turn foments and draws upon civil society organisation. Similarly, we are interested in how surrounding political, economic, and cultural factors support and militate against such organisation and action. The emergent themes identified are, first, our interest in theorising CSO activity as a pop-up versus continually embedded phenomenon; second, the relationship between CSOs and the state; third the relationship between natural disasters and social 'quakes'; and, looking across these the data, the use of digital technology at the community level.

Acapulco — Emergent Themes

Theme 1. Pop-up vs. continually embedded forms of civil society organisation

Broadly, our data set shows different types of CSO which can be loosely categorised into volunteer-run associations, non-profit service providers, and social movements/advocacy initiatives. However, many are hybrid and multi-purpose, with elements of each in the other. These formations are overlapping and fluid, sometimes starting as one form and then developing into another.

We approach the idea of civil society and CSOs as a heuristic tool, an empirical question, considering what the social practices that our data have captured, in their multiple forms, are telling us. Interestingly, while the data show activation of strong networks and much collaboration and mutual aid through formal and informal types of organisation, there are moments where affected people seem very much on their own. As we trace the activity that surrounded the disaster, we look for the work of these organisations in the testimony of affected people, sometimes finding more of a sense of isolation than togetherness. Similarly, just as we identify forces that bring people together around a common cause or aim, we also find tensions and disincentives to the formation and continued flourishing of CSOs.

One of our key interests is whether CSOs that seem to appear spontaneously in the aftermath of a disaster are in fact deeply rooted in personal networks or social structures that existed long before the disaster took place. Similarly, we are interested in how these "pop-up" organisations often endure long after the disaster event, sometimes changing their organisational structure or becoming more formally recognised and documented in the process.

As already noted, several types of CSO formation evident from our data show characteristics of "pop-up" while at the same time also being frameable as enduring or pre-existing social forms. Of particular interest here are:

- **Groups that emerge out of the disaster and later formally register as an organisation that persists.**
  An example here is the *Coalition of Affected Inhabitants* formed by residents angered by problems with the government compensation process. Specifically, residents were angered by the disappearing balances on cards issued to replace

lost goods. As one affected resident notes, "the most serious case is that the card had no funds and they could not make any purchases, so our discomfort began, our discomfort and that is where we began talks with the neighbours to organise ourselves and form a civil association." [4] Having become established in the moment of anger at a particular failure, the organisation persisted as part of a wider struggle for a transparent and fair compensation process in the wake of natural disaster. Here, affected businesses also organised themselves and become part of wider coalition with residents[5].

While the Coalition of Affected Inhabitants has a transactional, litigious focus, another type of organisation also emerged out of the disaster with a broader social vision for DRR through community empowerment and education. Such organisations tend to emerge as part of the work of driven individuals who have been motivated by their own experiences to gain qualifications and understanding that can be directed towards helping others in their communities. Here, we see a strong awareness of the need to foster intimate knowledge, building a culture of disaster prevention so that measures are baked into the everyday life of the community. As an example, the recently founded Instituto Integral Para La Gestión Social Del Riesgo De Desastre, which works particularly with women in affected communities emphasises the need for situated knowledge in building a culture of disaster resilience: "You have to know which group it is aimed at and [operate] with that empathy and respect for people. There are people in Civil Protection who give topics and they give them coldly, I mean it's not that they are very unfriendly, but you can't express it in such a cold way that others don't understand the message."[6]

- **Fleeting forms where neighbours help each other out through seemingly spontaneous acts of bravery and kindness**
  Groups of neighbours or small business owners (such as boat operators) also worked together during the disaster in ways that did not leave clear organisational traces or morph into legally constituted CSOs. Nevertheless, these formations formed a key dimension of the first response. Importantly, our data set shows that such cooperation and mutual aid did not spring from the void but, rather, was firmly grounded in established personal relationships based on trust and familiarity cultivated through everyday social encounters in the neighbourhood. Nor did the idea of public-spirited cooperation evaporate after things returned to 'normal'. Our data suggest that the commitment to mutual aid, while becoming latent afterwards, did not disappear, and left strong traces in individuals who had given and received aid. This manifested in a commitment to help others should the disaster occur again. As one respondent commented, "if I can help you, I think that, if it is in my hands, I would do it [again] and, if it is

[4] A.C. Coalición de Habitantes Afectados por Fenomenos Naturales (interview 51).
[5] A.C. Coalición de Habitantes Afectados por Fenomenos Naturales (interview 51), also see Affected Person 9 (interview 53) for affected businesses coming together to demand compensation and Affected Person 3 (interview 16) for examples of businesses helping each other.
[6] Instituto Integral Para La Gestión Social Del Riesgo De Desastre (interview 15).

someone important to me, obviously I would even risk my life."[7]

- **Established, non DRR-focused, radical organisations**
  In contrast with DRR-focused CSOs that emerged out of the disaster, there was a strong presence in our data set of organisations that had been established long before the disaster event with a non-DRR focus yet which were able to repurpose their existing networks towards disaster relief during the event. These groups[8], which had personal networks extending deep into rural and hard-to-reach communities, tended to be focused on a broad agenda around social and ecological justice. Organisations such as Red Maíz achieved in-person reconnaissance and aid delivery even when major access routes and mobile communications were down. This activity was perceived as a natural extension of their community work. As an interviewee from Red Maíz commented, "When this happened, we reacted like human beings, to be responsible for the things we have in the community; because, in each community, we have a person in charge…a Local Committee. We communicated with the Local Committees to find out how our communities were doing."[9] Here, a network of any kind can be seen as key to DRR, since ties of trust and communication are pre-established. However, it is also important to reflect on the radical values of these particular organisations which meant not only the presence of robust grassroots organisation in the moment of the disaster but also translated into an integrated, ecologically informed vision for DRR-related activity and activism after the event. Also interesting here is how these organisations are themselves strongly interconnected, forming a web that allowed coordinated action during the disaster.

  Fragile presence of multi-national NGOs
  'Powerful' organisations such as the Red Cross (interview 45), seemingly of another 'breed' to the homespun civil society organisations above, were found to have a less robust presence than expected, and to be less fluidly integrated with the establishment than might have been predicted given their international profile. As an example, the Red Cross chapter in Coyuca currently survives locally by providing an ambulance service to the community that fills gaps left by the state, and it has a tense/distrustful relationship with some government actors, therefore its position is relatively tenuous. At times, organisational representatives have relied on raffles and the assistance of friends and family to keep their local chapter afloat, sometimes without success. This organisation is relatively trusted by members of the community and was able to provide key aid during the disaster, yet it also fights for its own survival.

[7] Affected Person 4 (interview 18).
[8] Including Red Maiz (interview 33), Promotores de la Autogestión para el Desarrollo Social (interview 10), and Guerrero es Primero (interview 25).
[9] Red Maíz (Interview 33).

Theme 2. Challenging the state or working with the state?

Turning to reflection on the relationship between CSOs and the state, we found that many CSOs oscillate in their relationship with the state, engaging in different orientations ranging from productive cooperation to antagonism. Even radical organisations depend at times on resources from the state (for example Guerrero es Primero in its Food Security Initiative), while 'neutral' organisations such as the Red Cross may find themselves at times embroiled in tensions with the state. In other words, their relationship with the state is not fixed, and even those challenging the state sometimes find themselves co-operating with it. Also, 'the state' is not a unified entity and there are major differences in the powers and resources of the federal, state, and municipal governments and in their relationship with CSOs. Within CSOs themselves, there are also differences in terms of the relationship among the constituents with a key tension being between full, egalitarian participation and hierarchical organisation with tokenistic participation. This in turn affects the way in which these organisations interact with government.

The data reveal issues around power and competence of municipal and state government versus federal government, where the federal government has the bulk of the resources. Civil society organisations tend to be formed in a context of distrust of government (at different levels) and as a reaction to the presence of various forms of irregularity that, according to our data set, include:

- The municipal planning authority's permission to develop land in a flood zone (Urban Planning Expert, interview 37)
- Compensation cards with faulty or disappearing balances (Coalition of Affected Inhabitants, interview 51 and Affected Person 8, interview 47).
- Unfinished or poor-quality replacement housing/infrastructure (SEDATU staff, interview 48).
- Contracts awarded to construction companies owned by politicians (SEDATU staff, interview 48).

The *modus operandi* of the featured CSOs is often explicitly to challenge this irregularity and/or to promote an alternative system based on self-management and self-help, and this effort reflects different kinds of social capital as well as different political ideologies. For example, the litigation launched by the Coalition of Affected Inhabitants (A.C. Coalición de Habitantes Afectados por Fenomenos Naturales, interview 51) draws on the social capital of a group of residents, some of whom are professionally qualified (e.g. as lawyers) to fight for their rights; while the group expresses anger and indignation at incumbent elected officials, it does not fundamentally critique the prevailing capitalist system. By contrast, the activity of a group such as Red Maiz (interview 33) is oriented towards a comprehensive and integrated political vision for self-determination where community members act as custodians of natural resources – here a different kind of social capital prevails, based less on professional qualifications and more on revolutionary intellectual heritage and grassroots activism.

At the same time, we see CSOs (even radical ones) working with the state, forming uneasy alliances, and establishing synergies, for example with government departments around

ecological projects[10]. Here, as mentioned earlier, there is a tendency among CSOs to morph back and forth from service provider or collaborator to activist or critic. Also, distrust at the state/municipal level may be transcended by moving to a higher level of government and working with federal agencies; equally, an organisation may find an ally or synergistic relationship with a particular government department or agency while having a tense relationship with others. Thus, allies may be found at one level or section of government but not another.[11]

As noted above, our data shows CSOs stepping into the breach, providing aid and services that fill gaps in state provision, sometimes, as with the Red Cross ambulance service (interview 45), becoming a permanent service that operates alongside the state. This filling of gaps is seen by some as indicating a need for the state to do more or to get there earlier. However, at the same time, there is a recognition that community members are the ideal first responders and that they, rather than the state, should be empowered and resourced[12]. Here, as we have seen in the educational philosophy of Instituto Integral Para La Gestión Social Del Riesgo De Desastre, there is an appreciation that building a culture of effective DRR cannot be achieved by the "cold" delivery of training by Civil Protection and that it instead has to be intimately connected to the community and its needs.[13]

Theme 3. Social mobilisation or passivity (with a gendered dimension)

There is a sense in the data that natural disaster gives rise to social movements. As we have already noted, underlying the narratives is the fate of the *ejido* land and the long fight for patrimony (we also note as an example the respective dates of the Zapatista uprising and Hurricane Paulina as illustrative of the linkage between natural disaster and social rupture). In the data set, we recognise a sense of autonomy as not necessarily a struggle to abolish the state but nevertheless a radical challenge to the state to recognise and respect the way of life of people in their communities.

At the same time, there is a strong sense of resignation and passivity in the data, especially among disempowered individuals. Those who have tried to organise DRR efforts associate the lack of a culture of prevention with a tendency among the people to move on, to forget, instead of engaging in forward planning to prevent a recurrence. Obviously, such an attitude is reflective of a range of structural factors ranging from lack of economic resources and time to dysfunction in the systems that would deliver prevention initiatives. However, this manifests in our data as a passive orientation to disaster, such as the following comment by an affected person: "The [disasters] are already a thing of nature. We are not going to spend our whole lives thinking: 'what if it happens?', no; whatever God decides."[14]

While, on the one hand, disempowered and marginalised people showed a tendency towards resignation, we also observe a gendered dimension to the data, whereby women were more engaged in DRR-related action. The higher engagement of women was linked by respondents

[10] Guerrero es Primero (interview 25).
[11] Urban Planning Expert (interview 37); INAES staff (interview 50); Affected Person 10 (interview 25).
[12] Promotores de la Autogestión para el Desarrollo Social (interview 10); Guerrero es Primero (interview 25).
[13] Instituto Integral Para La Gestión Social Del Riesgo De Desastre (interview 15).
[14] Affected Person 5 (interview 23).

to the fact that women live through the effects of the disaster more and are thus more directly affected by it. In such cases, women may exert pressure on the men, for example urging them to make structural housing alterations to prevent future damage. As one interviewee commented, “It was precisely my mother who demanded that my father build the first floor practically from the moment we lived there, because things were always getting spoiled, and my father made an effort to do so”[15]. The data also suggest that women are more engaged in CSO organising efforts. In the case of the Coalition of Affected Inhabitants, one interviewee comments that female residents would organise and attend neighbourhood meetings, while their men had “better” things to do and even discouraged the women from getting involved: “I would hear comments: ‘stop that’, they would say to their wives, ‘stop that now, this is over’…and even the housewives, the ladies themselves, would tell us, ‘my husband doesn't want us to come’.”[16]

This gender imbalance, in a world where discrimination based on gender persists, potentially has implications for the power and status of CSOs, and whether their demands or requests are listened to. At the same time, community-based efforts to empower women by building a prevention culture that starts with what they need in their daily lives, show great promise.[17]

Theme 4. Use of technology and collapse of communications

Within our data set, digital technology is largely notable by its absence. There is some use of social media to give advance warning of what is going on in other neighbourhoods and this buys a little time for those who ultimately needed to flee. For example, one interviewee from Coyuca notes that they and other family members had gathered with neighbours to look at the river next to their dwellings but became aware through social media of the coming danger: “Through social media, we found out about everything that was happening. But, in our neighbourhood, [the water] hadn't come in yet. I remember very well that my sister and all of us said ‘well, we have to bring things upstairs because if it gets in, it'll hurt us’.”[18].

However, it must be emphasised that mobile communications were down during the critical days of the immediate aftermath when they were most needed. Also, official websites and social media sources do not appear to have been particularly useful or up to date in the moment of the crisis, such that the direct testimony of civilian witnesses communicated by WhatsApp or Facebook were more useable and trusted sources of information[19]. When digital communication and telephone networks failed, traditional face-to-face communication was relied upon, sometimes involving travelling long distances by foot. As noted earlier, these face-to-face exchanges made use of established organisational networks of CSOs to maintain links with cut-off communities[20].

Aside from periods when networks were down, social media were used among more

[15] Affected Person 5 (interview 23).
[16] A.C. Coalición de Habitantes Afectados por Fenomenos Naturales (interview 51).
[17] See, for example, the work of Instituto Integral Para La Gestión Social Del Riesgo De Desastre, interview 15.
[18] See, for example, Affected Person 5, interview 23.
[19] A.C. Coalición de Habitantes Afectados por Fenomenos Naturales (interview 51).
[20] Guerrero es Primero (interview 25); Red Maiz (interview 33).

connected and resourced citizens for verification of what was going on and, later, were used to organise activism. Following the disaster, community-based organisations have also used social media as part of an intentional effort to build a prevention culture. For example, the Instituto Integral Para La Gestión Social Del Riesgo De Desastre actively uses its Facebook account to connect local women to meteorological data from government websites[21].

In the data set, there is very little call for or awareness of advanced technology that could be used in DRR. When asked about how digital technology could improve DRR, interviewees tended to focus on the need to improve basic literacy, connectivity, and availability of mobile devices in order to widen participation in everyday digital technology such as WhatsApp. Here, there was a conviction that use of everyday digital technology has increased significantly in the last few years and that it is key to DRR at the community level, however, there was also a sense that much more work remained to be done in this area[22].

Summary

The Acapulco case study illustrates how CSOs reflect the socio-political history of the region in which they are embedded. We see a strong focus on self-management and mutual aid, providing a mode of disaster response that responds to and often directly challenges inadequacies and irregularities in the state's DRR strategy. In their formation and ongoing development seemingly 'pop-up' CSOs draw heavily on pre-existing community ties among neighbours or business-owners who know each other through daily life, or among organised grassroots networks that are oriented to shared values around social and ecological justice.

CSO efforts around DRR reflect a range of values and aims, from redressing irregularities through legal, transactional channels to envisioning an alternative political system that privileges autonomy and custodianship of the land. Groups of all persuasions have a fluid relationship with the state, sometimes challenging it, sometimes working synergistically with it; many find allegiances with one government department or layer while having tensions with another. This relationship points on the one hand to a need for the state to do more, to take on more responsibility for DRR, while on the hand, the data suggest that a devolved system that resources and empowers communities as first responders is more appropriate.

CSO actors lament the lack of a prevention culture in the communities they work with and note the spirit of resignation that dampens interest in DRR activity, except in the moment of crisis. However, these actors also note that structural factors around poverty and marginalisation are at the root of such apathy. Interestingly, in spite of their relative powerlessness, women tend to be more active in community DRR efforts. DRR projects that are community-based and focused on intimate knowledge of participants' needs appear to be effective in increasing engagement, particularly where the focus is on working with women from the outset. Such initiatives reinforce the idea that any effective DRR initiative needs to start, always, with the capacities and desires of ordinary people, and with the patterns of everyday life in their communities.

[21] Instituto Integral Para La Gestión Social Del Riesgo De Desastre (interview 15).
[22] A.C. Coalición de Habitantes Afectados por Fenomenos Naturales (interview 51).

Looking across the case, digital technology is a minor player but is part of the 'glue' that allowed community members to form alliances and inform each other during the disaster. Everyday technology is valued by CSOs as a communication and organising tool but with the caveat that basic accessibility and digital literacy must be maximised before the benefits of these tools can be harvested. The Acapulco case highlights that digital technologies fail during extreme weather events and that this is part of what makes disasters so disastrous. Disaster resilience was present where communities were able to remain connected *in spite of* system failures and this resilience seems in turn to have been connected to the strength of pre-existing human connections which often endured long after things returned to 'normal'. Digital technology can help foster and mobilise these connections but only insofar as it is accessible by those who need it most.

2. ***Querétaro***

Our analysis of Querétaro focuses on Santa Mária Magdalena (SMM), the city's most marginalised and most flood-affected community. The data show that Querétaro's formally constituted CSOs are strikingly different from Acapulco's, comprising an elite group of civil society actors that are largely isolated from SMM. As with the Acapulco case, the structure of civil society in the city reflects the region's socio-political history, which is here more influenced by colonialism and characterised less by radical grassroots struggle. This context weaves through our analysis, helping us to understand key disconnects that perpetuate the vulnerability of SMM's residents; we find that digital technology has some promise in connecting people but has also some divisive tendencies that mirror underlying social dynamics.

We identify strong currents of informal mutual aid in the SMM community, with the Parish Church and the government-appointed community leaders as a focal point for organisation and activity. However, we show that resignation and a sense of powerlessness prevail, militating against sustained CSO activity around DRR. We also focus on residents' association from a better-off subdivision that is technically within the geographical area of SMM but has established a distinct identity. As with Acapulco's Coalition of Affected Residents, this group uses their social capital to fight for disaster-proofing resources and infrastructure, focused on "working the system" in their favour as opposed to pursuing radical goals. In the case of Querétaro, we show that this effort has the effect of further marginalising SMM.

Like in Acapulco, technology plays a bit part, and our focus is on the use of everyday technology to communicate in the moment of disaster or its aftermath, as well as the use of social media for community activism. Distinct from Acapulco, some of Querétaro's elite CSOs have a sophisticated, globally networked social media presence but we note that these organisations have only a tangential connection to DRR. We further argue that the disconnect between these organisations and the most flood-hit communities makes DRR less of an important item on elite CSO agendas.

Below, we review the key themes that emerged from the Querétaro data. First, we observe the normalisation of flooding in SMM and the resignation that prevails around disaster in this community, observing that the subdelegate system serves to mute indignation. Second, we focus in on the social construction of SMM as a marginalised population where SMM is simultaneously shunned by residents' associations and excluded from elite CSO activity. Third, we look at the gendered dimension of the data, noting that the burden of DRR is disproportionately carried by women. Finally, we reflect across the case on the role of technology in creating divides and bridges.

Queretaro — Emergent themes

Theme 1. Normalisation of flooding and lack of CSO activity in SMM

Flooding is so endemic to SMM that it has become accepted as a routine and largely inevitable event. Residents are aware of the weak planning systems and neoliberal development practices that have led to the development of unsuitable, flood-prone land in SMM; they are

equally cognizant of how inadequate and irresponsibly managed drainage infrastructure have predisposed SMM to catastrophic flooding. They are inured to unfulfilled promises of politicians, especially around election time, and they are accustomed to proposed solutions that are partly completed or badly designed and executed.

In this context, DRR in Santa María Magdalena tends to be synonymous with the provision of sandbags to residents. While there is concern and frustration among residents about this situation, resignation is common, fueled by residents' lack of faith in their ability to be heard by the authorities. Here, the non-native status of residents (many of whom are migrants from outside of Mexico), lack of social and economic capital and other exclusionary factors feed into a sense of powerlessness which was articulated by one resident of SMM in terms of the pointlessness of engaging in flood-related consultations or meetings: "…the authorities never listen. That's why people said why should I go if they never listen."[23]

While lacking a sustained organizing strategy, these marginalised residents of SMM display strong community cohesion and a commitment to supporting one another during moments of crisis. As the Parish Priest comments, "They do show solidarity. I think people do join in and especially when there is someone being affected by something; they attend and help them"[24]. This mutual aid, in terms of food and clothing donations or checking on the welfare of neighbours is evident in our data set and there is a sense here that neighbours looked out for each other's wellbeing during the flooding event of 2017.

There is little sense of sustained community organisation around DRR outside of these moments, however. The Sub-Delegate function (the appointment of a community leader, which exists at the behest of government) and the church, and to some extent the *ejidatarios* (communal landowners) are thus the only sustained hubs of community action, and these do not have an explicit DRR agenda. The Parish Priest observes that one factor contributing to this lack of civil society organisation is that SMM residents seem to prefer outside authority to investing in their own community leadership, commenting: "They prefer that someone from outside comes in and coordinates them or tells them what to do"[25].

Certainly, there appears to be a degree of factionalism within SMM that might mean that obstacles are placed in the way of leaders from within the community. This is evident in the role of the Sub-Delegate which, on the one hand creates an effective formal linkage between community members' situated knowledge and the state but on the other hand appears to be an area where aid is handed out selectively to political supporters. As one resident notes of the current Sub-Delegate, "they give out aid boxes, but they don't distribute them. They just give them out to those they know or like"[26].

The extent of this selectiveness in the distribution of aid is unclear from our data. Indeed, our interview data also portray a very positive side of the Sub-Delegate function where aid distribution was coordinated through street-level representatives with a focus on transparency. Discussing the compensation voucher distribution process, the Sub-Delegate

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[23] Resident of Santa María Magdalena (Interview 3).
[24] SMM Parish Priest (Interview 66).
[25] SMM Parish Priest (Interview 66).
[26] Resident of Santa María Magdalena (Interview 3).

who was in-post during the 2017 disaster explains, “the [government] asked me for support, to provide them with one person for each street and so I decided to do it that way, to send the people who knew the area to take them to all the houses so that the support would be equal”[27]. The Sub-Delegate function (and that of neighbourhood representatives that are networked to the Sub-Delegate) also provides opportunities for empowerment of particular community members who become involved in the process – this is discussed, in relation to gender, later in this report.

A final observation is that the distribution of aid parcels and compensation vouchers through the Sub-Delegate’s networks as well as via other government channels arguably acts as a damper on critical or activist modes of local CSO organising. This dampening effect potentially mutes critique of the government’s DRR strategy (or lack of it) in SMM. The distribution of replacement mattresses and white goods in the wake of flooding has become an accepted “band-aid” for injuries to the community. A veteran local journalist we interviewed felt that this compensation mechanism, by assuaging residents’ anger, allowed government to sidestep its responsibilities to the community. She argues that the state was incapacitating resistance via offers of replacement goods: “The authorities say: ‘We gave you what you lost, the refrigerator, the cooker, etc, we'll take it to you, we'll give it to you.’ So, in that way … the level of indignation is going to diminish”[28]. Similarly, she explains that the state had focused media attention on a narrative of irresponsible rubbish dumping as the root cause of the flooding, unfairly directing blame away from government and towards the citizens. She argues, “we must not forget and we must not lose sight of the responsibility of the authority and the authority is not only to focus on having clean drains. I return to the point, to have an adequate infrastructure so that we do not flood, and I think that we need to plant this thought in people's minds”[29].

2. The social construction of SMM as marginalised

As noted earlier, the marginalisation of SMM’s population is socially constructed and our data show that this marginalisation is reinforced by the organisation of other groups who seek to distance themselves from SMM, as well as by a social elite that is cut off from SMM’s concerns. Notably, in relation to natural disasters, those residents that are *most affected* by flooding are simultaneously the *least important* people in the city.

As has already been noted, there are various socio-cultural factors related to migration, education and income level that place SMM at the bottom of Querétaro society, leading to social exclusion. However, our data explores in particular the way in which the organising efforts of wealthier adjoining sub-divisions further undermine SMM’s capacity for DRR. As alluded to earlier, the sub-divisions of Aurora and Jardines del Valle were developed as private residential complexes that, while geographically part of SMM, identify themselves as distinct and separate. Aurora, in particular, has a very organised residents’ association that has pushed the government hard for DRR measures. This negotiation simultaneously involves “othering” SMM, which is a potential competitor for DRR resources. As an Aurora community

[27] Former Sub-Delegate of SMM (Interview 17).
[28] Veteran local journalist (Interview 29).
[29] Veteran local journalist (Interview 29).

leader argues, "We're a very small neighbourhood, just eight streets. We've fought hard to make the voice of Aurora heard. We aren't Santa María Magdalena; we're Aurora"[30].

The demands for infrastructural improvements made by residents of Aurora are part of a narrative that undermines SMM, whose residents are portrayed as less deserving of aid, particularly due to associations with crime and anti-social behaviour. As the community leader we interviewed in Aurora argued, "I don't like to label regions, but we're surrounded by Santa María Magdalena and … people see it as something very common for robberies to occur, for trains to be robbed"[31]. As we will see later, this stigmatization which interviewees from Aurora and Jardines tended to frame by alluding to moral turpitude in SMM, has excluded SMM from some community organizing efforts and information streams around DRR.

This stigma also tends to exclude SMM from the aid remit of the city's formally constituted CSOs, which, unlike those in Acapulco, tend to have elite rather than grassroots leadership. This exclusion is subtle and tends to be based in established ideas of who is deserving of aid, based on a logic that excessively disordered or dysfunctional communities make unsuitable partners. As the leader of one such CSO commented when asked about whether his organisation was active in SMM, "…the impression of Santa María Magdalena is that it is a very difficult community, very violent and good at all this stuff that has to do with train robberies and so on…From my perspective, there are closer communities that have more potential for the resources that we have"[32].

Theme 3. The gendered dimension of DRR in Santa María Magdalena

Women in SMM are systematically oppressed, and this has implications for their involvement in CSO activity. As the Parish Priest comments, SMM's women carry the entire burden of the family: "There is a lot of *machismo* …Most of the men work very little, most of them are almost supported by a woman's work because they are the ones who make tacos, mole, gorditas, so a lot of the economy comes from women"[33]. He adds that, while women are the economic and spiritual backbone of the community, many are both physically and psychologically abused at home.

While this oppression routinely limits women's ability to participate in organizing DRR, community organizing during the 'extraordinary' moment of the disaster offers some women an opportunity to confront gender-based oppression. An interesting case in point is that of the Sub-Delegate who was in post during the 2017 flood. Following her appointment as SMM's first female Sub-Delegate, she had faced discrimination from some community members, commenting, "at first, they saw me as a freak"[34]. The flooding allowed her to develop and show her community-organizing abilities, increasing her confidence and sense of self-worth: "There are times when I got nostalgic, because of helping the community, for

[30] Member of Aurora Homeowner's Association & President of Citizen Participation Committee (Interview 7).
[31] Member of Aurora Homeowner's Association & President of Citizen Participation Committee (Interview 7).

[32] Influential philanthropist and founder of Querétaro es Uno (Interview 5).
[33] SMM Parish Priest (Interview 66).
[34] Former Sub-Delegate of SMM (Interview 17).

fulfilling an obligation that had been entrusted to me," she reflects, "it left me with a satisfaction… I realized, as a woman, [I had been able to] help many people"[35]. Arguably, however, this satisfaction came at a disproportionate, gendered, cost as her work in the disaster meant a trade-off with her caring responsibilities. Her husband, who had been very supportive of her in taking on the Sub-Delegate role, was gravely ill at the time, and passed away shortly after the disaster. She reflects, "I forgot my place as a mother, as a wife, as a companion, I neglected my home and because of that, I had fatal losses"[36].

Theme 4. Technological bridges and divides

Looking across the data from the case we find, as in Acapulco, that technology played a relatively minor role in CSO activity. Also like Acapulco is the emphasis on everyday digital technology such as WhatsApp and Facebook rather than niche, DRR-specific tools.

In SMM, there was some widespread use of everyday technology in 2017, however, several of our interviewees noted that face-to-face communication of news was the default mode of interaction. One SMM resident expressed this succinctly: "Here they communicate more by word of mouth"[37], noting that shouting to neighbours over back yard fences and walls is commonplace. Nevertheless, social media were used by many residents during the flooding and in its aftermath. For example, the former Sub-Delegate of SMM observes that WhatsApp was a useful dissemination tool in cascading information to her street-level network and was used within neighbourhoods for self-organisation: "I had contact with the neighbourhood representatives and they in turn, as they communicated with their people through the WhatsApp phone, they made their groups"[38].

Respondents noted that use of social media is growing as access to mobile devices and digital literacy grows, suggesting perhaps more pervasive social media use than that of 2017. For example, the Parish Priest observed that the Parish Council uses WhatsApp for efficient mobilisation of members to collect donations when there is a death in the community: "The coordinator is in this 'Whats' group, so when someone dies the secretary posts the news of this on WhatsApp …then the … in the afternoon, they already have the money together"[39]. However, respondents also noted persistent exclusionary factors in terms of digital literacy and lack of basic connectivity or devices.

While everyday digital tools appear to play a useful role in helping community members connect to one another, there were also ways in which social media use reflected tensions and divisions, potentially exacerbating these. Again, the divide between SMM and the Aurora/Jardines subdivisions is a case in point. A resident of Jardines del Valle noted that there were explicit efforts to exclude residents of SMM from a community Facebook group due to fears that information would fall into the wrong hands: "…many of them had as a watchword that those who were from Santa María should not join the group, because they were afraid that they would handle information such as that the house is empty … that they

[35] Former Sub-Delegate of SMM (Interview 17).
[36] Former Sub-Delegate of SMM (Interview 17).
[37] Resident of Santa María Magdalena (Interview 3).
[38] Former Sub-Delegate of SMM (Interview 17).
[39] SMM Parish Priest (Interview 66).

could use to steal”[40]. While such stigma seems to militate against strong digital bonds forming between SMM and these adjoining communities, there are some signs that social media offer ‘safe’ opportunities for arms-length cooperation – for example, the Aurora community leader we interviewed indicated that the residents’ association was a Facebook “Friend” with SMM and was connected to SMM via a polygon chat set up by the municipal government for DRR communications.

Better-off colonies such as Aurora are vigorously using social media to pressure local government and agencies. As the representative of Aurora’s Residents’ Association explains, “WhatsApp is our first app. We use it a lot and then Facebook and some have Twitter. So, for certain things that we need replies to, like a water leak from the CEA or the maintenance of the park, we use Twitter to get replies faster…. I’ve been getting more involved because we have been fortunate enough to gain certain benefits for the neighbours, such as repaving.” Aurora’s success in securing some flood mitigation has inspired the residents of Jardines del Valle to pursue a similar digital strategy. While Aurora, Jardines and SMM compete over resources, some of their successes in using digital media to pressure for infrastructure improvements may result in mutually beneficial outcomes. Similarly, arms-length contact among these neighbourhoods may create synergies and help to break down barriers of trust with SMM, making concerted demands possible.

Patterns of social media use among the city’s formally constituted CSOs are similar to that of Aurora. However, these organisations arguably have even greater digital reach and influence, which reflects the power and status of their founders and members. Organisations such as Habitantes Del Rio, a campaign focused on cleaning the Querétaro River, use social media extensively to organise and lobby, with global reach. As the organisation’s co-founder explains, “How do people contact us? Through social networks they send us direct messages and they can contact us through the website when they say ‘listen, I want to support this, or I want to add to this, or I am an expert in the system’”[41]. Veteran CSO organisers acknowledge that social media expertise is greater among younger activists. However, there is some cross-pollination of expertise in this area. As a well-known Querétaro environmentalist who has founded a number of CSOs in the region comments, “I have very good, young friends…they handle all these networks and have introduced me to WhatsApp chats and all forms of messaging between groups. It is very efficient because we’re immediately informed and can upload to our networks”[42].

While CSO leaders were generally very positive about the potential of social media to extend their impact, one leader objected to the tendency of social media such as Twitter to place individuals rather than issues in the spotlight. He noted critically that the main organizer of Habitantes Del Rio was disproportionately attracting attention in a way that perhaps detracts from the work of others, commenting, “I know her, she's lovely, but she's very much in the limelight, I mean, she's, she's, so that's a problem”[43]. This objection may also be founded in age-related factors. Habitantes del Rio has a particularly youthful, educated profile and is

[40] Active Resident of Jardines del Valle (Interview 41).
[41] Co-founder, Habitantes del Rio (Interview 30).
[42] Influential Environmentalist (Interview 26).
[43] Influential philanthropist and founder of Querétaro es Uno (Interview 5).

therefore particularly well positioned to grab attention, a feature that is arguably accentuated in the realm of social media.

While noting energetic use of social media by Queretaro's CSOs, it is also important to underscore that none of their activities directly engages with a DRR agenda. Habitantes Del Rio's river clean-up days help to address refuse problems that are one of the causes of flooding but these efforts are primarily directed towards habitat restoration and placemaking. In relation to earlier points about the marginalization of SMM, it might be argued that flooding is not a central remit of these groups partly because those who are most affected by natural disaster lie outside of the socio-cultural radar the CSO elite in the city.

Summary

In summary, the Querétaro case emphasizes how exclusion of particular groups or areas of the city from DRR initiatives is socially constructed. We have examined, furthermore, how the dynamics of marginalization mean that DRR is not high on the agenda of the city's formally constituted CSOs.

Our data set is largely focused on SMM, a resource-poor community whose residents also lack social capital, and we underscore that the least empowered people in the city are also the most impacted by repeated flooding events. Inside the SMM community, we find that a sense of resignation exists in a vicious cycle with powerlessness. Here, residents were able to mobilise to deliver mutual aid during the disaster but are deterred from attempting coordinated action around DRR because their voices are so easy to ignore within the city's power structure. CSO organization centres around the church and the Sub-Delegate system. The latter provides linkages into the state, and develops a sense of community agency, but also further disempowers community members who are not politically allied with the Sub-Delegate. Moreover, the distribution of compensation through the Sub-Delegate system is arguably a state strategy to dampen the kind of indignation that would lead to organized demands for DRR interventions.

Wealthier adjoining sub-divisions are relatively organized and compete against SMM to be heard by the authorities, advancing their agenda in a way that deepens the stigma that attaches to SMM. Meanwhile, the city's formally constituted CSOs, whose leaders tend to belong to the city's elites, are disconnected from SMM, which is subtly constructed as undeserving of aid.

SMM's lack of organized or enduring CSO activity around DRR is compounded by the routine oppression of women in the community. Women are economic and moral anchor of SMM society yet are routinely subjected to abuse that lessens their ability to participate in activism. Those who do devote time to CSO activity, pay a disproportionate price in relation to their gender. At the same time, as we see in the case of SMM's former Sub-Delegate, that the other-than-usual circumstances of flooding events can allow some women to break out of established patterns of caregiving in order to develop their own agency and self-conviction.

Looking across the Querétaro data set to consider the role of digital technology we see, as in Acapulco, some use of everyday tools such as WhatsApp and Facebook for communication

and coordination during the 2017 disaster. Our focus on SMM illustrates, however, that word-of-mouth communication was the default mode of social interaction during the 2017 flood. However, in spite of deep-set access issues around digital literacy and connectivity, social media have become more pervasive and are used effectively by the Parish to mobilise community members. DRR-focused social media networks set up by the state have allowed more timely communication as well as creating arms-length relationships between SMM and its adjoining sub-divisions. Nevertheless, technology use mirrors, and potentially exacerbates, deeper patterns of social exclusion, with some attempts by members of wealthier subdivisions to prevent SMM residents from entering their social networks. Finally, the city's established CSOs use everyday digital technology in a sophisticated way but they are neither explicitly focused on DRR nor socially/digitally connected to the needs of SMM.

Considering the Querétaro case in relation to Acapulco, we see again the capacity of community members to draw on neighbourly ties, delivering mutual aid and supporting one another in moments of crisis. We see, also, state mechanisms that are dysfunctional and focused on compensation rather than effective DRR. However, we observe in Querétaro a pervasive sense of powerlessness, perhaps wrought by Querétaro's socio-historical roots – here, colonial rather than radical dynamics of civil society hold sway and, compounded by gender-based oppression, grassroots organization is less able to take root. Here, digital technology boosts both positive and negative dynamics, mirroring underlying social inequalities and tensions and deepening divides while also creating some hopeful bridges.

3. ***Puebla***

Our final case study, Puebla, focuses in on a particular mode of CSO that is common in Mexico, involving actors from academic institutions and professional associations. The actions of these bodies are fueled by a social or community work requirement that is built into certain professions, particularly during the initial qualification process. In Puebla, we concentrated mainly on interviewing academics and students from the disciplines of engineering and architecture who organised and/or participated in brigades and reconstruction projects that formed in the wake of the 2018 earthquake. We also spoke with academic experts working on seismic research.

In general terms, this case study illustrates the formal nature in which collaboration between the state and civil society is defined in Mexico. At the same time, it highlights problems and tensions related to validation of CSO activity in the wake of the disaster. Tracing the activity of these organisations and their linkages into communities also affords us some further insight into how the idea of a "deserving" community is constructed pointing, as in Querétaro, to the potential marginalization of certain groups.

Given the certainty of earthquakes in Puebla, this case study also highlights a surprising lack of advance coordination of DRR roles and responsibilities, pointing to a degree of organizational chaos. Respondents note the lack of a disaster prevention culture in Puebla, pointing to a failure to make seismic knowledge actionable and enforceable. This lack of coordination is partly attributed to political regime change, since gains made in forging alliances with government actors are often lost when incumbents are replaced.

Although the Puebla case study focuses on built environment professionals, the digital technology that features still tends to be of the everyday variety – as with our other case studies WhatsApp and Facebook are tools of choice for community organizing and coordination. The Puebla case study shows that such technology offered efficiency and coordination gains to the brigades, but it also had some tendencies to intensify disorganization and, furthermore, it was not able to transcend political or organizational barriers. Expert respondents expressed some interest in sophisticated, purpose-built DRR technology for seismic events and there is a sense that this has not yet been optimally developed in Puebla.

Key themes that emerge from Puebla are, first, the problems that arise when CSOs take on responsibility for DRR without being given authority, noting that lack of coordination was largely damaging but led to some benefits related to 'fuzzy' organisation. Second, we examine related comments surrounding the lack of a prevention culture in Puebla, noting concerns around operationalization and enforceability as well as discussing particular hazards related to self-construction. Third, we comment on how communities deserving of aid are identified, noting the potential marginalization of other groups or individuals in this process. Finally, looking across the data set, we observe how everyday apps boosted volunteer recruitment and coordination but also created unruly surges of interest. We observe that social media greatly facilitated communication in the field but note that, where tensions lay, such media were used to regroup and redirect energy rather than mediate obstacles.

Puebla — Emergent themes

<u>Theme 1: Lack of coordination and authorised roles</u>

During the aftermath of the disaster, brigades of students and professionals were organised by Benemérita Universidad Autónoma de Puebla (BUAP), Universidad Popular Autónoma del Estado de Puebla (UPAEP), the College of Architects and the College of Engineers. These brigades went out into communities and performed basic checks on dwellings and other structures, informing occupants if these were safe or in danger of collapse as well as doing such in Puebla's historic centre. The academics and practitioners who organised the brigades rapidly assembled and trained volunteers, recruiting students who were in the last four semesters of study towards their profession. They also developed procedures, including forms that were completed as part of each inspection, putting protocols in place for triaging serious cases. Each organisation worked in its own way but these efforts, as we will examine later, were loosely coordinated across the institutions using social media and word-of-mouth.

The primary objective of BUAP's aid mission to communities was to provide rapid professional guidance to distressed families who were living outside of their homes for fear of structural collapse or who were still occupying dangerous properties in spite of such danger. There was also a professional commitment to act as a rational, calming voice amidst the fear and misinformation generated by the disaster. As one brigade volunteer put it, "there is a lot of ignorance about earthquakes… There was also a lot of misinformation. So, a lot of people first of all, pardon the expression, panicked." He explains that volunteers tried to defuse some of the panic that had taken hold, noting that a key part of the volunteer role was "first to listen to the people, their fear, [and] to transmit this kind of calmness"[44].

In spite of this important service to communities in the Puebla Metropolitan Area, tensions arose between the brigades and government bodies in relation to the validation of structural damage since this had ramifications for the compensation and reconstruction process. In the case of BUAP, the Secretariat of Agrarian, Territorial and Urban Development (SEDATU) objected to the work that the brigades were doing, arguing that only its staff could make the evaluations. A well-known engineer who was in charge of organising these brigades was incensed by this objection. As he explains, "My argument was that we were not seeking to influence this governmental process, but to establish and give certainty to the inhabitants"[45]. As explored below, this tension between the state and CSOs was linked to an absence of forward planning for coordinated DRR efforts in Puebla, with the state playing an obstructive rather than a facilitating role.

The lack of clear roles and responsibilities in the aftermath was surprising given Puebla's high incidence of earthquakes and the formal inclusion of learned/academic institutions in fora such as Citizen Councils that are intended to facilitate links between government and civil society. Interviewees from these CSOs expressed frustration at the lack of input from the state in conveying appropriate levels of authority to professionals who carried out the inspections. As a representative of the College of Engineers notes, the government did not take an active

[44] Volunteer engineering student from the BUAP brigades (Interview 62).
[45] Engineer who co-organized the BUAP brigades (Interview 59).

role in legitimizing CSOs, arguing that this is needed in future in order to avoid the kind of chaos and tension that followed the 2018 earthquake: “it implies changes in the law, it implies recognition by the legal structures, by the laws of the state. In recognising these types of institutes and empowering them and giving them legality”[46].

Where progress had been made in developing productive relationships with the state, our data shows a concern that this progress was sometimes lost as part of the electoral cycle. As a representative of the College of Architects explains, “Civil Protection has invited us to certain programmes that they are developing, but unfortunately, when there are changes of government, these programmes are suddenly no longer taken up again”[47]. Sometimes, a shift in elected representatives also served as an opportunity to mend relationships. The eminent engineer who organised the BUAP brigades that were squashed by SEDATU notes that relations improved after a subsequent election: “there is already an interrelation with SEDATU in the change of government”[48].

CSO representatives also raised a concern that electoral cycles within their own organisations’ governance structures meant preparation for future disasters might be lost. For example, the College of Engineers have an elected board so that there is a tendency toward regime change similar to that seen in government elections. Interviewees from the board of the College of Engineers noted that, when they hand over to the new board, work and relationships they have forged with other CSO and state actors may be lost. As he explains, “what we hope is that they continue, that the administration, that the next Board of Directors continues to take up these issues so that they do not remain simply as an intention, but that they have continuity”[49].

Inside the organisations themselves and between one CSO and another, activities were relatively coordinated, a process that was facilitated by the extensive use of social media, which is further explored below. However, there was also some chaos at the beginning as organisations struggled internally to deal with the number of volunteers that showed up or externally in trying to divide up work between the different CSOs and government agencies involved. Again, the lack of planning to allocate clear roles and responsibilities beforehand was cited as a problem. As a representative of the College of Engineers commented of the initial moment when volunteers responded to the call for help, “It is good that everyone wants to participate, but there must be preparation and organisation.” He explains that the college initially struggled to accommodate its own volunteers and that also there were issues in working alongside the other CSOs: “we must also recognise that there was a lack of coordination at a general level with other institutions that also participated and it did generate a certain amount of chaos”[50].

Lack of organizational clarity and unclear lines of authority had a largely negative impact. However, it arguably resulted in aspects of “fuzzy” organization that allowed flexible responses and synergistic partnerships to form. As a result of the tensions with SEDATU

[46] Representative of the College of Engineers (Interview 40).
[47] President of the College of Architects (Interview 58).
[48] Engineer who co-organized the BUAP brigades (Interview 59).
[49] Representative of the College of Engineers (Interview 40).
[50] Representative of the College of Engineers (Interview 40).

described above, BUAP ceased its operations in affected communities but was able to redirect volunteer capacity towards an inspection of buildings on its own campus. Here, the brigades worked around an obstruction by the state in an agile way, applying their energies to an evaluation of around 60 university buildings. The lack of strict coordination also led to new alliances forming and a scaling up of activity that followed paths of least resistance. A representative of UPAEP notes that, in the institution's DRR efforts, "one thing led us to another, this led us to another and another to another"[51].

He notes that UPAEP worked collaboratively on reconstruction efforts that involved a host of CSOs and government actors, finding synergistic partnerships that allowed them to get the job done. Such partnerships sometimes involved scaling-up of activity and exposure to new opportunities. For example, through DRR work in the community the UPAEP representative was invited to do project evaluation for Ambulante, a large reconstruction fund, which in turn led to his introduction to innovative technologies that were subsequently used in UPAEP reconstruction projects. He reflects, "at the Ambulante offices, [there were] people from different places, civil organisations, academics, a bit of everything. It was also a very enriching experience, and there I met a guy … who told me: "Hey, you should ask such and such a person about the subject of super adobe"[52].

Theme 2. Absence of a culture of prevention

Some respondents associated lack of clear DRR coordination with a broader failure to develop a culture of prevention in the territory. This is particularly concerning given that the approximate frequency and origin of seismic events that produce most damage to the area is known. As one expert interviewee commented, "the two sources are already entering their return period, so at any moment an event of magnitude 7 could occur… it does cause severe damage in the city of Puebla. So that is one of the latent dangers" [53].

Given the inevitability of such disasters, experts are concerned that insufficient monitoring is carried out. As a heritage researcher focused on seismic damage notes, "in Mexico we don't have a culture of prevention. For earthquakes, simulations are carried out to teach people how to act or respond. However, there is no other culture of prevention in terms of structural damage." She adds that although instruments such as accelerographs can pick up abnormal movement, there is insufficient investment in this area: "It should be monitored constantly, but unfortunately, it's not done. It's often overlooked due to the lack of economic resources"[54]. Her concerns are echoed by a geophysicist who notes that there is insufficient data to be able to predict the frequency of earthquakes more accurately. He is critical of the State of Puebla's risk atlas programme which, he argues, does not include sufficiently fine-grained seismic data to be useful. He reflects, "it was obviously expected that [the municipal risk atlases] would be with a level of detail that would serve to make something much more, let's say, more operative," adding, "the seismic part is not well detailed, that is, it is more descriptive, rather than [written] in some way…that can be used in a construction manual"[55].

[51] Director of Social Innovation, UPAEP (Interview 67).
[52] Director of Social Innovation, UPAEP (Interview 67).
[53] Academic (Geophysicist) working on seismic events (Interview 39).
[54] Heritage Damage Researcher (Interview 24).
[55] Academic (Geophysicist) working on seismic events (Interview 39).

This respondent adds that in order to operationalise risk atlas data for construction manuals, legal and regulatory issues around enforceability need to be tackled. He presses the urgent need to carry out seismic micro-zonings but emphasises that these are meaningless without an appropriate legislative framework. He explains, “it is urgent to have these types of instruments, but they must be well thought out and, above all, integrated into a construction manual.” He adds, “there is no point in just making them and leaving them like that, because another thing, “from the point of view of legislation, from the point of view of standards, the risk atlas is not a standard, that is…if you don't want to, you don't have to do it”[56]. He feels that the lack of enforceable standards means that irresponsible town planning and development practices continue, including multi-storey construction in areas that, due to soil composition, are at risk of seismic wave amplification.

Some respondents argued that, as well as a lack of regulation caused by disorganised or poorly resourced government departments, there had also been an active political agenda to deregulate and de-professionalise the construction sector. Self-construction was identified as a particular area of concern. One of the engineers who volunteered in the BUAP brigades commented that construction by unqualified homeowners using outdated materials and methods had triggered significant damage and injury, particular in poorer, more remote areas outside of the city. Noting that self-build was actively encouraged by the president at the time of the disaster, he comments, “self-construction played against the people and their heritage in the earthquake”[57].

At the same time, there are signs that the government is supporting programmes that promote professional building qualifications. The engineer who co-organised the BUAP brigades is running a programme that tries to discourage unregulated self-construction, delivering training and pathways to professional qualification to bricklayers in at-risk communities. This programme has involved partnership with the government, NGOs and a major private company. He explains, “my action does not go it alone, but is accompanied by a government, by a governmental body, by private initiative, by NGO organisations, even by organisations and society”[58], adding that the ultimate goal of the programme is to put unqualified builders at the doors of the University, allowing them to gain skills and recognition, while also promoting safe construction in Puebla’s municipalities.

While unregulated self-construction with unsuitable materials is antithetical to effective DRR, community-based construction projects supported by CSOs have produced key resilience-building initiatives. These include a high-profile UPAEP home construction project that involved aspects of co-production. This project promoted a resilient alternative to the type of concrete housing that tends to result from government reconstruction efforts, where contracts with large private contractors often lead to poor design standards. The UPAEP students were able to develop a dialogue with the community reconstruction committee of Tepapayeca, developing proposals that were not only aligned to the community’s needs and resources but were also sustainable and liveable. As UPAEP’s Director of Social Innovation

[56] Academic (Geophysicist) working on seismic events (Interview 39).
[57] Volunteer engineering student from the BUAP Brigades (Interview 62).
[58] Engineer who co-organized the BUAP brigades (Interview 59).

explains, this resulted in housing proposals that "did not break with the community so much; that were not these cement shoeboxes"[59].

Theme 3. The social construction of 'deserving' communities

A minor but intriguing point that emerged from the data set is concerned with how communities are identified for DRR initiatives. As we have noted, the Puebla case study focused on a mode of CSO activity that is common in the Mexican context, whereby Universities deliver aid as part of a community service requirement that is also built into the qualification process for certain professions. Tracing the aid and reconstruction processes that such CSOs are engaged in highlighted the way in which recipients of aid are identified, promoting reflection on whether such a process might subtly marginalise other groups.

Here, the reconstruction work carried out by UPAEP provides an instructive example. At UPAEP, brigade organisers felt that, in order to maximise impact and deliver aid in an appropriate way, it was essential to direct their efforts towards communities where there was already a structure that the University could link into. As the Director of Social Innovation comments, having witnessed the chaos generated around the University's collection centre, "Something that we thought was very important was to get to a place where there was a certain degree of organisation.[60]" Efforts thus became focused on an affected area where there was a strong community organisation as well as knowledge of need through the work of current students.

The high-profile home reconstruction project in this community that became a focus of UPAEP activity was centred on a particular family that had expressed interest in the student proposals to build alternative housing. As the Director of Social Innovation explains, this family were both needy and enthusiastically open to new ideas: "We started with this family, with this person who is a great guy, a story of a migrant in the United States for many years, who returns dynamic, enthusiastic and willing to learn"[61]. As mentioned earlier, the family joined the UPAEP student volunteers on a construction journey that was used to promote ideas of sustainable and resilient construction more widely.

UPAEP's approach to working with organised communities makes sense in terms of getting the most out of resources and ensuring that CSO interventions are appropriate to community needs. Arguably, community members who are themselves dynamic, or possess the social and cultural capital that allows them to connect to university-led efforts, are best situated to boost these DRR initiatives. However, this pattern of assistance arguably also produces a tendency to avoid communities where social dysfunction prevails; also, cultural disconnects related to migration or other characteristics may place certain communities out of reach of potential partnership with this kind of CSO. Similarly, individuals who have "attractive" characteristics that resonate with the values of these institutionalised CSOs may have the capacity to attract aid disproportionately, while other community members are marginalised. This observation is somewhat circumstantial and is a minor aspect of the Puebla data set,

[59] Director of Social Innovation, UPAEP (Interview 67).
[60] Director of Social Innovation, UPAEP (Interview 67).
[61] Director of Social Innovation, UPAEP (Interview 67).

however, it adds usefully to similar reflections on the construction of ‘deserving’ status that were made in relation to our Querétaro case study.

Theme 4. Social media create chaos and promote order, reflecting rather than overcoming underlying tensions.

As in Acapulco and Querétaro the technology that was used by CSOs during and after the disaster tended to be of the everyday rather than specialised variety, with a particular preference for WhatsApp. In Puebla, our focus on student brigades highlighted how such technology could be used effectively to recruit volunteers, coordinate efforts and triage information. However, patterns of use also indicate that this technology could not in itself overcome organisational barriers and tensions. As already mentioned, there was also some discussion of purpose-built technology such as sensors and other measurement instruments as part of the expert interviews. However, we focus in this section on the use of everyday mobile apps during the disaster.

In the immediate aftermath of the earthquake, social media were used effectively by CSOs to mobilise huge volunteer response. At BUAP, the engineer who organised the brigades notes that social media were particular useful in recruiting students since they already used such apps routinely as part of university life. As he explains, “It is their normal and natural medium and it is how I involve them. I normally have a lot of interaction with them on Facebook.” The engineer was impressed by the offers of help that the social media calls generated: “young people are very eager to participate and support,” he reflects, “and that is a force that should not be ignored”[62]. He likens the initial response to a wave, noting that students who joined in shared this on their own networks (including Facebook, WhatsApp and Twitter), which meant offers of help grew exponentially, also coming in from graduates and professionals.

While the initial rush of volunteers generated by social media was exciting, brigade organisers were faced with the problem of grouping volunteers into brigades and allocating tasks. As a former BUAP volunteer recalls, “they had us on standby, because there were no logistics for so many brigades, so many personnel”[63]. In the absence of a clear division of labour, social media also generated disarray by causing people to swarm to affected locations. At UPAEP, the Director of Social Innovation who helped organise the University’s brigades notes that reports on social media about where help was needed were generating chaos, so that the university’s collection centre was saturated with help: “We saw that many people arrived at the collection centre in private cars, who wanted to take things wherever they heard on social networks that there was a need, and they all wanted to go. So, it was chaos”[64].

At BUAP, social media were used extensively to help iron out the initial chaos, helping students to form themselves into groups and enabling organisers to assign tasks and communicate what each group was doing. At UPAEP, brigade organisers developed a database to coordinate offers of help, partnering students with staff and matching volunteers’ availability with suitable tasks. As with BUAP, social media were also used extensively in allocating and coordinating tasks. As UPAEP’s Director of Social Innovation comments, “we

[62] Engineer who co-organized the BUAP brigade (Interview 59).
[63] Volunteer engineering student from the BUAP Brigades (Interview 61).
[64] Director of Social Innovation, UPAEP (Interview 67).

made WhatsApp groups for all of us who were working on the reconstruction project and there we agreed on what day we would go, when we would go, who would go, who wouldn't go, all this part of the organization. The logistics of the transfers, that was also resolved by this means"[65].

In the field, social media were useful in coordinating the efforts of different CSOs to avoid duplication of effort. A BUAP brigade volunteer explains that organisations made an ongoing effort to find out about one another's activities using mobile apps, noting that the organisations that participated were in constant communication. He adds that this communication also took place by word-of-mouth in the field where groups from different organisations would come across each other while doing similar kinds of work. However, there was sometimes what one interviewee calls "saturation" of CSOs and agencies such as Civil Protection involved in DRR efforts, leading to very complex communication needs. Given the unplanned way in which roles and activities were being organised, there were limits to the extent to which organisations could avoid overlap and redundancy of effort. Furthermore, as tensions emerged between organisations (such as the conflict between BUAP and SEDATU discussed earlier), digital technologies were used to regroup and redirect efforts than to mediate inter-organisational difficulties.

While conducting evaluations in the field, WhatsApp was invaluable for relaying information, enabling triage of serious cases. As a BUAP brigade member recalls, "for everything related to communication, for everything related to the reports, technology was crucial"[66]. This is echoed by another brigade member who describes how WhatsApp enabled the brigades to receive evaluation requests accompanied by photos, which helped them to prioritise dwellings to focus on in a given day's allocation. WhatsApp was used in a similar way between organisations. For example, volunteers from the College of Architects would send photos back to Civil Protection representatives who would then make the call on whether there was a need for eviction.

Although these apps were often effective in enabling rapid communication from affected locations, connectivity issues also hampered use of mobile technology resulting sometimes in recourse to less direct methods. The engineer who co-organised the BUAP brigades comments that in remote communities digital tools that could work offline were essential: "We then got to know the tools, especially the offline tools…and we began to have tools that would help us, especially GPS, in communities where there is no internet and no signal"[67]. In this situation, volunteers would take photos and gather such information offline to be uploaded to the cloud when they returned to an area with a signal.

Apps also sometimes took the place of traditional tools that were in short supply. For example, one of the BUAP volunteers explains that he used a phone app in place of a conventional spirit level when conducting evaluations. Reflecting on measurement tools for use in the field, interviewees expressed interest in emerging technologies that might have augmented their ability to gather accurate and detailed information in the field. One

[65] Director of Social Innovation, UPAEP (Interview 67).
[66] Volunteer engineering student from the BUAP Brigades (Interview 61).
[67] Engineer who co-organized the BUAP brigades (Interview 59).

respondent was particularly keen about future investment in such technology as part of an effective DRR strategy: “there are many more technological devices that could have helped us more, for example, the use of drones, the use of scanners…a whole generation is already using technology more and that is what we should do”[68].

Summary

Our Puebla case study focuses on a particular mode of CSO activity, involving brigades from universities and learned societies that were very active during the aftermath of the 2018 earthquake. This data set reveals a lack of clear roles and responsibilities and, in particular, a failure on the part of government to legitimise CSO actors who were performing important DRR functions. The testimony of engineers and architects from these brigades, as well as that of academics working on seismic research, draws attention to the surprising inattention of the state to coordination and forward planning.

In spite of constitutional arrangements that bring together state actors with these institutional CSOs, we observe that these actors largely organised themselves in the moment, relying on constant communication to avoid redundancy and overlap of effort. Tensions with the state that arose over validation and legitimate authority to carry out inspections resulted in CSOs regrouping and directing their efforts elsewhere. While the lack of fixed roles and responsibilities was mostly harmful, it also appears to have rewarded organisational agility, leading to synergistic alliances and knowledge flows. The election cycle appears to disrupt progress in DRR forward planning and coordination but agile CSOs appear poised to find new ways of working with the state wherever such opportunities arise.

Expert interviewees lamented the absence of a culture of prevention, noting the inevitability of major seismic events in the region. Here, lack of investment in continuous monitoring was cited as a major concern, as well as insufficiently detailed gathering of seismic data. However, beyond measurement, great emphasis was placed on the need to operationalise existing data as part of construction manuals, creating enforceable standards. Here, political will was seen as lacking and respondents were concerned that a neoliberal planning system focused on deregulation was expanding development into areas of elevated seismic risk. Self-construction using inappropriate methods and dangerous materials was seen as a particular danger, especially in more remote communities. The data suggest on the one hand, that self-construction has been promoted as part of a political agenda, but there are also some indications that the government is working with CSOs to promote routes to safer construction. While unregulated construction efforts appear to damage resilience, CSO-led, community-based construction projects have challenged conventional, “concrete shoebox” reconstruction practice, promoting sustainable, liveable alternatives.

Our exploration of how the brigades operated afforded an interesting observation that add to earlier insight from the Querétaro case around how ‘deserving’ communities are socially constructed. In the Puebla case, a focus on organised communities and “go-getter” individuals that match the values of institutional CSOs was seen as an effective way to boost DRR

[68] Volunteer engineering student from the BUAP Brigades (Interview 61).

initiatives and create impact tailored to community needs. However, we also highlighted, albeit rather circumstantially, the possibility that this practice may have marginalising effects.

Everyday digital technology plays a significant role in our Puebla case study, and its value in recruiting and organising volunteers is lauded. However, its tendency to create unruly waves of would-be helpers is also highlighted by respondents. Here, supplementing social media's chaotic tendencies with a centrally administered database was felt to be effective. In the field, social media allowed swift reporting and triage of cases both within and between organisations. However, where no signal was available, rapid communication was not possible and offline technologies and tools proved more useful. State and civil society organisations relied on social media to help avoid duplication of effort, although given the spontaneity and logistical complexity involved, this was not always achieved. In the face of shortages of traditional measurement tools, mobile phone apps served a range of functions, including as GPS devices and levels. Finally, respondents were keen to see future investment in portable scanners and drones to enhance their ability to work effectively in the field.

Overall, digital technology facilitated the ability of CSOs to organise rapidly in the face of the disaster but the case study points to underlying organisational problems and tensions with the state as well as systemic flaws related to deregulation and de-professionalisation that such technologies cannot address.

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